4.5 million HIV copies, Right Eye Blindness and Bilateral Sensorineural Deafness

Karim Richard Masri, M.D. and Donna Sweet, M.D.

Introduction

The Human Immunodeficiency Virus is an infection that has in the past bewildered the academic and clinical realm. It is the great imitator. It has the propensity to manifest in a wide array of ailments. Neurologic manifestations may present as dementia, blindness, deafness, and other neuropathies. Highly Active Antiretroviral Therapy (HAART) has been developed which may or may not reverse organic pathologies.

Case

A 29-year-old white male diagnosed with HIV in 2008 but who did not follow-up for care, presented with acute profound bilateral hearing loss and complete right vision loss. HIV viral load was 4.5 million copies and CD4 was 86. AIDS was diagnosed. Extensive cerebrospinal fluid analysis was non-diagnostic.

Neuroimaging

- Normal CT and MRI/MRA of the head
- MRI orbits were questionable for bilateral optic neuritis but a follow-up MRI was normal

Lumbar puncture

- Opening pressure was 7 cm H2O
- Protein - 84 mg/dL
- WBC - 4 X 10^9/L - 80% lymphocytes
- Negative VDRL, HSV, CMV, Cryptococcus, JC virus, histoplasma, WNV, and multiple sclerosis panel

Sensory Testing

- Ophthalmologist consult was normal.
- ENT consult supported severe bilateral sensorineural hearing loss.
- EMG lower extremity showed primary muscular nerve demyelination sparing sensory fibers.
- Sural nerve biopsy showed no neuropathy

The patient was started on HAART therapy, PJP prophylaxis, and received high dose pulse steroid therapy and taper. Viral load after three weeks of treatment was 1900 copies/mL. The patient did not regain his right eye vision loss or his hearing.

Discussion

Although, no definite etiology can explain this patient's presentation, we presume HIV itself may be the causative entity due to the high viral load. It is uncertain if HIV-induced demyelination of the optic and vestibulocochlear nerve, which was not detected by MRI, occurred or an underlying direct HIV organ damage of the right eye and bilateral middle and inner ear manifested. On patient follow-up, his lost senses were not regained despite a marked decrease in viral load. A close outpatient follow up is ensuing and his viral load is undetectable with a rise in CD4.

Reference

Cunningham ET Jr, Margolis TP. Ocular Manifestations of HIV Infection. N Engl J Med 1998; 339:236-244.

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A CASE OF DVT REVISITED

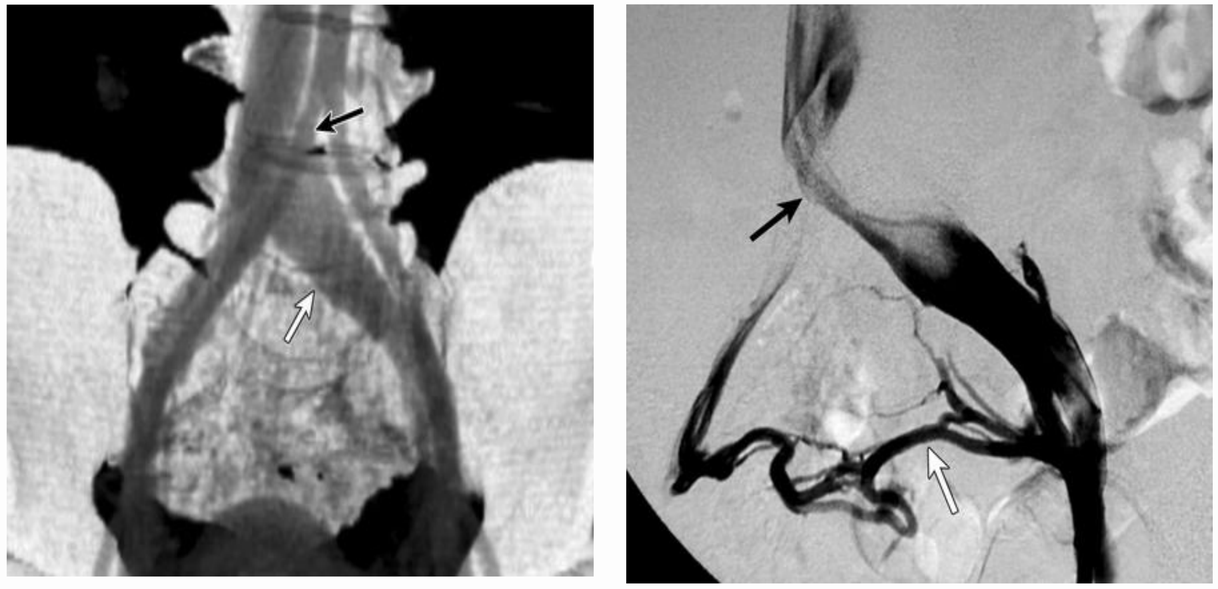
Dina Corbin, MD; Boutros El-Haddad, MD

Introduction

- **May-Thurner Syndrome** is an uncommon condition characterized by **the compression of the left common iliac vein by the right common iliac artery** against the fifth lumber vertebra.
- Chronic compression results in intimal hyperplasia leading to stenosis and increased incidence of DVT and the risk increases in young women on oral contraceptives.
- The prevalence in patients undergoing evaluation for venous disorders is 2-5%, mostly in women between second and fourth decades.

Presentation

- A 32 year-old woman on oral contraceptives presented with DVT of the left popliteal vein. Anticoagulation was started and she was discharged on warfarin.
- Days later, while INR was therapeutic. A repeat ultrasound showed DVT extension to the femoral vein. Venogram showed left popliteal, femoral, and left common iliac vein thrombosis.
- Thrombolytic was given. Repeat venogram showed almost complete resolution of the thrombus. She went home on warfarin.
- Two weeks later, and while INR was therapeutic, a Doppler ultrasound showed popliteal DVT. Hypercoagulable workup was negative as well as work up for malignancy. An IVC filter was placed.
- Angioplasty and stenting of the left common iliac vein was done. The patient was kept on low-dose aspirin and discharged on warfarin. The six-month follow-up venogram was negative for DVT.



A CT scan (left) and venogram (right) showing compressed left common iliac vein (black arrow).

Discussion

- Diagnosis of May-Thurner Syndrome is usually made by venography and/or intravenous ultrasound.
- Screening prior to prescribing oral contraceptives is not routinely recommended.
- Anticoagulation therapy alone is not very effective.
- Treatment includes catheter-directed thrombolysis and mechanical thrombectomy with endovascular stent placement.
- **We recommend screening in young patients with DVT who failed anticoagulation and have negative hypercoagulable work-up.**

References

1. Murphy EH, et al. Symptomatic ileofemoral DVT after onset of oral contraceptive use in women with previously undiagnosed May-Thurner Syndrome. J Vasc Surg 2009; 49:697-703.
2. Jeon UB, et al. May-Thurner syndrome complicated by acute iliofemoral vein thrombosis: helical CT venography for evaluation of long-term stent patency and changes in the iliac vein. AJR Am J Roentgenol 2010,195:751-757.
3. Loukas M, et al. A case of May-Thurner syndrome. Case report. Folia Morphol 2008; 67(3):214-217.

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A Lump in My Gut: Palpable Right Upper Quadrant Mass in a Patient with Acute Pancreatitis

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University of Kansas Medical Center

Background

- Acute pancreatitis is a common medical condition
- Several uncommon and potentially fatal sequelae
- Correct and timely diagnosis necessary to prevent potential serious complications
- This case illustrates a gastroduodenal artery (GDA) pseudoaneurysm with fistula to the portal vein, a rare and potentially fatal complication of pancreatitis

Case Description

Chief Complaint

- 2 day history of nausea, vomiting, and epigastric abdominal pain radiating to the back
- Walnut-sized mass in his right upper quadrant (RUQ) for 1 month that has been enlarging

History of Illness

- 62 year old Caucasian man
- Nausea, vomiting, and abdominal pain started after weekend of binge drinking – has been improving
- RUQ mass presented shortly after recent hospitalization 1 month ago for alcohol-induced acute pancreatitis – treated conservatively
- Mass is non-tender, but has been enlarging over the past month

Prior History

- No medical problems aside from recent hospitalization for acute pancreatitis
- No prior surgeries and no medications or allergies
- Drinks >6 drinks/day 2-3 times a week

Background

Physical Exam

- Severe abdominal pain in the epigastric region radiating to the back without rebound or guarding
- Firm, palpable 4x4 cm mass on the medial border of RUQ with faint bruit
- No other significant exam findings present

Labs/Imaging

- New anemia with hemoglobin of 9.9 g/dL
- Liver function tests were within normal limits
- Mildly elevated lipase of 83 U/L
- CT abdomen: 1) inflammation and fat stranding around pancreas 2) possible vascular mass at or near the gastroduodenal artery

Initial Management

- Patient was treated for acute pancreatitis with conservative medical management - IV fluids, pain control, and kept NPO
- CT angiography (CTA) to assess possible vascular lesion
- CTA findings: 4.4 x 4.0 x 4.0 cm pseudoaneurysm of gastroduodenal artery (GDA) with fistula to portal vein
- Patient underwent urgent percutaneous embolization of lesion – correcting both the large pseudoaneurysm and fistula

Hospital Course

- Diet was advanced without difficulty
- Hemoglobin remained stable throughout hospitalization
- Patient was discharged after 24 hours without complications

Images

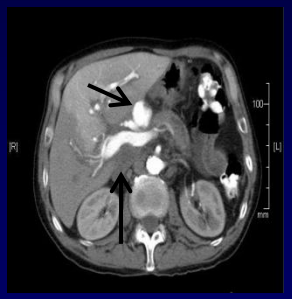


Figure 1: CTA of large GDA pseudoaneurysm with fistula to the portal vein

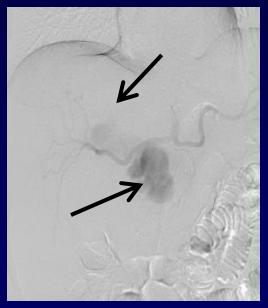


Figure 2: Mesenteric angiography of GDA pseudoaneurysm with arterioportal fistula

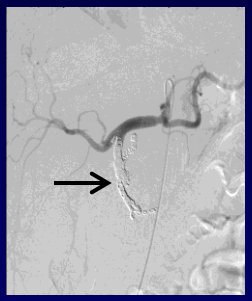


Figure 3: Angiography of repaired GDA pseudoaneurysm and fistula via intravascular coils

Discussion

Pseudoaneurysms in Pancreatitis

- Rare complication - estimated to occur in ~3.5% of pancreatitis cases
- Typically take 4-6 weeks after acute pancreatitis to develop
- Increased incidence after moderate or severe pancreatitis with peripancreatic inflammation and fluid collection
- Most commonly in splenic artery (30%) followed by GDA (30%), PDA (20%), and gastric artery (5%)

Presentation

- Bleeding is most common: ranging from asymptomatic anemia due to slow bleed to massive, fatal hemorrhage
- Abdominal pain from local enlargement of lesion
- Rarely presents with palpable mass and bruit

Diagnosis / Treatment

- CT angiogram is initial diagnostic test of choice
- Mesenteric angiography required to confirm diagnosis
- Initial treatment with intravascular coiling, but surgery may be required if large bleed or bleeding not controlled

Complications of Pseudoaneurysms

- Bleeding: "Herald bleed" can occur hours to days before massive hemorrhage – most concerning complication
- Fistula formation: rare, but often leads to further long-term complications if not identified early

Complications of Arterioportal Fistulas

- Hepatic congestion: pre-hepatic portal hypertension, ascites, variceal bleeding, and ultimately cirrhosis
- Hemodynamic imbalances from large fistula: high-output heart failure and intestinal ischemia from the shunt

A Rare Case of Idiopathic Ovarian Vein Thrombosis

Shauna Kern, DO and Jill Hanrahan, MD

Introduction

Ovarian vein thrombosis most commonly occurs in the postpartum period. The incidence ranges from 1 in 600 to 1 in 2000 deliveries. Other associations include malignancy, surgery, pelvic inflammatory disease, sepsis, and hypercoagulable states. This condition can have potentially dangerous complications including pulmonary embolism, sepsis, extension into the inferior vena cava or renal veins, and ovarian infarction.[2] For these reasons, it is important to include ovarian vein thrombosis in the differential diagnosis for abdominal pain.

Case History

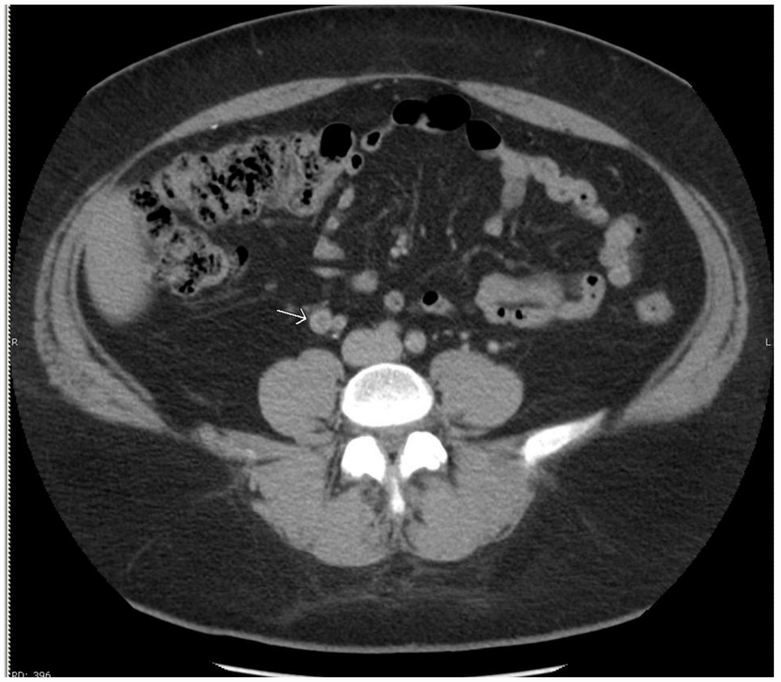
A 34-year-old Caucasian female with history of impaired glucose tolerance and depression presented with a one-week history of right-sided low back pain. She also reported nausea and lower abdominal cramping.

She reported no recent surgeries, no use of birth control, and her family history was unknown due to being adopted.

Pertinent exam findings included tenderness to palpation in the right lower back and right lower quadrant. A pelvic exam was normal.

Initial basic laboratories and pelvic swabs were unremarkable. However, CT of the abdomen/pelvis with contrast revealed a right ovarian vein thrombosis.

The patient was treated with warfarin for 6 months. Upon completion, further testing showed no evidence of a hypercoaguable state.



CT scan depicts an enlarged right ovarian vein with a filling defect indicative of ovarian vein thrombosis.

Discussion

This case involved none of the usual associations with ovarian vein thrombosis. In searching the literature, only three cases of idiopathic ovarian vein thrombosis have been noted, including one each in Turkey, the United States, and New Zealand.[1]

The most common presenting signs are fever and right iliac fossa pain. Lower abdominal pain and/or a palpable abdominal mass may be present on exam.[2] CT and MRI may help to confirm the diagnosis. Ultrasound does not always clearly demonstrate thrombosis in the ovarian vein.[1]

Six months of anticoagulation is the standard treatment in all reported cases. Repeat imaging is useful to assure resolution of the clot.[2]

References

1. Stafford, M. Idiopathic Ovarian Vein Thrombosis: A Rare Cause of Pelvic Pain - Case Report and Review of Literature. Austrailian and New Zealand Journal of Obstetrics and Gynecology. Volume 50(3): 299-301. June 2010.
2. Yildirim, E. Isolated Idiopathic Vein Thrombosis: A Rare Case. International Urogynecology Journal. Volume 16; 308-310. 2005.

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A TALE OF TWO HYPOGLYCEMICS

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OBJECTIVE

To understand the work up of hyperinsulinemic hypoglycemia by comparing two cases of very different etiologies.

INTRODUCTION

Hypoglycemia in the absence of glucose lowering medications is uncommon. The first step in evaluating hypoglycemia is to confirm fulfillment of Whipples' triad. Standard hypoglycemic labs then must be obtained when the glucose is <55mg/dL. Data obtained at the time of a hypoglycemic event allows for determination of the etiology. We present two different cases of hyperinsulinemic hypoglycemia.

CASE PRESENTATION

Case 1: A 38 year old female presented with a 10-year history of light headedness if she skipped meals. Additional symptoms included fatigue, irritability and forgetfulness most prominent in the early morning hours. On self monitoring of blood glucose, she obtained fasting glucose values of 43mg/dL to 54mg/dL. She was admitted for a 72 hour fast with lab findings seen in Table 1. In light of concern for an insulinoma, a CT of the abdomen (Figure 1) was obtained which revealed a briskly enhancing mass within the pancreatic head measuring 1.1 x 1.4 cm. Enucleation of this insulinoma was successfully performed with resolution of hypoglycemia.

Case 2: A 41 year old female with a long standing history of diabetes mellitus type 2 requiring insulin was admitted with hypoglycemia. Due to persistent hypoglycemia despite stopping all exogenous insulin use, a hypoglycemic evaluation was undertaken and labs are seen in table 1. Her lab work was consistent with surreptitious administration of insulin. This patient's hypoglycemia resolved after we reviewed our findings with her and addressed our concern for factitious hypoglycemia.

	Glucose	C-Peptide	Insulin	BOHB*	OHP**
Case 1	41 mg/dl	1.3ng/ml	6.6 mcu/ml	Not done	Negative
Case 2	45 mg/dl	0.5ng/ml	71.8 mcu/ml	0.1 mmol/l	Negative

Table 1. Hypoglycemic laboratory evaluation. *ß-hydroxybutyrate * Oral Hypoglycemic Panel

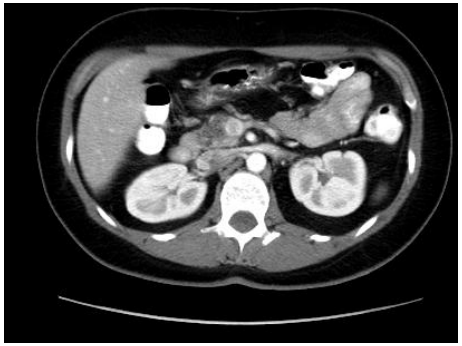

Figure 1. CT scan with briskly enhancing mass within pancreatic head.

	Glucose	C-peptide	Insulin	OHP
Insulinoma	↓	↑	↑	–
Exogenous insulin	↓	↓	↑	–
SU overdose	↓	↑	↑	+

Table 2. Comparing laboratory work up of different types of hyperinsulinemic hypoglycemia

REFERENCES

1. Cryer PE, Axelrod L, Grossman AB, et al. Evaluation and management of adult hypoglycemic disorders: an Endocrine Society Clinical Practice Guideline. J Clin Endocrinol Metab 2009; 94:709.
2. Mathur A, Gorden P, and Libutti SK. Insulinoma. Surg Clin N Am 2009; 89 1105-1121
3. Service FJ. Hypoglycemic disorders. N Engl J Med 1995; 332:1144.

COMPONENTS OF EVALUATION

History

It is important to confirm presence of hypolgycemia prior to an extensive laboratory evaluation. This is done by the documentation of Whipple's triad:

- symptoms consistent with hypoglycemia
- with a concomitant low plasma glucose level
- relief of symptoms with treatment of hypoglycemia

Laboratory Evaluation

Once hypoglycemia is confirmed, a structured laboratory evaluation should be undertaken at the time of hypoglycemia to include:

- glucose
- insulin
- c-peptide
- proinsulin
- beta-hydroxybutyrate
- oral hypoglycemic panel

The differential for hyperinsulinemic hypoglycemia includes endogenous hyperinsulinemia (i.e insulinoma; nesideoblastosis), exogenous insulin exposure, oral hypoglycemic agents, and rarely, insulin antibodies. See figure 2 for interpretation of laboratory evaluation in hyperinsulinemic hypoglycemia.

CONCLUSION

Hypoglycemia not related to the management of diabetes mellitus is rare. A structured laboratory investigation at the time of an event is necessary to appropriately evaluate and then subsequently manage hypoglycemia.

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Acute renal failure in the setting of “low-risk” therapy for mesothelioma

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Introduction

Chemotherapy for malignancy is fraught with potential side effects and complications. In choosing a chemotherapy regimen, the physician and patient must consider the risks, benefits, and individual patient goals. Some patients seek the services of integrative medicine which offers alternative therapies, such as high dose Vitamin C for malignant mesothelioma, but these too are not without risk.

Case Presentation

A 77 year-old male with a history of asbestos exposure and malignant mesothelioma was transferred from an outside hospital after presenting with pleuritic pain and acute on chronic renal failure with a creatinine of 10.01.

- Mesothelioma was diagnosed one year prior. At diagnosis, he declined aggressive chemotherapy due to risk of toxicity and opted for high dose Vitamin C infusion with nutritional therapy.
- The patient was critically ill on presentation with a severe anion gap metabolic acidosis with underlying metabolic alkalosis. His creatinine was 10.01 (baseline one month prior 1.97) and BUN was 104.
- The etiology of the patient's acute onset of renal failure was initially unclear, and a diagnostic workup ensued.
- Urine electrolyte analysis was consistent with an intrinsic pathology.
- Microscopic evaluation revealed oxalate crystals (example shown on Figure 1).
- Ultrasound with bilateral calculi and increased echogenicity was consistent with oxalate deposition. (Figure 2)
- These findings were consistent with high dose Vitamin C toxicity as no alternative ingestion causing oxalate crystals was identified.
- Unfortunately, his clinical situation deteriorated over the hospital course. A CT of the chest revealed progressive mesothelioma, and his renal failure was irreversible. Hypoxic respiratory failure secondary to hypervolemia resulted. The patient declined dialysis and switched his goals to pure palliation.

Oxalate Crystals

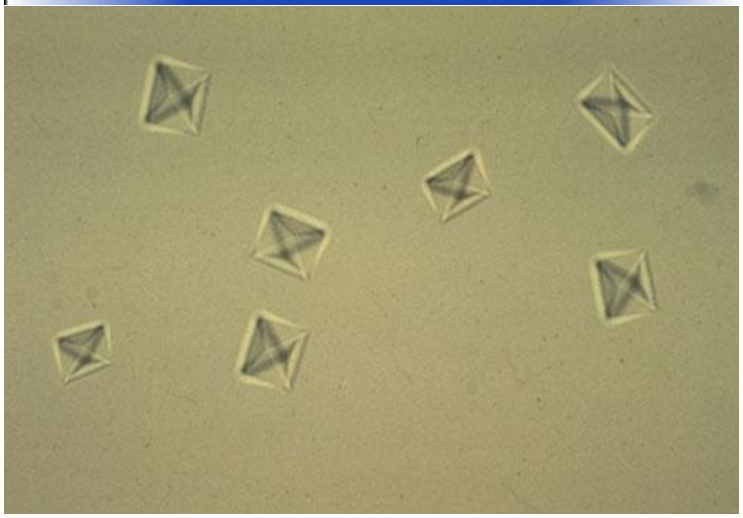

Figure 1: Example of rhomboid-shaped oxalate crystals as found in this patient.

Renal Ultrasound

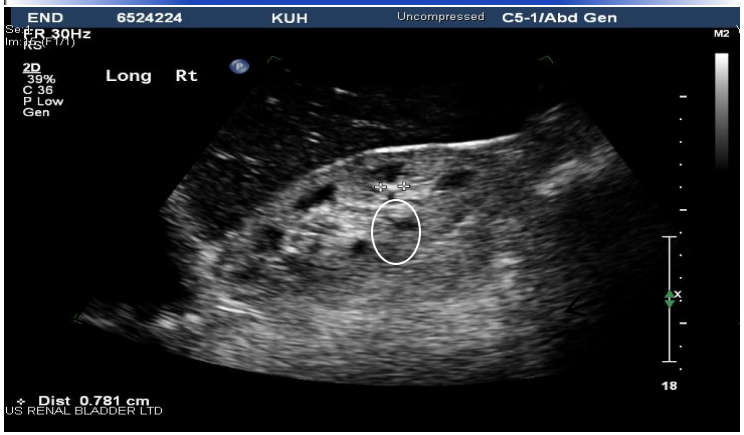

Figure 2: Right renal US with calculi (marked by circle) and increased renal cortical echogenicity.

Discussion

- High dose Vitamin C therapy has been studied in the treatment of multiple disease processes, including advanced malignancies.
  - Vitamin C has been shown to increase host resistance through boosted immunity.
  - The clinical benefit of high dose Vitamin C in malignancy is mixed.
  - Active clinical trials are ongoing including a weekly 50 gram Vitamin C infusion study in which our patient was enrolled.
- Although nutritional therapies are seemingly less toxic than traditional chemotherapy options, they are not without risks.
  - High dose Vitamin C has been shown to induce calcium oxalate stone formation resulting in hyperoxaluria.
  - The mechanism of action is a conversion of ascorbate to oxalate leading to hyperoxaluria.
  - The use of Vitamin C in dialysis patients is controversial.
  - Hyperoxaluria has been demonstrated at doses of 1-2 grams of Vitamin C daily.

Conclusion

Although this therapy is generally well tolerated, caution should be taken when using high dose Vitamin C in patients with renal failure as toxicity from oxalate deposition is more likely to occur. In combination with the findings of the previous case report, this case produces further evidence that oxalate deposition is a potential adverse effect that can have detrimental outcomes.

References

1) Rathi S, William K, Lau K. Vitamin C-induced hyperoxaluria causing reversible tubulointerstitial nephritis and chronic renal failure: a case report. *Journal of Medical Case Reports*. 2007; 1: 155.
2) Costellow JF, Sadovnic MJ, Cottington, EM. Plasma oxalate levels rise in hemodialysis patients despite increased oxalate removal. *Journal of the American Society of Nephrology*. 1991; 1(12):1289-98.
3) Creagan E., et al. Failure of High-Dose Vitamin C (Ascorbic Acid) Therapy to Benefit Patients with Advanced Cancer. *New England Journal of Medicine*. 1979; 301: 687-690.
4) Auer, Auer, Rodgers. Relative hyperoxaluria, crystalluria and haematuria after megadose ingestion of vitamin C. *European Journal of Clinical Investigation*. 1998: 28(9): 695-700.
5) Assimos D. Vitamin C Supplementation and Urinary Oxalate Excretion. *Reviews in Urology*. 2004; 6(3): 167.
6) Moertel C., et al. High-Dose Vitamin C Versus Placebo in the Treatment of patients with Advanced Cancer Who Have Had No Prior Chemotherapy. *The New England Journal of Medicine*. 1985; 312: 137-141.
7) Figure 1: Oxalate crystals. http://panji1102.blogspot.com/2009/11/urinalysis-crystals-cast.html

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ADULT ONSET CNS LANGERHANS CELL HISTIOCYTOSIS: EARLY DIAGNOSIS MAY PREVENT PERMANENT PANHYPOPITUITARISM

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OBJECTIVE

To emphasize the importance of early suspicion and detection of CNS Langerhans Cell Histiocytosis (LCH) in a symptomatic patient with Diabetes Insipidus (DI) and discuss the evolution, progression and treatment of CNS LCH.

INTRODUCTION

LCH is a rare disease with an annual incidence of 3-5 cases per million. It is characterized by aberrant proliferation of specific dendritic (Langerhans) cells belonging to the monocyte-macrophage system. These cells can infiltrate virtually any organ without necessarily inducing dysfunction. LCH shows a particular predilection for involvement of the Hypothalamo–Pituitary Axis (HPA), leading to DI. The incidence in adults may be underestimated due to the fact that many cases likely remain undiagnosed.

CASE PRESENTATION

A 53 year old post-menopausal female presented to her primary care physician with complaints of headache and blurry vision for 2-3 months. MRI of the brain revealed a lobulated enhancing mass centered in the suprasellar location measuring 2.8 cm (AP) x 2.4 cm (Transverse) x 1.6 cm with hyper intensity on FLAIR (see fig 1). During this time frame the patient was diagnosed with hypothyroidism. A review of systems revealed that the patient had polyuria, compensated with polydipsia for a few years preceding the headache. MRI guided right fronto-temporal craniotomy with biopsy was performed during hospitalization. Prior to the biopsy, her sodium was normal (140 mmol/L). Post-operatively, while in the recovery room, the patient was noted to have greater than 800 ml of urine output over the course of three hours. Overnight, the patient developed respiratory failure and was intubated. In the interim she had a urine output of approximately nine liters over a 12 hour period, and as a result, her serum sodium increased to 166 mmol/L. Endocrinology was then consulted to manage her DI. Patient was initially treated with DDAVP 1 mcg subcutaneously every eight hours with resultant improvement in her polyuria. Fluids were replaced first with a combination of quarter Normal Saline and Half Normal Saline with free water via naso-gastric feeding tube and later with Half-normal saline only. Her serum Sodium normalized (145 mmol/L) in 48 hours. The biopsy findings revealed LCH (see fig 2). Peri-operatively, she had received dexamethasone. Additional work up revealed panhypopituitarism (see table 1). Dose of levothyroxine was increased to 112 mcg (from 50 mcg pre-op) by mouth daily. Physiological hydrocortisone replacement was started at 20mg in the morning and 10mg in the evening.

DI was managed with DDAVP 0.2 mg by mouth twice daily. Oncology was consulted who recommended chemotherapy (Cladarabin) as outpatient Currently she has completed treatment with Cladarabin with more than 33% shrinkage in tumor size and mass symptoms.

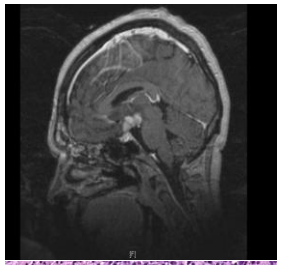

Fig1. MRI of the brain showing the lobulated enhancing mass centered in the suprasellar location measuring 2.8 cm (AP) x 2.4 cm (Transverse) x 1.6 cm with hyperintensity on flare.

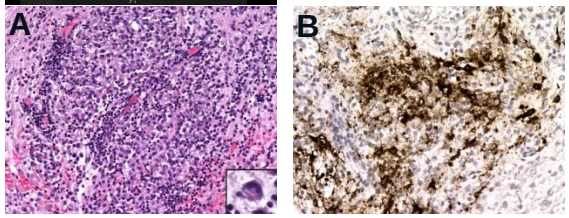

Fig 2. A) A biopsy from the suprasellar mass contained patchy areas of a cellular lymphohistiocytic infiltrate, including scattered Langerhans cells with typical C-shaped nuclei (lower right, insert; hematoxylin and eosin, original magnification x200) along with a few small CD20 positive lymphocytes among the numerous T-cells (not pictured). B. Numerous Langerhans cells were also confirmed immunohistochemically (anti-CD1a, original magnification x200).

Cortisol-AM	Latest Range: 6.7-22.6 MCG/DL	1.0
FSH	No range found	0.7
Luteinizing Hormone	No range found	0.2
T4-Free	Latest Range: 0.6-1.6 NG/DL	1.0
TSH	Latest Range: 0.35-5.00 MCU/ML	0.070 (L)
T3-Free	Latest Range: 2.1-3.9 PG/ML	2.6

Table 1: Post-op pituitary hormonal work up revealing panhypopituitarism.

DISCUSSION

•LCH is rare in adults and most often presents with symptoms related to bone, lung and skin.
•Our case is unique as her symptoms are related only to pituitary involvement.
•Despite being symptomatic for years, the patient was diagnosed only after the suprasellar lesion exhibited mass effect, leading to further work up. By this time, she had lost both anterior and posterior pituitary function.
•The mean time from symptomatic onset to diagnosis of DI is 6.25 years and from DI to anterior pituitary involvement is 5 years.
•MRI guided biopsy is needed for definitive diagnosis.
•Chemotherapy decreases the size of tumor, but does not necessarily reverses DI.

CONCLUSION

•Delay in diagnosing LCH as a cause of DI is in part due to very low incidence of LCH, particularly in adults.
•This case highlights the importance of including LCH as the etiology of DI.
•An increased awareness could lead to possible early diagnosis and treatment.
•High index of suspicion, early diagnosis, and treatment of LCH in cases of central DI in adults may prevent development of panhypopituitarism

References:

1. Willman LC, Busque L, Griffith B, et al. 1994 Langerhans'-cell histiocytosis (histiocytosis X)–a clonal proliferative disease. N Engl J Med. 331:154–160.

2. Arico, M. and Egeler, R.M. (1998) Clinical aspects of Langerhans cell histiocytosis. Hematol. Oncol. Clin. North Am. 12, 247–258

3. Broadbent, V. et al. (1994) Langerhans cell histiocytosis – clinical and epidemiological aspects. Br. J. Cancer Suppl. 23, S11–S16

4. Kaltsas, G.A. et al. (2000) Hypothalamo–pituitary abnormalities in adult patients with Langerhans cell histiocytosis: clinical, endocrinological, and radiological features and response to treatment. J. Clin. Endocrinol. Metab. 85, 1370–1376

5. Haupt, R. et al. (2004) Permanent consequences in Langerhans cell Histiocytosispatients: a pilot study from the Histiocyte Society–Late Effects Study Group. Pediatr. Blood Cancer 42, 438–444

6. Nanduri, V.R. et al. (2000) Growth and endocrine disorders in multisystem Langerhans' cell histiocytosis. Clin. Endocrinol. (Oxf.) 53, 509–515

7. Polyzois Makras, et al. (2007) Endocrine manifestations in Langerhans cell histiocytosis

8. Garcia Gallo, M.S. et al. (2010) Endocrine manifestations of Langerhans cell histiocytosis diagnosed in adults.
9. Kobayashi TK, et al (2007) Langerhans cell histiocytosis of the skull on cytologic squash preparations. Diagn Cytopathol 35(3):154–157

10. Shinmi K, Nagai Y, et al. (2007) Adult case of Langerhans cell histiocytosis. J Dermatol 34:275–277

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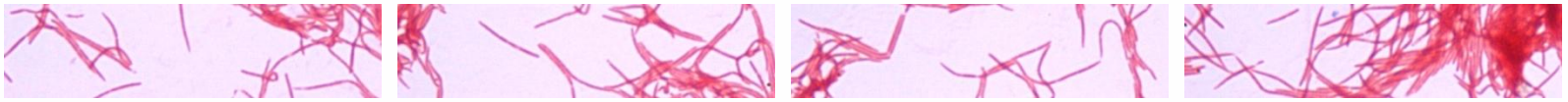
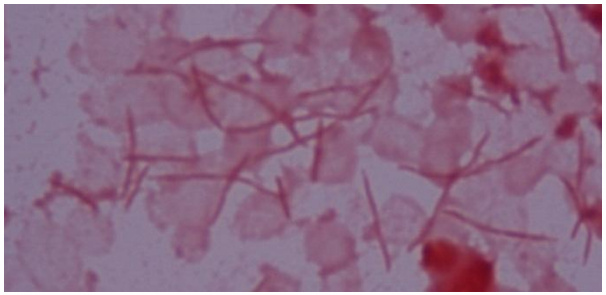
AN EMERGING PATHOGEN? *LEPTOTRICHIA TREVISANII* SEPSIS IN FEBRILE NEUTROPENIA

Jennifer Schrimsher MD, Marsha Wilson MT, Dana Hawkinson MD, Stephen Waller MD, Joseph McGuirk DO and Daniel Hinthorn MD



Introduction: Leptotrichia spp. were the initial microbes seen by van Leeuwenhoek in 1683. Only recently have Leptotrichia been recognized as pathogens. Little information is available in the literature. These aerotolerant, anaerobic, fusiform gram negative rods are normal flora of mouth, GI tract and vagina. Neutropenic patients with mucositis have been known to develop *L. buccalis* sepsis, but recently *L. trevisanii* has been shown to cause sepsis in this setting. Timely recognition allows effective treatment, but clinician and microbiologist suspicion is required due to conventional identification difficulties and delays with 16S rRNA sequencing. Currently, there are only two published case reports of *L. trevisanii* bacteremia. We recently identified four patients with Leptotrichia bacteremia over the past year; two of which were *L. trevisanii* and are described here.

Case reports: *Patient 1*, a 63 year-old with IgGκ multiple myeloma, was treated with melphalan and autologous stem cell transplantation (SCT). On day 8 post-SCT, he developed mucositis and febrile neutropenia while on levofloxacin. Blood cultures were drawn and grew anaerobic GNR two days later. He remained intermittently febrile despite line removal and treatment with meropenem and vancomycin. Six days later, he was again febrile and was switched to ertapenem with resolution of fever. *L. trevisanii* was identified on day 9 by16S rRNA sequencing. *Patient 2*, a 56 year-old with myelodysplastic syndrome, had a matched sibling donor SCT. Eight months later, she developed acute myelogenous leukemia. After induction therapy, she developed mucositis and febrile neutropenia while on levofloxacin. Blood cultures grew *L. trevisanii*, again confirmed by 16S rRNA sequencing. She remained afebrile after line removal and treatment with cefepime.



Discussion: Leptotrichia spp. may cause up to 16% of anaerobic bacteremias in patients with hematologic malignancies. Leptotrichia spp. are generally resistant to quinolones, a mainstay of antibacterial prophylaxis in neutropenic patients. Delays in identification require early suspicion for initiation of effective therapy, especially in the febrile, neutropenic patient with mucositis.

References:
Eribe ERK, Olsen I. Leptotrichia species in human infections. Anaerobe 2008; 14: 131-137.
Blairon L, De Gheldre Y, Delaere B, Sonet A, Bosly A, Glupczynski Y. A 62-month retrospective epidemiologial survey of anaerobic bacteraemia in a university hospital. European Society of Clinical Microbiology and Infectious Diseases 2006; 12: 527-532.
Cooreman S, Schuermans C, Van Schaeren J, Olive N, Wauters G, Verhaegen J, Jeurissen. Bacteraemia caused by *Leptotrichia trevisanii* in a neutropenic patient. Anaerobe 2011; 17: 1-3.
Tee W, Midolo P, Janssen PH, Kerr T. Bacteremia due to *Leptotrichia trevisanii* sp. nov.. European Society of Clinical Microbiology and Infectious Diseases 2001; 20: 765-769.
Viscoli C. Antibacterial prophylaxis in neutropenic patients. International Journal of Antimicrobial Agents 2007; 30S: S60-S65.
Mandell, GL. (2010) Mandell, Douglas, and Bennett's principles and practice of infectious diseases, 7th ed. Philadelphia, PA: Churchill Livingstone Elsevier. Retrieved May 2011 from University of Kansas Medical Center Library website: library.kumc.edu
Photos:
Gram stains of *Leptotrichia trevisanii* from solid media (top) and positive blood culture (above) both courtesy of Marsha Wilson, MT.

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Autoimmune Hemolytic Anemia and Interstitial Pneumonitis as the Initial Presentation of Systemic Lupus Erythematosus

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OBJECTIVE

To emphasize the importance of considering hemolysis as a cause for anemia and the potentially catastrophic results that can occur if treatment is delayed.

BACKGROUND

- Autoimmune hemolytic anemia (AIHA) involves immunologic destruction of erythrocytes and can be life-threatening.
- AIHA may be idiopathic, however, it should prompt a work-up for secondary causes.
- Evaluation consists of a reticulocyte count, LDH, haptoglobin, indirect bilirubin, direct and indirect Coombs tests, auto-antibody testing, and a peripheral smear for erythrocyte morphology, including microspherocytes, polychromasia, and schistocytes.
- AIHA is not associated with a deficiency state; it is characterized by an elevated LDH and reticulocyte count, indirect hyperbilirubinemia, and a low haptoglobin.

Hemolytic Anemia

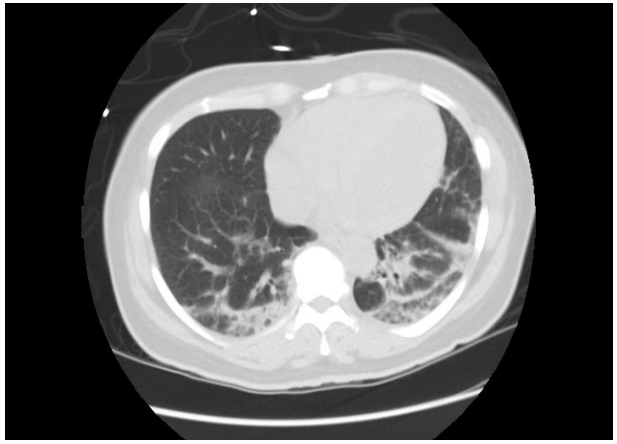
Extrinsic Causes
- Disseminated Intravascular Coagulation
- Thrombotic Thrombocytopenic Purpura
- Idiopathic and secondary antibody mediated
- Drug induced hemolytic anemia

Intrinsic Causes
- G-6-PD Deficiency
- Hereditary spherocytosis
- Hemoglobinopathies

CASE REPORT

- A 48-year-old female from Hong Kong with no significant past medical history presented to the emergency department with a one-month history of progressive dry cough and fatigue.
- On exam, she was noticeably icteric and had bibasilar coarse crackles.
- Labs on presentation: hemoglobin 4.9 g/dL, indirect bilirubin 7.1 mg/dL, reticulocyte count 35%, LDH 468 U/L, haptoglobin 4 mg/dL. Direct Coombs test positive secondary to warm agglutinins.
- Chest radiograph and CT scan revealed interstitial infiltrates.
- An immunologic work-up revealed positive anti-nuclear antibody, rheumatoid factor, anti-SSA, anti-Smith, anti-RNP, and a low complement level.
- High-dose intravenous corticosteroids were initiated, with a slow improvement in hemoglobin level as well as in the pulmonary infiltrates.
- Treatment has now been tapered to low dose oral corticosteroids, and the patient's hemoglobin remains within normal limits.

RADIOLOGY



CT chest showing coarse interstitial infiltrates and traction bronchiectasis

DISCUSSION

- The final diagnosis in this patient was systemic lupus erythematosus (SLE), presenting with autoimmune hemolytic anemia and interstitial pneumonitis.
- In warm agglutinin mediated AIHA, IgG antibodies react at body temperature with protein antigens on the erythrocyte surface.
- This results in hemolysis by two mechanisms:
- (1) phagocytosis within the reticuloendothelial system, i.e. extravascular hemolysis, and
  (2) complement-mediated erythrocyte destruction.
- Systemic corticosteroids are the mainstay of treatment, while rarely, other immunosuppressants such as rituximab are used.
- Splenectomy may be necessary in refractory cases.

Auto-antibody	Autoimmune Disease Associations
Anti-SSA	Systemic Lupus Erythematosus (SLE), Sjogren's syndrome
Anti-SSB	Sjogren's syndrome
Anti-dsDNA	SLE
Anti-centromere	CREST syndrome
Anti-Smith	SLE
Anti-histone	SLE and Drug Induced SLE
Anti-topoisomerase	Systemic Sclerosis
Rheumatoid Factor	SLE, Sjogren's, Rheumatoid Arthritis
Anti-RNP	Mixed Connective Disease, SLE, Sjogren's

REFERENCES

1. Kokori, S., et al. Autoimmune Hemolytic Anemia in patients with systemic lupus erythematosus. Am J Med, February 2000; 108(3):198-204.
2. Cheema, G., et al. Interstitial lung diease in systemic lupus erythematosus. Current Opinion in Pulmonary Medicine, September 2000; 6(5): 424-429.
3. Harley, J., et al. The curiously suspicious: a role for Epstein-Barr virus in lupus. Lupus, 2006; 15: 768-777.
4. Semple, J., et al. Autoimmune pathogenesis and autoimmune hemolytic anemia. Seminars in Hematology, July 2005; 42(3); 122-130.

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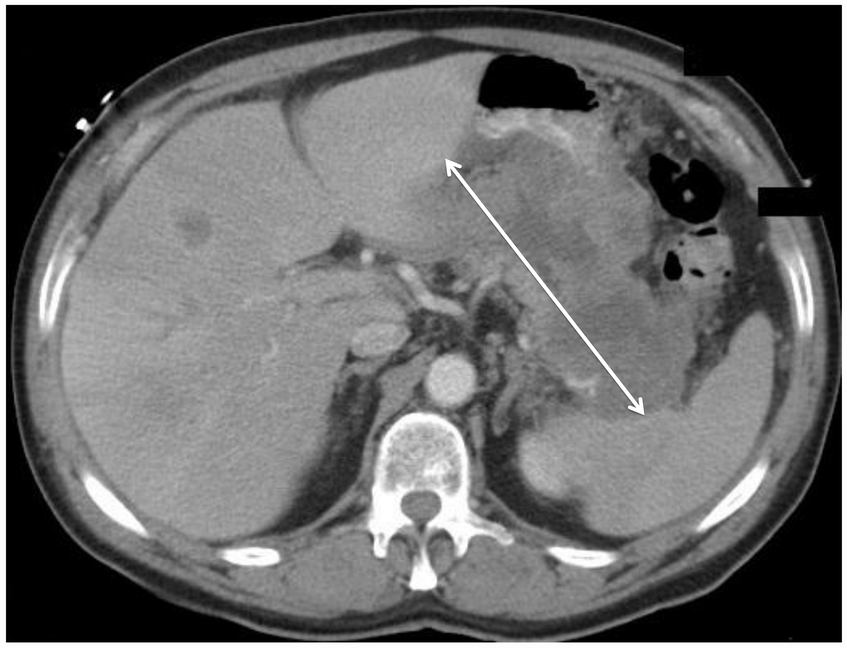
Bilateral DVT Despite Therapeutic Anticoagulation: Tip of the Iceberg?

Elie Chalhoub, MD, Phu Truong, MD, Ghiyath Al-Tabbal, MD, Eric Wiedower, DO

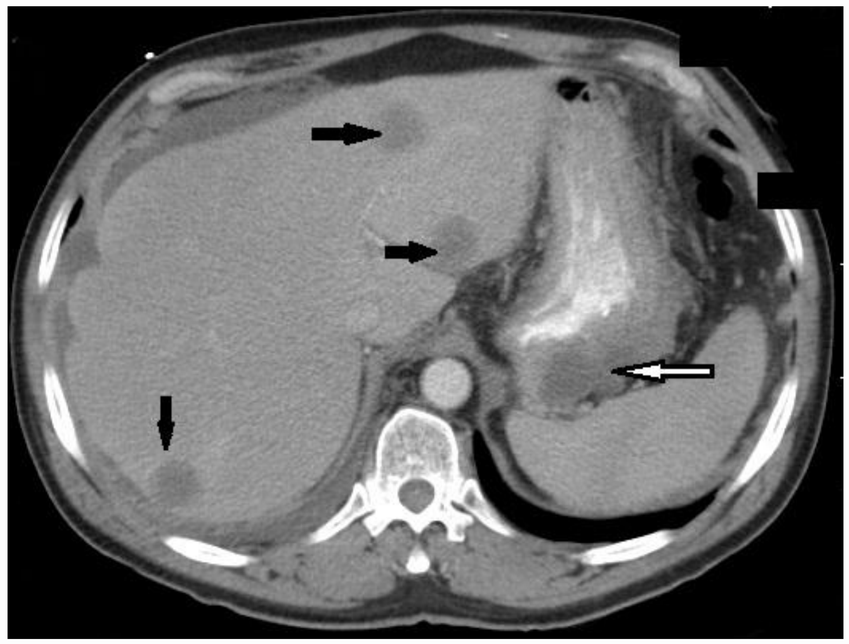
Introduction: Deep Venous Thrombosis (DVT) always has been linked reciprocally to malignancy. It even can be the first manifestation of malignancy. However, current guidelines recommend only age-appropriate cancer screening for patients with new unprovoked DVT, due to cost-effectiveness.

Case Presentation: A 49-year-old gentleman presented to the hospital for node ablation for his refractory atrial fibrillation. He had a history of mitral regurgitation status/post mitral valve replacement on warfarin with therapeutic INR. Other than palpitations, he denied other symptoms except for some discomfort in his calves and mild abdominal bloating. His physical exam and routine labs were unremarkable. Doppler of his lower extremities showed bilateral occlusive posterior tibial vein thrombosis. A comprehensive thrombophilia workup was negative. Although not indicated by current guidelines, CT scan of chest/abdomen showed a pancreatic head mass, with metastases to the liver. Biopsy showed a poorly differentiated pancreatic adenocarcinoma. The patient was started on therapeutic anticoagulation with enoxaparin. He refused chemotherapy. One week after discharge, he developed hypoxemia, along with progression of his thromboses, and passed away two weeks after discharge.

Discussion: Some types of DVT (e.g., bilateral leg DVT, primary upper extremity DVT, abdominal DVT, and DVT despite therapeutic INR) may be more commonly associated with malignancy[1] and warrant a more extensive malignancy workup on an individualized basis. Workup should always include thorough history and physical exam, routine labs, and chest X-ray[2]. Indications for more imaging or invasive procedures searching for occult malignancy need to be defined.



Pancreatic mass and central necrosis.



Pancreatic mass compressing gastric wall (white arrow). Black arrows show liver metastases.

References

1) Tafur AJ, et al. The association of active cancer with venous thromboembolism location: a population-based study. Mayo Clin Proc 2011; 86(1):25-30.
2) Monreal M, et al. Occult cancer in patients with deep venous thrombosis. A systematic approach. Cancer 1991; 67(2):541-5.

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Bread and Stroke

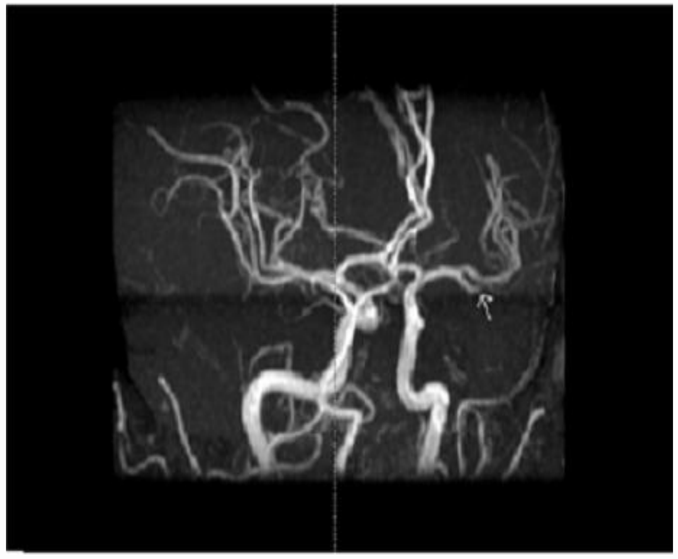
Fiorella Nawar, MD, Sylvia Orozco-Do, MD, Boutros El Haddad,MD

Introduction

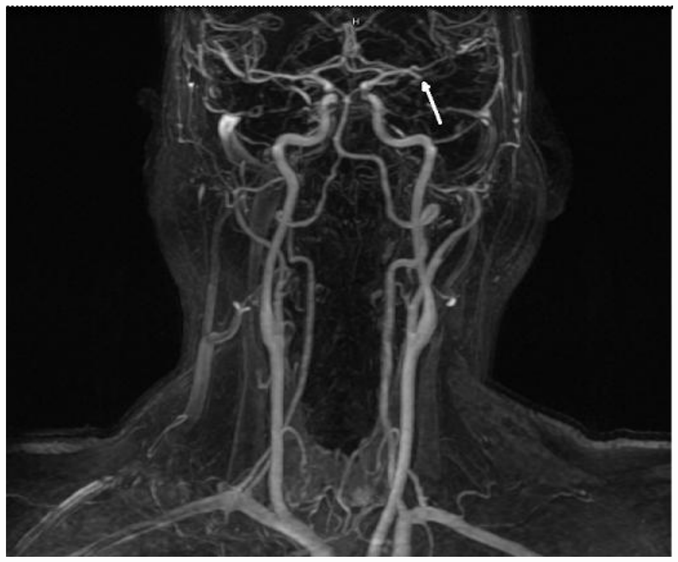
- Celiac disease is an autoimmune disease that can present with intestinal and extra-intestinal manifestations.
- Neurologic manifestations of Celiac disease such as ataxia, depression and stroke are rare.
- We describe a case of Celiac disease presenting as stroke.

Case Presentation

- A 48-year-old Caucasian male with negative history for hypertension, diabetes mellitus, hyperlipidemia, and smoking presented for the sudden onset of confusion and aphasia.
- An MRI of the brain showed the presence of acute ischemia of the left middle cerebral artery.
- Complete hypercoagulable state workup was within range of normal except for the presence of moderately elevated homocysteine at 21.4.
- Basic laboratory testing showed the presence of iron deficiency anemia with normal level of vitamin B12 and low normal folic acid level.
- Vitamin D level was low.



MRA showing L MCA occlusion



MRA coronal section showing
L MCA occlusion

- Markers for celiac disease-antiendomysial and tissue transglutaminase antibodies-were positive.
- EGD with duodenal biopsy was not done in hospital.
- The patient was dismissed home on gluten free diet with suspected diagnosis of Celiac disease.

Discussion

- Celiac disease can have neurologic manifestation such as stroke.
- Hyperhomocysteinemia is observed in 20% of newly diagnosed celiac disease.(1)
- Homocysteinemia is a risk factor for CHD and stroke.
- In patients with evidence of malabsorption and no obvious etiology for stroke, Celiac disease mediated by hyperhomocysteinemia should be considered a potential etiology.(2)

References

(1) Casella G, Bassotti G, Di Bella C, et al. Is hyperhomocysteinemia relevant in patients with celiac disease? World J Gastroenterol, 2011; 217(24):2941-2944.

(2) El Moutawakil B, Chourkani N, Sibai M, et al. Celiac disease and ischemic stroke. Revue Neurol (Paris) 2009; 165(11):962-966.

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Calcium Pyrophosphate Deposition Arthropathy (Pseudogout) Presenting in the Cervical Spine

Nathan Heckerson, MD, Connie Teng, MD

Introduction

Calcium pyrophosphate deposition (CPPD) arthropathy, more commonly known as pseudogout, is a rheumatologic disease caused by the proliferation of excess inorganic calcium pyrophosphate in the synovium. This is due to excessive breakdown of ATP leading to the accumulation of inorganic pyrophosphate which binds to calcium and deposits in cartilage and synovial tissue. The mechanism of crystal deposition in joint spaces is similar to gout, but the presentation usually resembles that of osteoarthritis or rheumatoid arthritis. The disease may present as an acute flare or may be asymptomatic and discovered incidentally on radiographs. This diagnosis is uncommon, but is becoming more prevalent as diagnostic techniques improve.

Case Report

A 74 year old female with a history of osteoarthritis presented with new-onset diplopia and six months of unilateral neck and occipital pain. On physical exam, she had bony deformities of the hands and feet consistent with her diagnosis of osteoarthritis, including Heberden and Bouchard nodes. Examination of her neck only revealed kyphosis. CT imaging of the cervical spine identified a mass encompassing the dens of the C2 vertebral body. MRI further characterized the mass as a pannus, raising suspicion for a rheumatologic etiology. Due to the risks of an invasive procedure, biopsy of the mass was not performed. A joint survey provided support for the diagnosis of CPPD arthropathy by demonstrating multiple areas of chondrocalcinosis. The patient was treated with daily colchicine and a short course of oral corticosteroids, showing some improvement.

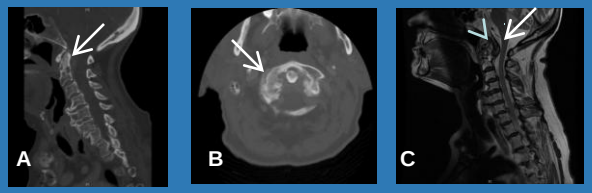

Figure 1: Sagittal (A) and axial (B) views from CT and sagittal view from MRI (C) of the cervical spine, demonstrating a pannus at the C2 level.

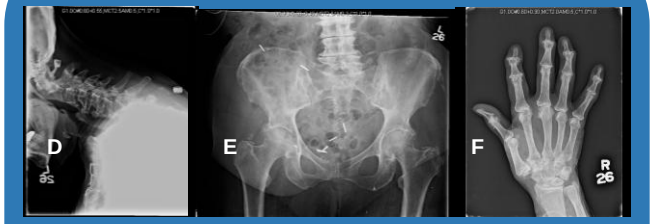

Figure 2: Multiple images from the joint survey representing findings consistent with a diagnosis of CPPD arthropathy, including hyperostosis and anterolisthesis of the cervical spine (D) and chondrocalcinosis of the hip joints (E) and the triangular ligament of the wrist (F).

References

•Clin Exp Rheumatol. 2008 Nov-Dec;26(6):1040-6.

•J Neurol Sci. 2010 Sep 15;296(1-2):79-82. Epub 2010 Jun 19.

•Primer on the Rheumatic Diseases. 2008. 13th Ed. Springer.

Diagnostic Evaluation

A joint survey is the standard radiologic study. This usually focuses on the wrists, knees, hips, and pubic symphysis in an attempt to identify chondrocalcinosis and a typical pattern of erosive changes as seen in Figure 2.

Polarized microscopic examination of the joint fluid aspirate reveals weakly positive, rhomboid, birefringent crystals.

Treatment

Acute exacerbations are treated with systemic or intraarticular corticosteroids. Chronic disease management involves a combination of colchicine, NSAIDs, and low-dose intermittent steroids.

Discussion

Calcium pyrophosphate deposition disease often mimics the presentation of osteoarthritis or rheumatoid arthritis. It can cause both chronic degenerative changes and acute attacks making the diagnosis very difficult. It is relatively rare for CPPD arthropathy to involve the cervical spine. More commonly affected locations include the knees, hips, pubic symphysis, and wrists. In the case presented, the patient had been diagnosed with osteoarthritis in the past based on clinical findings, but later received a new diagnosis after undergoing more extensive testing.

It is common for these patients to have multiple rheumatologic diagnoses, but this one is often missed if a full evaluation is not performed.

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Caution in Correcting Hyponatremia in Patients on Vasopressin

Rami Jambeih, M.D. **Mohamad Sandid, M.D.**

Introduction

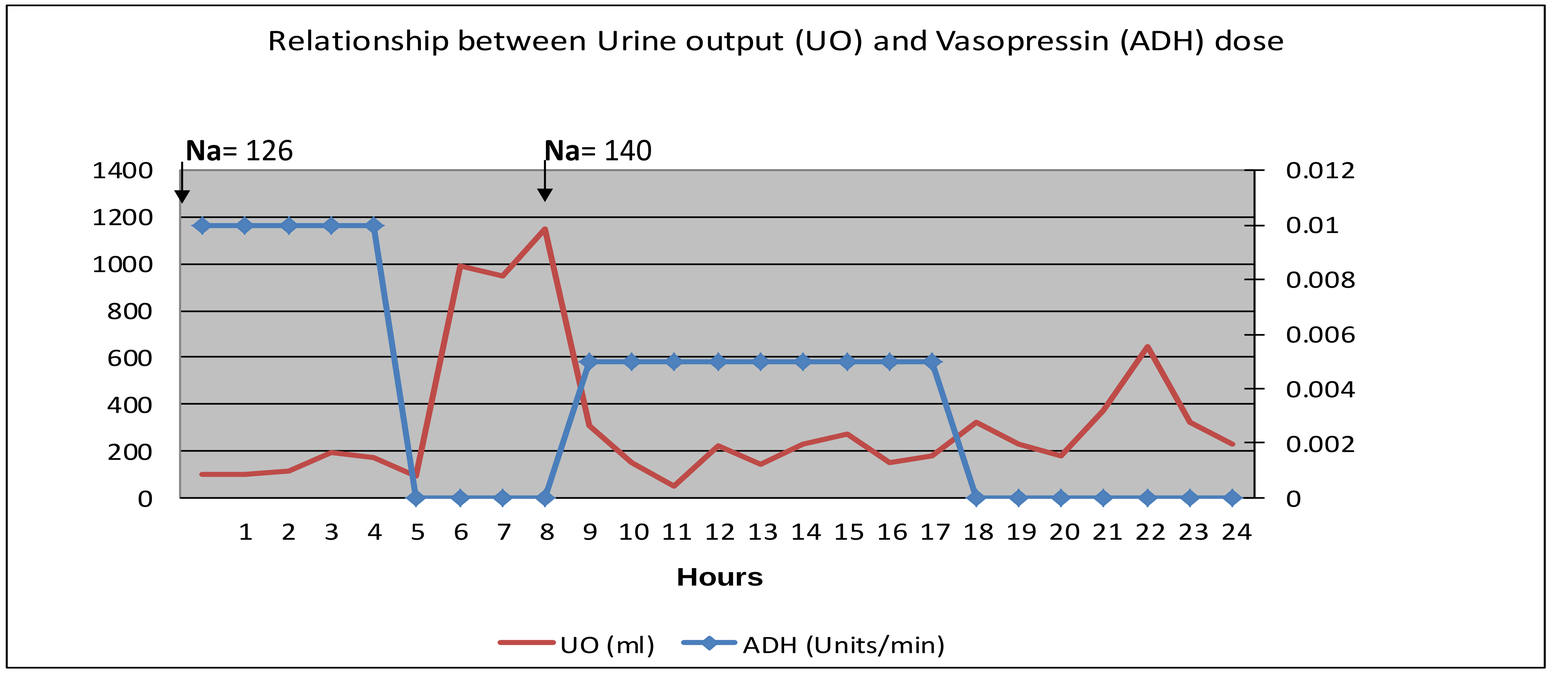
- Vasopressin is commonly used as a pressor agent in the treatment of septic shock.
- **Despite the frequent use of vasopressin, few cases of hyponatremia have been reported in association with its use**.

Case Presentation

- A 24-year-old male presented with status epilepticus requiring mechanical ventilation.
- The hospital stay was complicated by ventilator associated pneumonia and sepsis requiring vasopressin infusion to maintain his blood pressure.
- The patient developed hyposmolar hyponatremia (serum Na=126 mEq/L; serum osmolarity=265 Osm/L).
- Water restriction and discontinuation of vasopressin resulted in **polyuria** and an abrupt rise in serum sodium to 140 mEq/L, **mimicking diabetes insipidus**.

Discussion

- Vasopressin is synthesized in the hypothalamus and secreted by the posterior pituitary gland.
- It acts on the V1 receptors on the blood vessels to induce vasoconstriction.
- It also acts on the distal tubules and collecting ducts in the kidneys via V2 receptors to promote water reabsorption.



- Vasopressin is used in the management of septic shock at a maximum dose of 0.04 Units/min.
- The infusion of vasopressin at this dose or higher is associated with systemic side effects, mainly cardiac ischemia and arrhythmia.
- Vasopressin also may cause hyponatremia by inducing water reabsorption and hemodilution.
- In a retrospective review of 102 patients with septic shock on vasopressin, only one case of hyponatremia was reported.

Conclusions

- Although vasopressin frequently is used in the ICU, it is not frequently associated with electrolyte abnormalities.
- This case reminds us that **1) vasopressin is rarely associated with hyponatremia, and 2) abrupt discontinuation of vasopressin can result in a a rapid and unexpected correction of the serum sodium.**

References

- Role of vasopressin in the management of septic shock. Intensive Care Med 2004; 30(7):1276-1291.
- Effects of continuous vasopressin infusion in patients with septic shock. Ann Pharmacother 2004; 38(7-8):1117-1122.
- Multicenter randomized controlled trial of terlipressin versus sclerotherapy in the treatment of acute variceal bleeding: The TEST study. Hepatology 2000; 32:471-476.
- Transient diabetes insipidus after discontinuation of therapeutic vasopressin. Pharmacotherapy 2004; 24(4):541-545.

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Central diabetes insipidus as a manifestation of AML secondary to Temodar therapy for pancreatic neuroendocrine tumor

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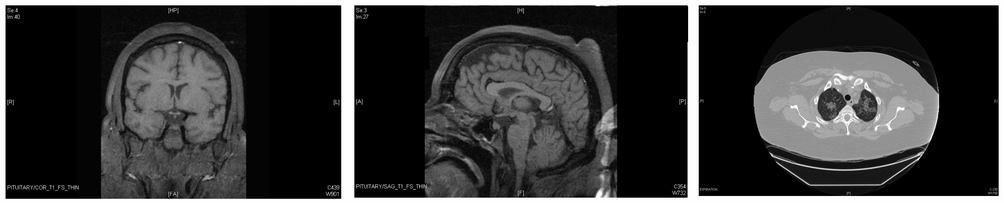
Allan Fleming MD, University of Kansas Hospital

Introduction: Central diabetes insipidus (CDI), as a manifestation of acute myeloid leukemia, is rare, but has been noted in association with dysmegakaryopoiesis and chromosomes 3 abnormalities. Particularly in association with monosomy 7, the association is now considered to be more than fortuitous. A distinct mechanism has not been defined for the etiology of CDI, however it has been suggested that different cytogenetics may act through different disease processes to manifest in this rarely seen phenomenon. Our case illustrates a case of CDI with chromosome 3 abnormalities, in a patient who developed acute myelocytic leukemia following treatment with Temodar for a pancreatic neuroendocrine tumor.

Case: 35-year-old female, with past medical history of pancreatic neuroendocrine tumor (treated with a protracted course of Temodar), diabetes mellitus, hypertension, hyperlipidemia, and hypothyroidism, presented with progressive shortness of breath, and productive cough with subsequent treatment with antibiotics for a possible community-acquired pneumonia. RSV was eventually defined after CT revealed ground glass opacities and bronchoscopy washings grew the virus. Treatment was changed to ribavirin with resolution of RSV pneumonia. Also, on admission, acute kidney injury was present, and urine output was noted to be persistently greater than 8 L per day. Central diabetes insipidus was suspected. MRI of the brain with special attention to the pituitary was without abnormality, and a water deprivation test was inconclusive likely due to acute kidney injury. The patient was also noted to have a persistent leukocytosis with immature cells present in peripheral blood. A subsequent bone marrow examination revealed acute myelocytic leukemia, and cytogenetics on the bone marrow biopsy demonstrated inversion of 3 q and presence of 15% EV1 probe positivity. This mutation has been associated with thrombocytosis and dysmegakaryopoiesis, which has led to the suggestion of a platelet-mediated mechanism of CDI. The patient was started on induction chemotherapy with ARA C and Danourubicin, and subsequently she had notable improvement of her polyuria, along with resolution of hypernatremia, and acute kidney injury. 38% blasts on repeat bone marrow aspirate prompted re-induction with high dose Ara-C. She is currently in remission after 2 cycles of HIDAC and last bone marrow aspirate revealed normal cytogenetics with resolution of all features of diabetes insipidus.

A B C



Images A and B are sections from the patient's pituitary MRI and are without abnormality.
Image C is from the patients CT chest showing ground glass infiltrates

Discussion: Acute Myelogenous Leukemia is a relatively rare cancer, however approximately 10,000 new cases are diagnosed in the United States are each year with incidence greatly increasing after age 65 probably related to failure of innate DNA repair mechanisms with aging, in conjugation with the requirement of DNA fracture and chromosome reassembly for the occurrence of normal hematopoiesis. The majority of AML diagnoses occur de novo with secondary cases resulting from either transformation of pre-existing hematologic disorder or due to toxic exposure (chemotherapy, radiation, environmental toxins, etc). Often times, these secondary cases are more refractory to therapy. The World Health Organization classifies AML as a blast count of 20% or greater, further characterizing the disease by genetic and morphologic features categorizing it in one of the following four categories: AML with recurrent genetic abnormalities (category I), AML with multilineage dyplasia (category II), AML developing secondary to therapeutic intervention (category III), and AML not otherwise categorized (category IV). Our current case is representative of category III, and is most likely related to protracted use of Temodar.

AML most commonly presents with fatigue, however, rarely, central diabetes insipidus may manifest associated with certain cytogenetic abnormalities of chromosome 3 and monosomy 7. These cases are associated with poor prognosis as they are often refractory to chemotherapy. Two distinct mechanisms have been proposed to explain this uncommon presentation of AML. Cases of AML associated with dysmegakaryopoiesis and thrombocytosis along with certain cytogenetic abnormalities suggest a platelet mediated induction of CDI. Approximately 90% of circulating antidiuretic hormone is associated with platelets, and dysmegakaryopoiesis, along with elevated platelet count could be one possible explanation of this disease manifestation. This is thought to be secondary to inappropriate activation of the EVI-1 transcription factor. Other cases have reported imaging changes in the neurohypophysis suggesting that leukemic infiltration causing pituitary dysfunction represents another possible mechanism. One case described persistence of CDI after remission of AML further enforcing that disruption of the posterior pituitary resulted in CDI. Our case was without MRI imaging abnormality, however abnormalities of chromosome 3, dysmegakaryopoiesis, and thrombocytosis were present. Review of these cases suggest that rather than any single process, at least two separate mechanisms exist which lead to the development of CDI in AML.

In conclusion, regardless of mechanism, presence of CDI is a poor prognostic indicator when present in AML. While exact mechanisms of this presentation are not yet completely defined it is likely that different cytogenetic abnormalities result different processes to manifest CDI. Given the dismal outcome of patients presenting with CDI and AML a need for early initiation of aggressive therapeutic interventions would be suggested.

References

C Curley, G Kennedy et al "Acute myeloid leukemia, the 3q21q26 syndrome and diabetes insipidus: A case presentation" Asia-Pacific Journal of Clinical Oncology, (2010) 6: 77-79
S Sano, K Yamagami et al "Myelodysplastic syndrome complicated by central diabetes insipidus and cerebral salt wasting syndrome with peculiar change in magnetic resonance images" Internal Medicine, (2010) 49: 161-165
E Natelson, D Pyatt "Temozolomide-Induced Myelodysplasia" Advances in Hematology, (2010) Article ID 760402, 5 pages
A Harb, W Tan et al "Acute myeloid leukemia and diabetes inisipidus with monosomy 7" Cancer Genetics and Cytogenetics, (2009) 190: 97-100
M Chamberlain, J Raizer " Extended exposure to alkylator chemotherapy: delayed appearance of myelodysplasia" Journal of Neurooncology, (2009) 93: 229-232
A.Fauci, E. Braunwald et al, "Acute and chronic myeloid leukemia" Harrison's Internal Medicine, 17th edition, (2008) pages 677-686
F Nakamura, Y Kishimoto et al "Myelodysplastic syndrome with central diabetes insipidus manifesting hypodipsic hypernatremia and dehydration" American Journal of Hematology, (2004) 75: 213-215
T Layabre-Bertrand, P Bourquard et al "Diabetes insipidus revealing acute myelogenous leukemia with a high platelet count, monosomy 7 and abnormalities of chromosome 3: a new entity?" European Journal of Hematology, (2001) 66: 66-69
T Endo, Y Tamai et al "Acute myeloid leukemia with trilineage myelodysplasia complicated by masked diabetes insipidus" Clinical and Laboratory Hematology, (2000) 22: 233-235
H Frangoul, D Shaw et al "Diabetes Insipidus as a Presenting Symptom of Acute Myelogenous Leukemia" Journal of Pediatric Hematology/Oncology, (2000) 22(5): 457-459

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Classic Burkitt's Lymphoma in the Adult
A Double Dose of Rarity

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Introduction

- Burkitt's lymphoma is an aggressive B-cell type neoplasm that has three main variants: endemic (Sub-Sahara Africa), non-endemic (sporadic), and immunodeficiency related.
- The sporadic variant, is most commonly seen in children and comprises less than one percent of adult Non-Hodgkin's lymphomas in Western Europe and the United States.
- Adults with Burkitt's lymphoma are usually diagnosed with an atypical Burkitt's lymphoma type, rather than the classic form.

Case Description

- A 24 year old Caucasian woman with no significant past medical history transferred from outside hospital with acute abdominal pain. The patient reported a 15 pound weight loss in 2 months and excessive fatigue. On physical exam, she was pale, tachycardic, tender to palpation in all abdominal quadrants, and had +1 lower extremity edema bilaterally.
- CT scan showed free air in the abdomen, and exploratory laparotomy revealed small bowel perforation and diffuse carcinomatosis.
- She had lymphopenia, anemia, and elevated LDH and uric acid.
- Histopathological findings were consistent with Burkitt's Lymphoma (Fig 1) and 95% of the cells stained positive for Ki-67. Fluorescence in situ hybridization (FISH) revealed c-myc positivity with t(8q,24) in 73% of analyzed cells. Flow cytometry was weakly positive for CD20, Pax5, CD10, BCL-6, CD43, MUM1.
- Bone marrow biopsy was negative for lymphomatous infiltration. PET CT showed increased metabolic uptake in multiple gastrointestinal areas (Fig 2). Lumbar puncture showed no malignant cells. He was started on Rituximab with Hyper-CVAD in addition to intrathecal methotrexate and Cytarabine with a curative intent.

Objective

To demonstrate an uncommon presentation of lymphoma in the adult population and highlight the rare diagnosis of sporadic Burkitt's Lymphoma

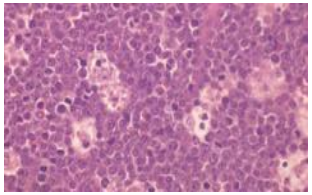

Figure1. Scattering of Macrophages containing debris derived from very rapid cell turnover contributing to the "starry sky appearance"

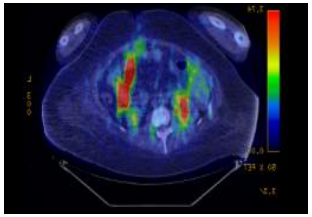

Figure 2. FDG PET Scan revealed large transverse colonic mass with increased metabolic activity.

Description

- This case highlights a rare presentation of a rare malignancy. Non-endemic Burkitt's lymphoma is uncommon, comprising less than one percent of NHL in the adult population. The presentation of this rare neoplasm in adults is usually atypical but our patient presented with all the classic features of Burkitt's lymphoma that are extremely uncommon in the adult population including abdominal pain, classic histology, and classic cytogenics, making this a rare presentation of an extremely rare hematologic malignancy.

Table 1. Characteristics of Burkitt's Lymphoma

- ❑ Population: Children > adults, male > female
- ❑ Clinical Features: Extranodal > nodal, bulky, rapidly growing masses
- ❑ Morphology: Uniform or slightly pleomorphic medium sized cells, starry-sky pattern
- ❑ Immunophenotype: CD20+, CD10+, Bcl-6+,, Bcl-2−, CD5−, TdT−, monotypic sIg+, Ki67 ~100%
- ❑ Genotype: t(8;14), t(2;8), or t(8;22) (*myc and IgH or IgL); no bcl-2 or bcl-6* translocation

References

1. Dave SS, Fu K et al. Molecular Diagnosis of Burkitt's Lymphoma. New England Journal of Medicine 2006; 354:2431-42.
2. Blum KA, Lozanski G, Byrd JC. Adult Burkitt leukemia and lymphoma. Blood. 2004;104:3009-20.
3. Perkins AS, Friedberg JW. Burkitt Lymphoma in Adults. Hematology 2008; 341-8.
4. Aldoss IT, Weisenburger DD, Fu K, et al. Burkitt Lymphoma: advances in diagnoses and treatment. Oncology (Williston Park) 2008 Nov 30; 22(13);1508-17
5. Ferry JA. Burkitt's Lymphoma: Clinicopathologic Features and Differencial Diagnosis. The Oncologist.2006;11:375-83

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“Condoms in the Nursing Homes?”

Anne Hogsett, MD and Donna Sweet, MD.

Background

Much has been reported in the media about an increase in sexually transmitted diseases (STDs) in the elderly (65 and older). The medical community has, in some instances, joined in the refrain.

Justification:

(1) libido does not decrease with age,
(2) long time partners have passed away,
(3) there is no worry of pregnancy,
(4) new partners are readily available,
(5) one infected individual can infect many.

Thus, the following research question was posed to test this assumption: What are the recent trends of STDs in the elderly in Kansas and in the US?

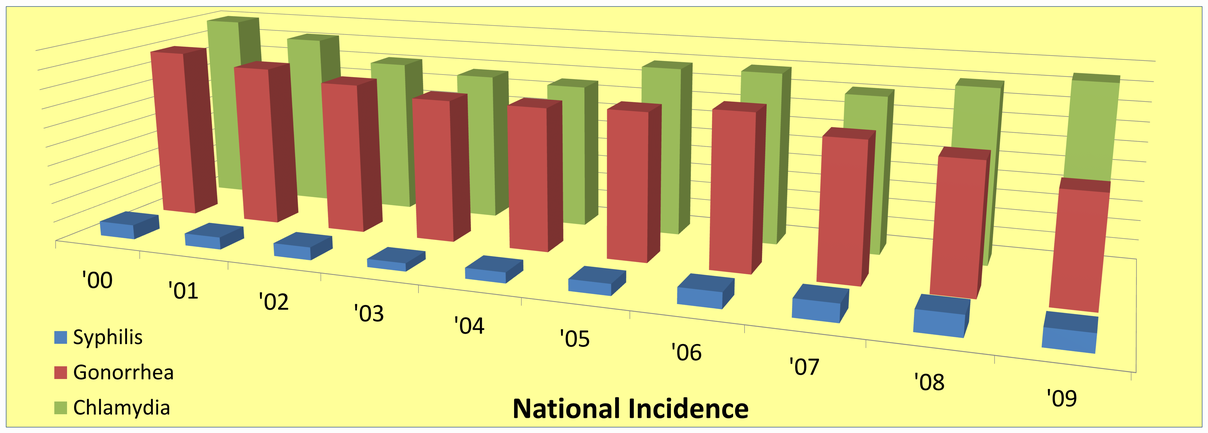
Methods

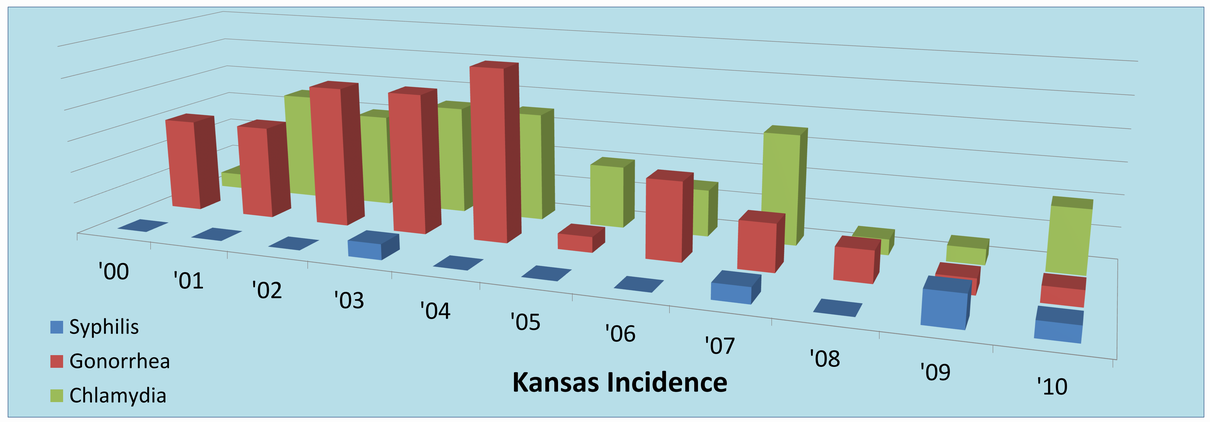
The Kansas Department of Health and Environment and the US Center for Disease Control and Prevention (CDC) provided the necessary data for years 2000 through 2010. Data was obtained for chlamydia, gonorrhea, syphilis, HIV, and AIDS.

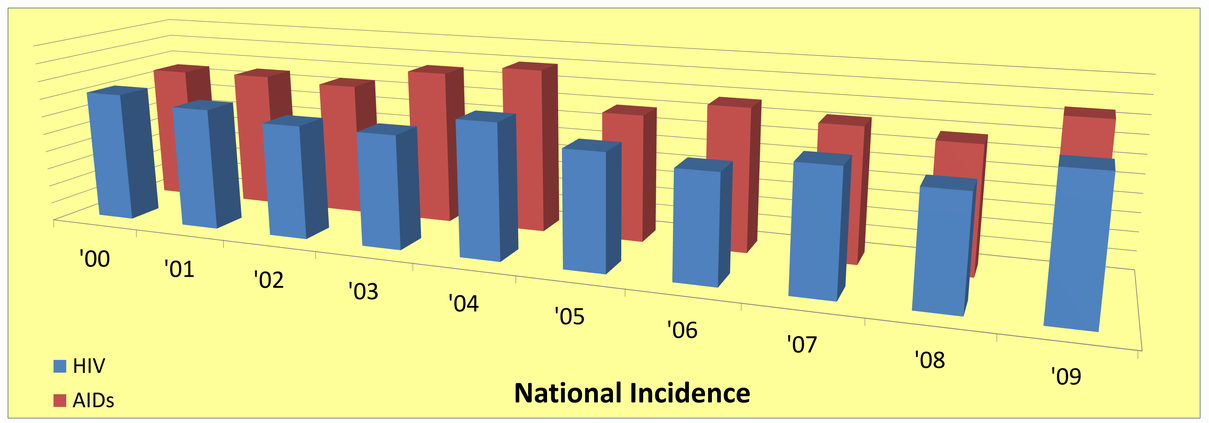
Results

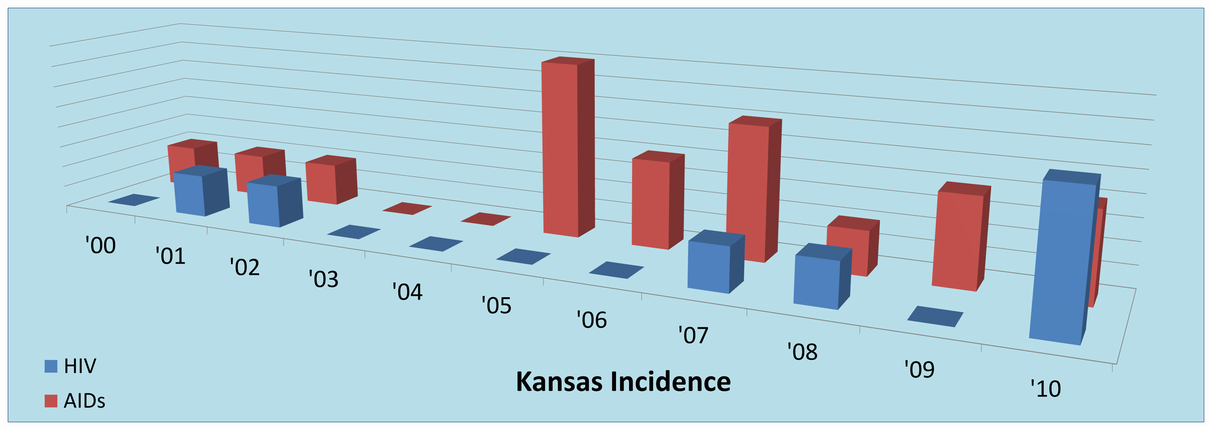
National Incidence:

- Chlamydia has declined by 5%
- Gonorrhea is down 38%
- Syphilis has risen 18%
- HIV increased 2%
- AIDS has increased 13%









Incidence in Kansas:

- Chlamydia – 1 case in 2000, 4 in cases in 2010
- Gonorrhea – 6 cases in 2000, 1 case in 2010
- Syphilis - 0 cases in 2000, 1 case in 2010
- HIV - 0 cases in 2000, 3 cases in 2010
- AIDS - 1 cases in 2000, 2 cases in 2010

Conclusion

The incidence of STDs in the elderly population is increasing only slightly, BUT, condoms are ALWAYS a good idea.

References

Sexually Transmitted Disease Surveillance 2009. Sexually Transmitted Disease Surveillance 2004. Division of STD Prevention. November 2010. Washington, DC: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention.

Kansas Sexually Transmitted Disease Surveillance 2010. Topeka, KS: Kansas Department of Health and Environment.

KU SCHOOL OF MEDICINE WICHITA
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Delayed Diagnosis of Rheumatic Heart Disease

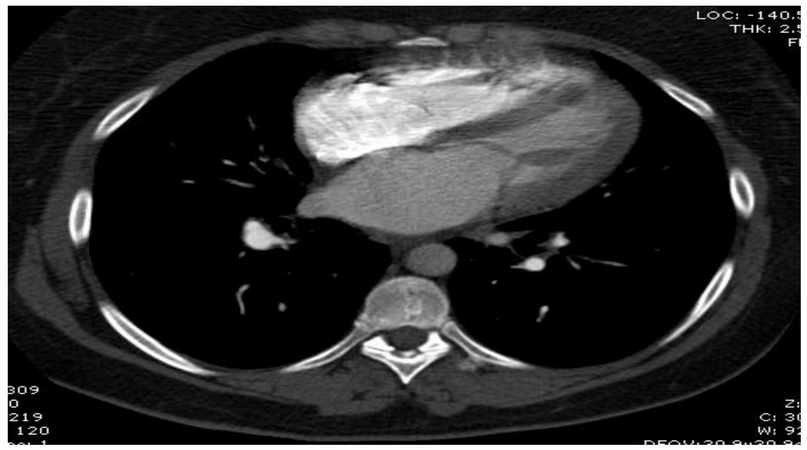
Deepa Bhanot, MD, Jill Hanrahan, MD, Wassim Shaheen, MD

Introduction

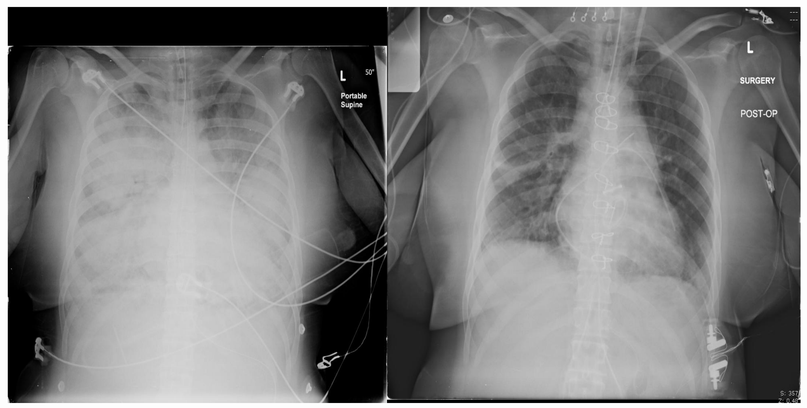
Non-suppurative cardiovascular sequelae of group A streptococcal pharyngitis remain medical and public health problems worldwide, though more rampant in the developing world. The mean incidence is 19 cases per 100,000 persons in the developing world and 2 to 14 cases per 100,000 persons in the United States.

Case Presentation

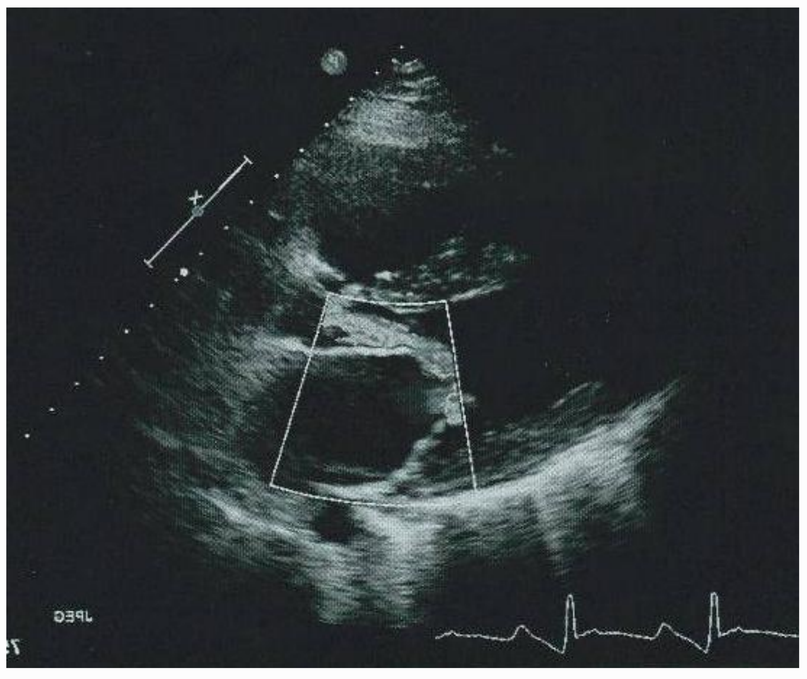
A 32-year-old female presented to the ED complaining of shortness of air. CT of the chest showed bibasilar interstitial lung infiltrates and pulmonary congestion. She was sent home. One one week later, she presented with pulmonary edema requiring mechanical ventilation. Two dimensional echocardiography showed severe mitral stenosis and moderate aortic insufficiency, consistent with rheumatic valvular disease. Dual valve replacement was performed 15 days later, with resolution of symptoms.



Thick MV and septal bowing



CXR before and after



Mitral stenosis and aortic insufficiency

Conclusions

Diseases forgotten in the developed world should still be present in the differential diagnosis. Failure to recognize them may be fatal.

References

- Rheumatic fever and rheumatic heart disease -report of a WHO Expert Consultation. WHO technical report series, 923.
- Kaplan E. Recent epidemiology of Group A streptococcal infections in North America and abroad: an overview. Pediatrics 1996; 97(6): S945–S948.
- Krishna Kumar R, et al. World Health Report. Conquering suffering. Enriching humanity. World Health Organization, 1997:43–44.
- Epidemiology of streptococcal pharyngitis, rheumatic fever and rheumatic heart disease. In: Narula J et al., eds. Rheumatic fever. Washington, DC: American Registry of Pathology Publisher, 1999, 41–78.

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Diffuse Alveolar Hemorrhage as a complication of Churg Strauss

Lovitt C., Mermis J.

Background

Churg Strauss (CSS) is a multi-system disorder characterized by allergic rhinitis, asthma, and prominent peripheral blood eosinophilia. This disease is also classified as a vasculitis of small and medium sized arteries. CSS represents approximately 10% of diagnosed vasculitides. This disease is known to have multiple system effects including pulmonary infiltrates, mono-neuritis multiplex, pericarditis, GI manifestations and skin manifestations.

Case Report

A 31 yo female presented to pulmonary clinic after being referred for possible cystic fibrosis. She had been diagnosed with asthma in the past and had multiple pulmonary complaints with frequent exacerbations, as well as gastrointestinal complaints. She had frequent courses of steroids for asthma exacerbations. The work up for CF was negative but further work up revealed she had Churg Strauss. Following this diagnosis she began having pulmonary symptoms including cough, shortness of breath and hemoptysis. She was initially treated with high dose steroids as well as broad spectrum antibiotics and began to improve. However, she again decompensated and required intubation. When the ET tube was placed, pulmonary suction revealed frank blood, her hematocrit had dropped from 37 to 27, and chest X-ray showed dense bilateral alveolar opacities. Subsequent CT showed scattered bilateral pulmonary infiltrates and mild peribronchial thickening and were consistent with Diffuse alveolar Hemorrhage (DAH). Her treatment was escalated to cyclophosphamide along with steroids. Over the course of 4 weeks and treatment with cyclophosphamide, this young patient slowly recovered and was eventually discharged from the hospital.

December - February

Patient presented to clinic with uncontrolled asthma, she was on oral steroids and had recently been started on montelukast.

Labs December
WBC 5.6 with 15 % eosinophils
Hgb/Hct: 13/39

Labs Early February
P-ANCA:160
Myeloperoxidase AB: 7.6

PFTs December

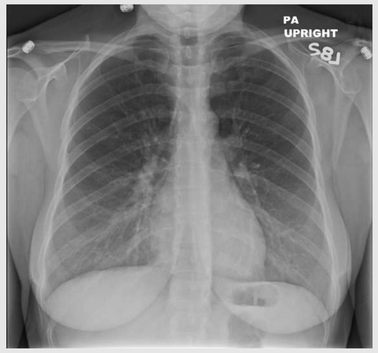
	PRE-BRONCH Meas	Prd	%Prd	POST-BRONCH Meas	%Prd
@SPIROMETRY$					
FVC (L)	2.31	3.19	72		
FEV1 (L)	1.64	2.82	58		
FEV1/FVC (%)	71	88	81		
FEF 25% (L/sec)	3.35	5.23	64		
FEF 50% (L/sec)	1.55	4.47	35		
FEF 75% (L/sec)	1.13	1.88	60		
FEF 25-75% (L/sec)	0.90	3.59	25		
FEF Max (L/sec)	4.26	5.73	74		
FIVC (L)	1.62				
FIF 50% (L/sec)	2.72	3.82	71		
FIF Max (L/sec)	2.76				

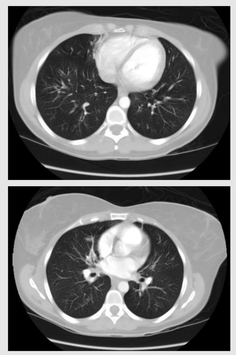
Interpretation:
Spirometry demonstrates moderately severe obstructive defect with a mild reduction in vital capacity.

She then presented with hypoxia and hemoptysis.

Labs February 18th
Hgb/Hct: 13.9/40
ABG 7.37/34/61

Chest X ray February 18th

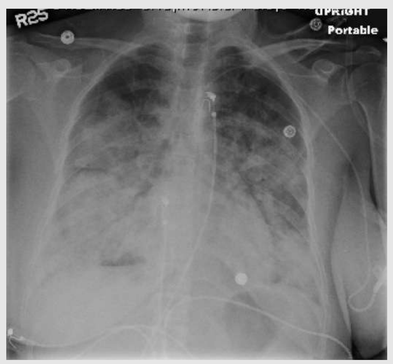


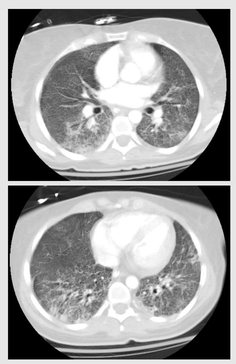


Within four days she rapidly declined with respiratory distress requiring intubation.

Labs February 22nd
Hgb/Hct: 10/27

Chest X ray February 22nd





Discussion

DAH is characterized by hemoptysis (though this is not infrequently absent), fevers, chest pain, cough, dyspnea and hypoxic respiratory failure. Laboratory examination shows falling hematocrit. Imaging reveals a patchy, focal or diffuse alveolar filling process, and CT confirms this alveolar filling process and is more detailed as to the extent of the disease process. For the diagnosis of this disease, flexible bronchoscopy should be done and will show progressively hemorrhagic BAL in serial samples. DAH is known to be associated with IPH, ANCA-Associated Granulomatous Vasculitis, MPA, SLE, mixed connective tissue disorders, and Goodpasture Syndrome, per Schwarz and Lara in May 2010. A case report from 1998 examined a patient with CSS who presented with respiratory symptoms and transbronchial biopsy revealed necrotizing vasculitis. On autopsy they discovered this patient had DAH, and their conclusion emphasized that CSS should be considered in patients who are found to have ANCA positive vasculitis and DAH. This case also supports that a patient with known CSS is at risk for DAH, and the early recognition of this will aid in rapid diagnosis and treatment of this frequently fatal complication.

References

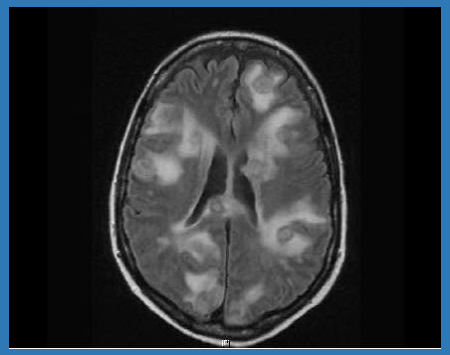
1. *Guillevin, L., Pagnoux, C., Mouthon. Chrug Strauss. Semin Respir Crit Care Med 2004; 25(5): 535-545*
2. Lai, R., Lin, S., Lai N., Lee P. Chrug-Strauss Syndrome Presenting with Pulmonary Capillaritis and Diffuse Alveolar Hemorrhage: Case report. 1998 Vol 27, No. 3, 230-232
3. Lara, A., Schwarz, M. Diffuse Alveolar Hemorrhage. Chest May 2010 vol 137 no. 5 1164-1171

DISSEMINATED NOCARDIOSIS: CLASSIC PRESENTATION AND IMPORTANCE OF EARLY RECOGNITION

Jennifer Schrimsher MD, Kassem Hammoud MD, Ky Stoltzfus MD

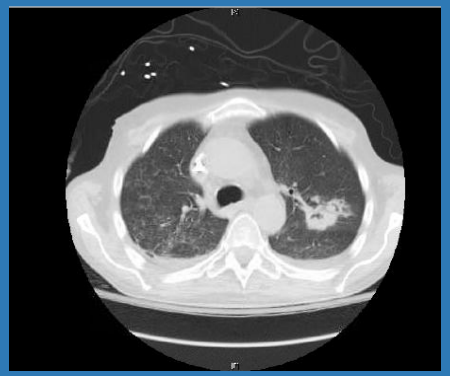
Background: Disseminated nocardiosis is a relatively rare disease that commonly has CNS, pulmonary and cutaneous involvement. Medical advancements have led to an increase in numbers of chronically immunosuppressed patients and a subsequent rise in the incidence of disseminated nocardiosis. Nocardiosis should be suspected in immunosuppressed patients with pulmonary and neurologic or subcutaneous findings. Although it is treatable, early diagnosis and initiation of appropriate multi-agent antibiotic therapy are key for reducing mortality.

Case Description: A 56 year old man with Wegener's Granulomatosis and end-stage renal failure requiring hemodialysis had been treated with cyclophosphamide, and prednisone for several months, then switched to prednisone and rituximab. One week after initiation of rituximab, he developed respiratory failure due to acute pulmonary edema requiring intubation. During the hospitalization, staff noticed two large subcutaneous masses. After discharge, he continued with progressive physical decline. Two weeks after his 2nd rituximab infusion, he developed acute left-sided weakness, ataxia and confusion. Plain films revealed a multi-lobar pneumonia and CT of the head revealed multiple brain lesions. He was transferred to our hospital, where CT demonstrated a cavitary lung mass, and MRI demonstrated multiple small abscesses. Broad-spectrum antibiotics were started. Labs returned with elevated Fungitell®, indeterminate Quantiferon®-TB, and negative tests for Toxoplasma, Histoplasma and Cryptococcus. Aspirates from the subcutaneous masses demonstrated branching gram positive rods, later identified as *Nocardia farcinica*. Meropenem, linezolid and amikacin were initially started. Trimethoprim-sulfamethoxazole was avoided due to renal failure and sulfonamide allergy. Linezolid was later switched to minocycline due to thrombocytopenia. Abdominal pain prompted the discovery of a large, multi-loculated pancreatic pseudocyst which grew *Candida albicans*. His condition continued to decline despite appropriate therapy, and he was discharged to home with hospice.

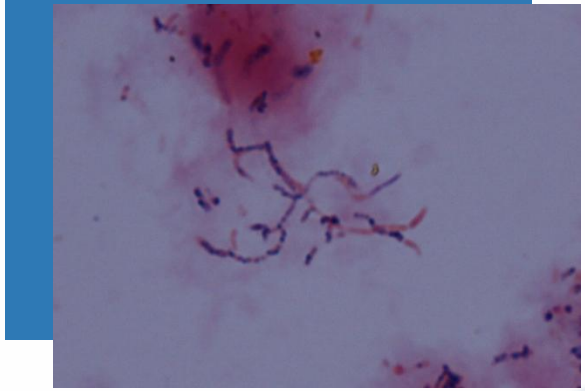


Non-contrast MRI image demonstrating multiple small abscesses.

Non-contrast CT image demonstrating infiltrates and cavitary lesion.



Discussion: Although this case was complicated by multiple co-morbidities, it illustrates the importance of considering Nocardiosis in the immunosuppressed patient with pulmonary and neurologic or subcutaneous findings. Commonly used serologic laboratory tests are not useful in diagnosis, which requires a sample of the involved tissue to be sent for culture. Treatment of Nocardia species requires long-term antibiotic therapy. *Nocardia farcinica* is generally more antibiotic resistant than other species and possibly more virulent. The mainstay of treatment is generally trimethoprim-sulfamethoxazole for susceptible species, with empiric combinations generally involving amikacin and imipenem until susceptibilities return. In this patient, renal failure and sulfonamide intolerance further complicated treatment.



Gram stain (above) of Nocardia demonstrating a typical poorly-staining beaded, branching gram positive rod. Photo courtesy of Marsha Wilson, MT.

Reference:
Mandell, GL. (2010) *Mandell, Douglas, and Bennett's principles and practice of infectious diseases*, 7th ed. Philadelphia, PA: Churchill Livingstone Elsevier. Retrieved May 2011 from University of Kansas Medical Center Library website: library.kumc.edu

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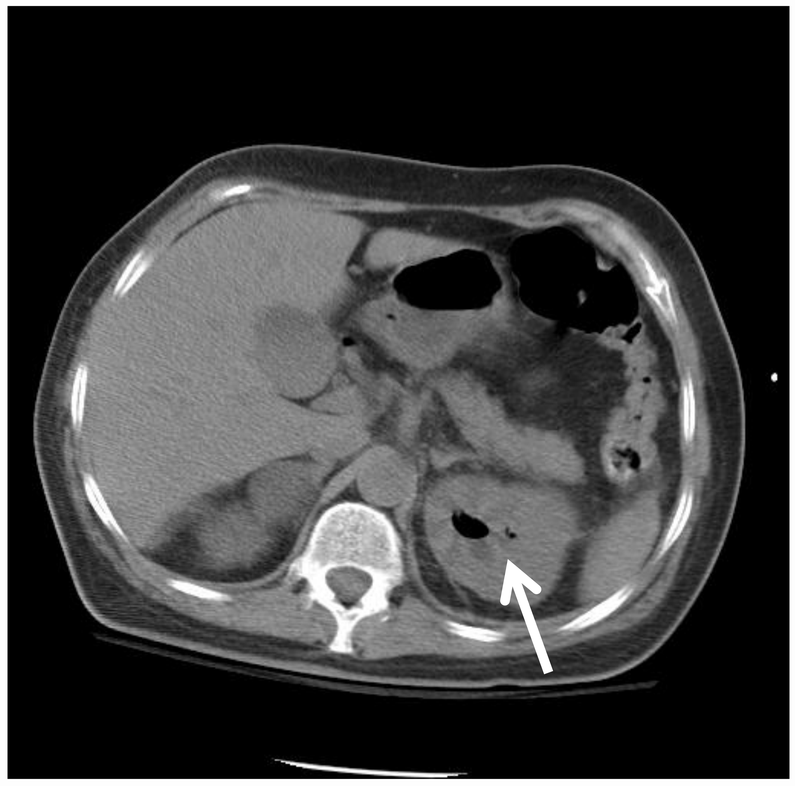
Emphysematous Pyelitis

Peg Bicker MD, James H. Gilbaugh III MD, Nathan D. Tofteland MD

Introduction: Emphysematous urinary tract infections (UTI) may present with symptoms identical to pyelonephritis but have significantly worse outcomes including nephrectomy and death. These gas-producing infections cause rapidly-progressive necrosis of renal parenchyma and are associated with bacteremia and sepsis. Uncontrolled diabetes mellitus is the major risk factor for this complicated UTI.

Case Description: A 50-year-old Hispanic female with uncontrolled diabetes (*Hgb A1c 12.1%*), presented to the emergency department with flank pain, fever, and nausea for the previous two days. She was septic with leukocytosis, bandemia, hypotension and tachycardia. Blood cultures were positive for *Escherichia coli.* CT of the abdomen and pelvis demonstrated gas within the left ureter and renal collecting system consistent with Stage 1 emphysematous pyelitis. She rapidly improved with IV antibiotics.



Discussion: Emphysematous pyelitis (gas in the renal collecting system) and emphysematous pyelonephritis (gas in the renal parenchyma) are rapidly-progressive, potentially fatal infections. They are most commonly seen in females with uncontrolled diabetes. Mean age at diagnosis is 60 years. Flank and abdominal pain are common presenting symptoms. Dysuria is present in only ½ of cases. Diagnosis may be made by x-ray or CT, though CT is more sensitive. Treatment choice depends on the degree of extension of gas and infection into the kidney tissue, renal capsule or beyond. Given the high prevalence of diabetes mellitus, the clinician must maintain an element of suspicion for this potentially deadly complication in an at-risk patient presenting with complicated UTI .

Stage	Characteristics on CT	Treatment Recommendation
Stage 1	Gas in collecting system	Parentaral antibiotics
Stage 2	Gas in renal parenchyma	Antibiotics plus percutaneous catheter drainage (PCD)
Stage 3A	Gas or abscess to perinephric space	Antibiotics plus PCD, possible nephrectomy
Stage 3B	Gas or abscess extending to tissue beyond kidney	Antibiotics plus PCD, possible nephrectomy
Stage 4	Bilateral involvment or involvement of a solitary kidney	Antibiotics plus PCD, nephrectomy is a last option
Indications for immediate nephrecotomy include failure of PCD, or two or more of the following: thrombocytopenia, shock, acute renal failure or altered mental status		

References
1. Huang JJ, Tseng CC. Emphysematous pyelonephritis: clinicoradiological classification, management, prognosis, and pathogenesis. Arch Intern Med 2000; 160:797-805.
2. Evanoff GV, Thompson CS, Foley R, Weinman EJ. Spectrum of gas within the kidney. Emphysematous pyelonephritis and emphysematous pyelitis. Am J Med 1987; 83(1):149-154.
3. Somani BK, Nabi G, Thorpe P, Hussey J, Cook J, N'Dow J, ABACUS Research Group. Is percutaneous drainage the new gold standard in the management of emphysematous pyelonephritis? Evidence from a systematic review. J Urol 2008; 179(5):1844-1849.

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Epstein-Barr Viral Hepatitis: An Unusual Case of Scleral Icterus in an Adolescent

Laura Frye, MD

OBJECTIVE

To present a case of liver disease with cholestatic features secondary to Epstein-Barr virus

INTRODUCTION

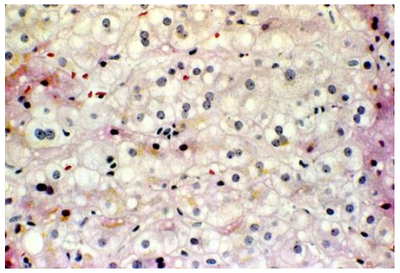
Primary Epstein-Barr virus (EBV) infection in children is typically asymptomatic with seroconversion. If primary infection occurs in adolescence or adulthood, the most common manifestation is infectious mononucleosis, with symptoms of fever, lymphadenopathy, hepatosplenomegaly, and pharyngitis. Although mild and transient elevation of serum aminotransferases is common, jaundice is uncommon and complete recovery is the rule. Cholestatic liver disease presenting with an elevation of serum alkaline phosphatase and bilirubin is rare, with the mechanism unclear. EBV has no direct cytotoxic effect on hepatic cells, yet destruction is caused by the toxic action of free radicals through lipid peroxidation. Patients with Epstein-Barr virus have autoantibodies directed against enzyme superoxide-dismutase which neutralizes the enzyme's antioxidant action. As a result, free radicals accumulate in hepatic cells and cause damage. Rarely, this results in hepatic failure and severe jaundice.

CASE PRESENTATION

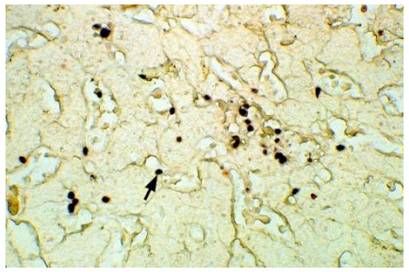
An 18-year-old Latino male with no significant past medical history presented with diffuse abdominal pain and fever of 8 days duration. He had no history of smoking or alcohol abuse, and no family history of liver disease. He noted recent sexual intercourse with a new partner. He had no recent travel, with travel to Mexico one year prior. His family had recently acquired a stray dog. On admission, he demonstrated scleral icterus, mild jaundice, left anterior cervical lymphadenopathy and inguinal lymphadenopathy, hepatomegaly, and right upper quadrant tenderness. The liver function tests reported aspartate aminotransferase 253 IU/L, alanine aminotransferase 373 IU/L, alkaline phosphatase 181, and total bilirubin 3.7. Abdominal ultrasound demonstrated splenomegaly. A hepatitis panel with serology for hepatitis A, B, and C was negative. Flow cytometry for leukemia and lymphoma was negative. Serology for Epstein-Barr virus and parvovirus were positive. Serum PCR for EBV was 10,500 copies/mL and parvovirus PCR was negative. A liver biopsy demonstrated lymphocytic inflammation consistent with EBV hepatitis.

DIAGNOSIS

EBV is not commonly confirmed as an etiologic agent of acute hepatitis, with infection confirmed via serology (heterophile or specific antibodies) or immunofluorescence and molecular biologic techniques to confirm the presence in biopsy specimen. The EBV-specific serology can initially be negative in patients who have been ill for only a few days. However, within 1-2 weeks, antibodies to EBV-specific antigens appear at the expected titers.



(A)



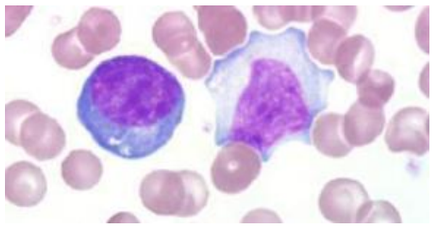
(B)

(A) Low grade mononuclear lobular inflammation, typical of EBV-related hepatitis, like that seen in the general population with hepatitis related to infectious mononucleosis. Note the slight increase in sinusoidal lymphocytes and "indian-filing" along the sinusoids.

(B) In situ hybridization for EBV EBER RNA. In this photomicrograph, note the nuclear staining of the lymphocytes scattered within the sinusoids [arrow].

TREATMENT

Treatment for primary Epstein-Barr viral hepatitis is usually supportive as it is generally self-limiting. Steroids and antiviral medications have been utilized to treat cases of severe viral hepatitis. Acyclovir has not been shown to be efficacious in the treatment of severe EBV hepatitis. There are case reports on the use of ganciclovir in immunocompetent patients with severe viral hepatitis. However, randomized studies have not been performed for these treatments. In our case, our patient soon recovered with only conservative treatment.



REFERENCES

Kang, M et al. Infectious Mononucleosis Hepatitis in Young Adults: Two case Reports. The Korean Journal of Int Med. Vol 24, Num 4, December 2009: 381-387

Kofteridis, D et. al. European Journal on Int Med. 22, 2011" 73-76

DISCUSSION

We should consider Epstein-Barr viral hepatitis in differentiating patients presenting with liver abnormality, fever, pharyngitis, and lymphadenopathy.

HISTORY

The classic presentation is that of fever, oropharyngitis, and lymphadenitis. Hepatosplenomegaly may also be present. In a small percentage of patients, jaundice and scleral icterus occur.

PHYSICAL EXAM

Physical exam frequently reveals lymphadenopathy, most common in the cervical chain as well as axilla. Frequently, there is tonsillar enlargement with injection. Splenomegaly is also present. Rarely, patients will present with jaundice as well as scleral icterus due to the presence of increased levels of bilirubin.

DIAGNOSTIC TESTS

Diagnosis primarily relies on the clinical presentation with a high index of clinical suspicion, supported by laboratory findings:

- Atypical lymphocytes
- Aminotransferases
- Bilirubin
- EBV IgM antibodies
- Heterophile antibody test
- Negative serology for
  - Hepatitis A, B, C
  - HIV
  - CMV
  - Varicella zoster
  - Herpes simplex virus
- Serum PCR
- Pathology
- Immunofluorescence
- Molecular techniques, e.g. in situ hybridization

TREATMENT

- Supportive
- Steroids
- Antiviral medications
  - Acyclovir without proven efficacy
  - Case reports of ganciclovir
- Transplantation if fulminant hepatic failure

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Febrile Neutropenia Associated With Cocaine Adulterated With Levamisole: A Case Presentation

Jorge Valdivia, MD

OBJECTIVE

To present a case of levamisole-induced granulocytopenia.

INTRODUCTION

Levamisole is an anti-helminthic and has also been studied as an immunomodulator. Recently, levamisole has been employed as a cutting agent in cocaine sold in the United States, Canada, and Europe and has been associated with cases of severe granulocytopenia.

CASE PRESENTATION

49-year-old Caucasian male, with known hepatitis C and recurrent skin nodules, presented with a 10-day history of progressive fatigue, sore throat, nasal congestion, cough, and fever. He was treated with antibiotics with improvement in the skin nodules. The patient was homeless, admitted to cocaine use, and his urine was positive for cocaine. White blood cell count was 800 with an ANC of 400. Hemoglobin and platelet count were normal. Although sputum culture grew Pseudomonas aeruginosa, chest x-ray was within normal limits. Workup for autoimmune disease or possible viral illness was negative. Peripheral blood smear was non-diagnostic, and a bone marrow aspiration and biopsy revealed hypocellularity with a marked decrease in granulopoiesis. Urine was subsequently tested for levamisole and was positive. With supportive treatment, including antibiotics and G-CSF, the patient progressively improved, with white blood cell count returning to normal. Unfortunately, the patient has subsequently had multiple readmissions for recurrent granulocytopenia associated with resumption of cocaine use.

DIAGNOSIS

This patient was diagnosed with levamisole-induced granulocytopenia. He has had repeated admissions to the hospital with the same presentation. Bone marrow biopsy showed no signs of malignancy, however it did show hypocellular bone marrow with markedly decreased granulopoiesis. Flow cytometry was normal. His urine was tested for lavamisole and it tested positive. Other diagnoses were explored, however they produced negative results.

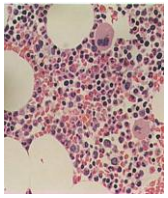
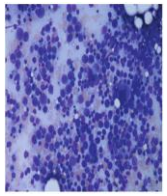


Figure 1. Showing a normal bone marrow



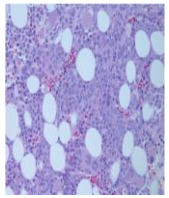


Figure 2. and 3 Showing neutrophils and bands are almost absent with abundance of granulocytic precursors. The remainder shows a normal heterogeneity. (1)

TREATMENT

The mainstay treatment is supportive, and it deals with treating the infection that is predisposed due to the granulocytopenia. Thus, the patient should be pan-cultured and broad spectrum antibiotics should be started. In some cases, granulocyte colony-stimulating factor can be used to further stimulate the recovery of the patient thus shortening the period of leukopenia.

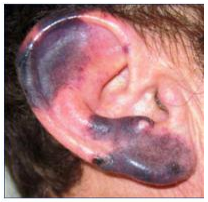


Figure 4. Occlusive necrotizing vasculitis.

REFERENCES

1. Zhu NY, Legatt DF, Turner AR. agranulocytosis after consumption of cocaine adulterated with levamisole. Ann Intern Med 2009;150:287-9. (2-3)

2. Buchanan JA,Vogel JA, Levamisole Induced Occlusive Necrotizing Vasculitis of the Ears After Use of Cocaine Contaminated with Levamisole (4)

3. Czuchlewski, DR et al. Clinicopathologic Features of Agranulocytosis in the Setting of Levamisole-Tainted Cocaine. Am J Clin Pathol 2010;133:466-472

DISCUSSION

HISTORY

Patients who consume cocaine laced with levamisole are predisposed to developing agranulocytosis leading to infections.

RISK FACTORS

Little is known about why levamisole affects some people and not others. Genetic predisposition might play a role, including HLA 27 positivity, which might induce the production of leukocyte-agglutinating antibodies. Smokers of crack cocaine seem to be at an increased risk for this phenomenon.

PHYSICAL EXAM

Clinical presentation is characterized by fever, which is usually related to infection; sepsis and septic shock can ensue. Additionally, it has been reported that levamisole can cause occlusive necrotizing vasculitis.

DIAGNOSTIC TESTS

- Check CBC with differentilal, pan-culture, peripheral smear, bone marrow and flow cytometry.
- Rule out other causes of leukopenia.
- Perform a urine study sending it for lavamisole.

TREATMENT

Supportive treatment:

1. IV fluids
2. Broad-spectrum antibiotics
3. Granulocyte colony-stimulating factor

RECOVERY

Usually between 7-10 days. However, neutropenia can re-occur.

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Hydrochlorothiazide Induced Vasculitis

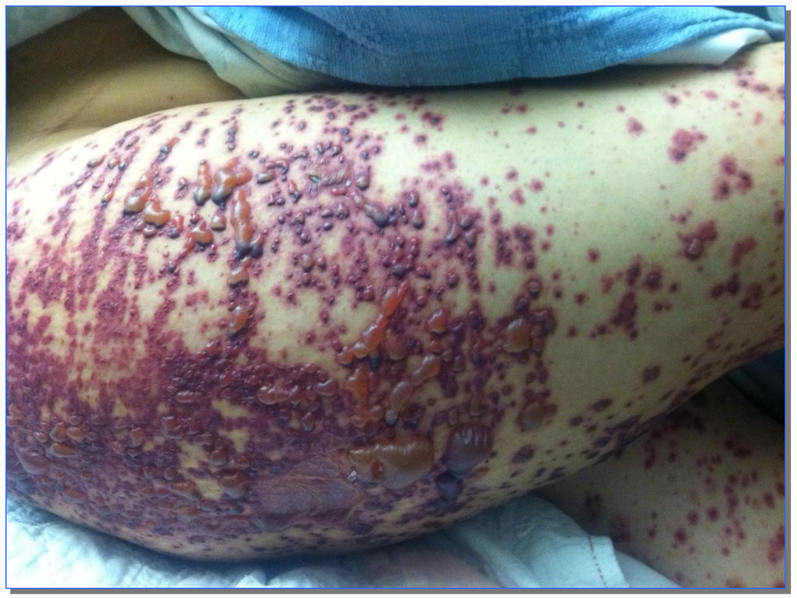
Rachael Hauser M.D.; Elisha Brumfield D.O.

Introduction

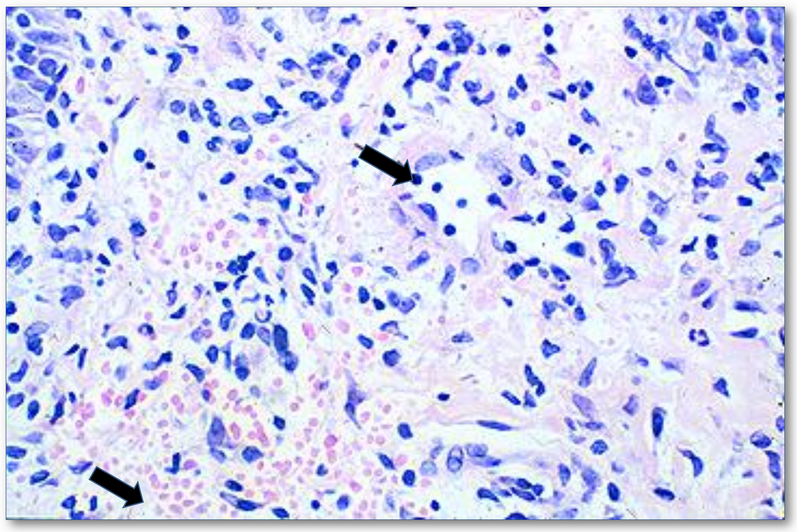
- Cutaneous leukocytoclastic angiitis, or hypersensitivity vasculitis, can result from treatment by many commonly prescribed medications
- Patients present with various manifestations, which may delay diagnosis and appropriate treatment

Case Presentation

- History: 34 year-old previously healthy Hispanic female was transferred from an outlying hospital for concerns of progressive rash of two weeks duration with lower extremity edema, severe pruritus, arthralgia, abdominal pain
- Past medical history: newly diagnosed with hypertension, treated with Hydrochlorothiazide for one month
- Laboratory: UA, CBC, ANCA, ESR, Complement, RAF, ANA Panel, Cryoglobulin, HIV, Hepatitis studies were normal
- Cutaneous Biopsy: Inflammatory infiltration of lymphocytes and neutrophils, extravasation of erythrocytes, fibrin deposition in the walls of the small blood vessels with no evidence of IgA antibodies by direct immunofluorescence
- Treatment: discontinued Hydrochlorothiazide, began high dose IV steroid therapy with transition to oral taper
- Follow up: patient revealed prolonged recovery with continued hyperpigmented lesions and peripheral neuropathy



Palpable Purpura with Hemorrhagic Bullae



Punch Biopsy:
Extravasation of lymphocytes and erythrocytes.

Discussion

- Hypersensitivity vasculitis is a clinical syndrome due to immune complex deposition in capillaries, venules, and arterioles[1]
- Clinical symptoms are most commonly palpable purpura, but also includes arthralgia, myalgia, fever
- Latent period typically 7-10 days after exposure to offending agent
- Diagnostic Criteria[2]
  - Age > 16
  - Offending agent
  - Palpable purpura
  - Maculopapular rash
  - Biopsy with neutrophils around arterioles/venules
- Common insulting medications include penicillin, cephalosporins, loop diuretics, and thiazide diuretics
- These agents function as a hapten to stimulate an immune response[3]
- Infections such as hepatitis and HIV have also been associated
- Although an infrequent adverse reaction to a regularly prescribed medication, providers must be aware of this risk to provide appropriate treatment and prevent long term sequelae

References

1. Tosca N, Stratigos JD. Possible pathogenetic mechanisms in allergic cutaneous vasculitis. Int J Dermatol 1988;27(5):291-6.
2. Calabrese LH, Michel BA, Bloch DA, et al. The American College of Rheumatology 1990 criteria for the classification of hypersensitivity vasculitis. Arthritis Rheum 1990;33(8):1108-13.
3. Calabrese LH, Duna GF. Drug-induced vasculitis. Curr Opin Rheumatol 1996;8(1):34-40.

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Immune Thrombocytopenic Purpura as the Presenting Feature of Primary Small Bowel Adenocarcinoma

Eric R. Wiedower, DO, Seth Page, MD, Shawn Jackson, MD, and Elie Chalhoub, MD

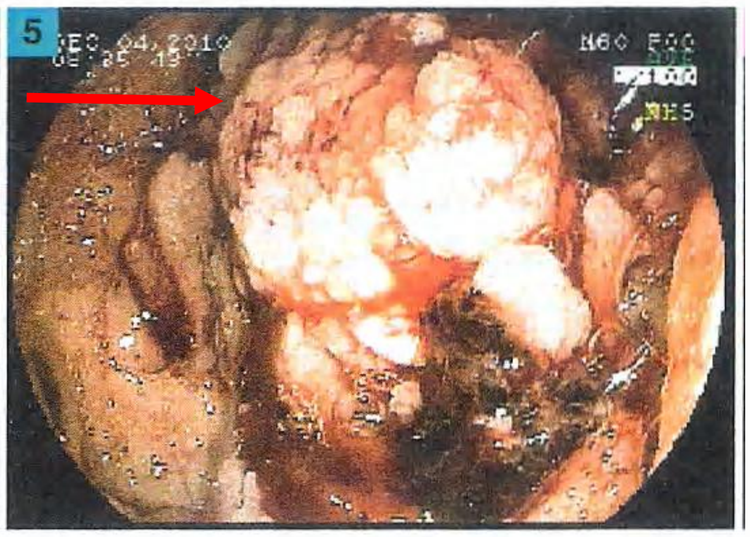
Introduction

- **Small bowel adenocarcinoma** is a rare malignancy with only 6,969 cases reported annually in the US, accounting for approximately 2% of gastrointestinal tumors and less than 0.4% of all malignancies.
- **Immune thrombocytopenic purpura** (**ITP**) is a common hematological disorder with an incidence of two cases per 100,000 people. While ITP has many clinical manifestations, it uncommonly is the presenting feature of a malignancy.

Case Presentation

This is a 72-year-old female that presented with coffee-ground emesis and melanotic stools. The patient was found to be thrombocytopenic with a platelet count of 13K in addition to acute blood loss anemia. She responded poorly to platelet transfusion.

EGD shows large, fungating mass present at level of duodenal bulb

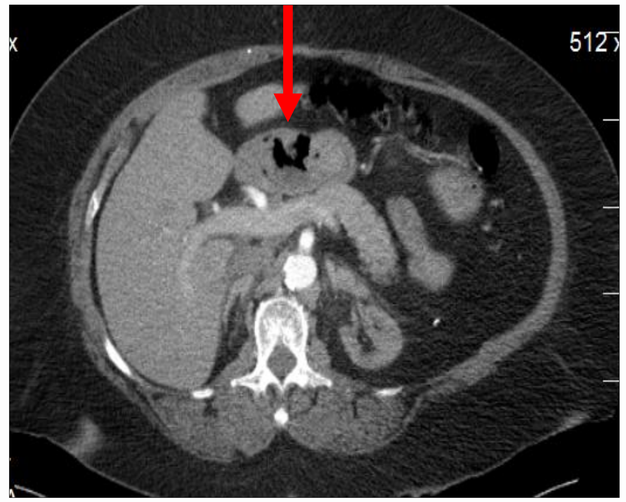


ITP Diagnosis and Treatment

- Treated with IVIG and steroids empirically
- Platelets respond well with ITP treatment
- Bone marrow biopsy consistent with ITP
- Completely resolved after 3 month steroid taper with no recurrence

Primary small bowel adenocarcinoma

- Discovered during EGD for hematemesis
- Biopsy confirmed diagnosis
- No sign of metastatic disease on CT scans
- Received proximal resection of duodenum
- Currently doing well



Duodenal mass present on abdominal CT scan

Conclusions

While more commonly associated with humoral malignancies, **ITP** can also manifest in presence of a solid tumor. An extensive review of the literature showed no case reports of **ITP** as the presenting feature of primary **small bowel adenocarcinoma**. The significance of **ITP** as a paraneoplastic syndrome for this malignancy is unknown. While no causal link can be made from the primary carcinoma in situ and her immune thrombocytopenia, certainly her severe thrombocytopenia directly resulted in the discovery of a rare small bowel tumor.

References

1. Abraham J, Gulley JL, Allegra CJ. Bethesda Handbook of Clinical Oncology. Philadelphia: Lippincott Williams & Wilkins, 2005, pp. 147-151.
2. Bir A, Bshara W, George M, Fakih MG. Idiopathic Thrombocytopenic Purpura in a Newly Diagnosed Pancreatic Adenocarcinoma. J Pancreas 2006; 7(6):647-650.
3. Cines DB, Bussel JB, Liebman HA, Luning Prak ET. The ITP Syndrome: Pathogenic and Clinical Diversity. Blood 2009; 113(26);6511-6521.
4. Rodgers GP, Young NS. Bethesda Handbook of Clinical Hematology. Philadelphia: Wolters Kluwer Health/Lippincott William & Wilkins, 2010, pp. 250-252.

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MALIGNANT HYPERTENSION LEADING TO A DIAGNOSIS OF AN ALDOSTERONE AND CORTISOL CO-SECRETING ADRENAL TUMOR

Dereje Desta, MD; Leigh M. Eck, MD; Becky N. Lowry, MD

INTRODUCTION

Only 10 to 15% of adrenal incidentalomas are classified as hyper-functioning. Of functional tumors, the majority are subclinical Cushing's syndromes, followed by pheochromocytomas and aldosterone producing adenomas. Aldosterone and cortisol co-secreting tumors are rare. Current clinical practice guidelines have limited recommendations regarding the evaluation and management of co-secreting adenomas.

CASE PRESENTATION:

An 86 year old female with long standing, resistant hypertension despite a five drug regimen, was transferred for management of hypertensive emergency. Due to notable hypokalemia on presentation, a work up for primary aldosteronism (PA) was pursued with a suggestive screening aldosterone-to-renin ratio of 38. PA was confirmed with an elevated aldosterone level on a salt loaded 24-hour urine collection. Adrenal imaging revealed a right adrenal mass, likely an adrenal adenoma. In light of this finding, screening for Cushing's syndrome and pheochromocytoma was undertaken to complete the hormonal evaluation. Notably, a 24-hour urine free cortisol was elevated at 121µg/24hrs with a subsequent abnormal overnight dexamethasone suppression test confirming a diagnosis of subclinical Cushing's syndrome. This was ACTH independent in etiology confirming an adrenal source. Laparoscopic adrenalectomy was pursued with pathology revealing a 4.2 x 3.1 x 3.0 cm adrenal nodule. The patient did well post-operatively requiring only one blood pressure agent.

Table 1: Endocrine Lab Evaluation

Test	Result	Normal Value
Aldosterone	23	<22 ng/dl
Renin	0.6	2.9-10.8 ng/ml/hr
PAC/PRA	38	<30
24 hr UFC	121	3.5-45 µg/ml/hr
1mg DST	9	< 1.8 µg/dl
24 hr urinary catecholamine and metanephrine	Normal	

UFC : Urinary free cortisol

DST: Dexamethasone suppression test

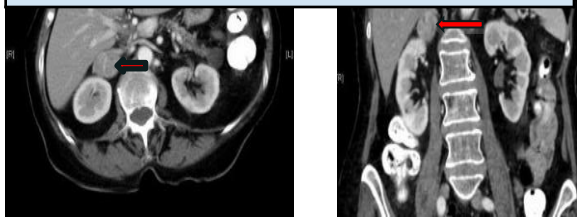

Figure 1: CT scan of the abdomen without intravenous contrast revealing a right adrenal mass, left transverse view and right coronal view

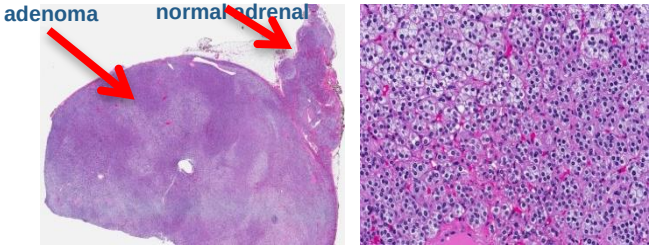

Figure 2: Pathology slides, low power (left) and high power (right), showing the similarity of the adenoma cells to the non-neoplastic cells of the adrenal cortex; the cells are bland, without nuclear pleomorphism.

DISCUSSION

Primary aldosteronism is a common cause of secondary hypertension. Although screening for pheochromocytoma, Cushing's syndrome and PA is recommended for the work up of an adrenal incidentaloma, expert guidelines for the evaluation of PA do not mandate the same comprehensive hormonal evaluation. Had this screening not been undertaken in our patient, a diagnosis of an aldosterone and cortisol co-secreting adrenal tumor would have been missed.

1. Nieman LK, Biller BM, Findling JW, et al. The diagnosis of Cushing's syndrome: an Endocrine Society Clinical Practice guideline. J Clin Endocrinol Metab 2008; 93:1526–1540
2. John W. Funder, Robert M. Carey, et al.Case detection, diagnosis, and treatment of patients with primary aldosteronism: an endocrine society Clinical Practice Guideline .J Clin Endocrinol Metab 2008; 93: 3266-3281
3. Mantero, F,Terzolo,M,Arnaldi,G.et al. A survey on adrenal incidentaloma in Italy Study group on adrenal tumors of the Italian society of endocrinology and metabolism 2000 ; 85,637-644.
4. Piaditis GP, Kaltsas GA, Androulakis II, et.al. (2009) High prevalence of autonomous cortisol and aldosterone secretion from adrenal adenomas. *Clin Endocrinol (Oxf)* 71: 772-778.
5. NIH Consensus Panel. NIH state of the science conference on the management of the clinically in apparent adrenal mass. 2002.

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MARANTIC ENDOCARDITIS IN A PATIENT WITH SUSPECTED LUNG CANCER

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UNIVERSITY OF KANSAS MEDICAL CENTER, KANSAS CITY

OBJECTIVE

To present a case of Marantic Endocarditis in a patient with suspected lung cancer.

INTRODUCTION

Marantic or Non bacterial thrombotic endocarditis(NBTE) is a uncommon form of endocarditis usually seen in patients with underlying malignancy. Can rarely even occur in patients without malignancy. Common manifestation is systemic embolism. Diagnosis is usually made by TEE. Treatment includes systemic anticoagulation in cases with no contraindications and work up of underlying malignancy.

CASE PRESENTATION

63 year old man presented with left arm weakness, numbness and aphasia. Imaging of his head was done. MRI showed multiple strokes in cerebral cortex. CT head did not show any evidence of hemorrhage. He was evaluated by Neurology and was started on Heparin drip. Patient had another episode of stroke after a few hours. MRI head this time showed evolution of previously noted cerebral infarcts with small areas of hemorrhage and development of new bilateral cerebral and cerebellar infarcts. Heparin drip was discontinued. Further work up was done to evaluate the etiology of thromboembolism. Transesophageal Echocardiogram(TEE) showed small vegetations on the aortic and mitral valve. CT scans showed splenic and bilateral renal infarcts. Patient developed peripheral stigmata of endocarditis on the next day. Blood cultures were negative, so the empiric antibiotics were discontinued. His hospital course was complicated by development of Diffuse Alveolar Hemorrhage and DIC leading to his demise. He was suspected to have lung cancer due to weight loss, hemoptysis and suspicious lesion on CT scan of chest. Further work up including diagnostic bronchoscopy could not be done due to above complications and clinical deterioration.

DIAGNOSIS

Transesophageal echocardiogram(TEE) is the preferred diagnostic modality. Lesions range from microscopic aggregates of platelets to large vegetations on heart valves, most often mitral and aortic valve. Valvular dysfunction or valvular destruction is less common. Blood cultures are negative indicating non infectious etiology. Common sites of embolization include spleen, kidney, extremities but most significant morbidity is from embolism to central nervous system. Typical stroke pattern is seen on MRI head.

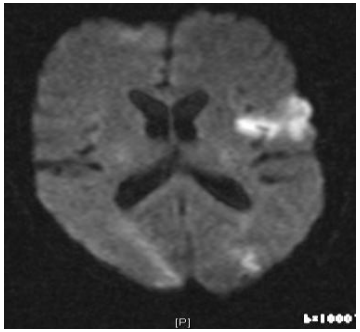

Image 1: MRI, diffusion weighted image showing typical stroke pattern.

TREATMENT

The main treatment objective is anticoagulation to prevent further episodes of thrombo embolism. Indefinite systemic anticoagulation if there are no contra indications is the main treatment. Surgical intervention is indicated in case of heart failure from valve dysfunction. Antibiotics are usually not indicated due to non infectious nature.

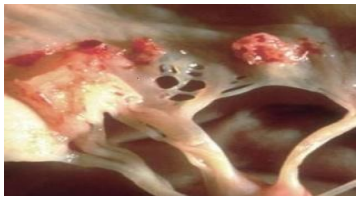

Image 2. Postmortem specimen of vegetations seen in marantic endocarditis

DISCUSSION

HISTORY

Malignancy is commonly associated with hypercoagulability. Occasionally patients may present with thrmoboembolism, marantic endocarditis.

PHYSICAL EXAM

Physical findings of systemic embolism or endocarditis are seen based on clinical course.

DIAGNOSTIC TESTS

- Blood cultures to rule out infectious endocarditis.
- TEE is preferred mode to diagnose vegetations on heart valves.
- Imaging to evaluate systemic embolism. MRI especially diffusion weighted images are useful in case of stroke.
- Most importantly work up has to be performed to diagnose underlying malignancy.

TREATMENT

- Supportive care
- Anticoagulation: Indefinite systemic anticoagulation if no contraindications
- Surgical management in case of heart failure secondary to valve dysfunction.
- Treatment of underlying cause, malignancy.

REFERENCES

Borowski A, Ghodsizad A, Cohen M, Gams E. Recurrent Embolism in the course of Marantic Endocarditis, Annals of thoracic surgery, Dec 2003.

Jameson G, Ramanathan R, Borad M, Downhour M, Korn R. Marantic endocarditis associated with pancreatic cancer. Case reports of Gastroenterology 2009.

Smeglin A, Ansaria M,Skali H, Oo T. Amrantic Endocarditis, DIC with systemic emboli in a patient with pancreatic cancer. American society of clinical Oncology Dec 2007.

Singhal A, Buonanno T. Acute Ischemic stroke pattern in infective and non bacterial thrombotic endocarditis. Stroke 2002

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My kidneys just stopped working:
Adult onset end-stage renal disease from rare metabolic disorder

Mark J. Oertel, M.D; Sri Yarlagadda, M.D; University of Kansas Medical Center, Kansas City

Objective

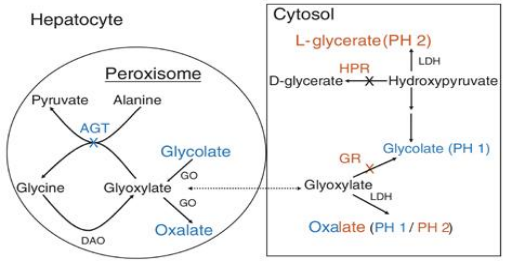
To introduce primary hyperoxaluria as a cause of end stable renal failure which presents with diffuse systemic manifestations

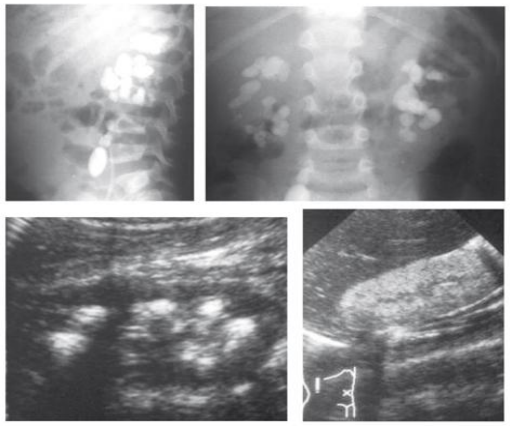
Background:

Primary hyperoxaluria (PH) is a rare metabolic disorder caused by defects in pathways of glyoxylate metabolism that causes increased oxalate production. PH type 1 (80%, most common) is due to defects in the gene that encodes hepatic peroxisomal enzyme alanine:glyoxylate aminotransferase (AGT), which converts glyoxylate to glycine. Early renal failure is a common outcome due to calcium oxalate nephrolithiasis formation and nephrocalcinosis. Untreated hyperoxaluria can result in systemic oxalosis causing damage to the heart (arrhythmias, cardiomyopathy), nerves (neuropathy), blood vessels (gangrene), kidneys (nephrolithiasis, nephrocalcinosis), eyes (retinal oxalate deposition), and joints (synovitis).

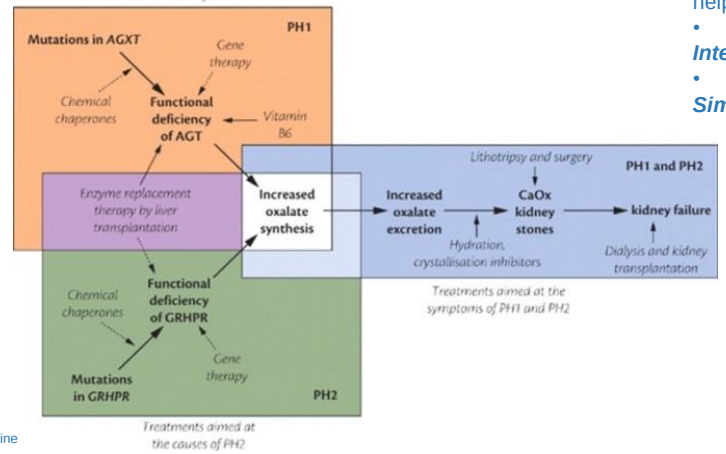
Case Report:

48 yo white male presented through the ED with dyspnea, diffuse arthralgias (wrists, ankles, and knees), sick sinus syndrome s/p recent cardiac arrest and intra-cardiac device (ICD) placement, and end-stage renal disease for 4 months with a history of nephrolithiasis since childhood. He previously had received all care through an outside hospital where he was followed for rapidly progressive renal failure requiring dialysis after having minor renal insufficiency with serum creatinine of 2.0 only 8 months prior. Work up including physical and laboratory evaluation showed elevated serum oxalate level of 59 umol/L (normal < 27 umol/l) despite hemodialysis. After diagnosis of PH his symptoms improved with six times weekly hemodialysis. Initial evaluation for simultaneous liver-kidney transplant was initiated for definitive treatment.





Treatments aimed at the causes of PH1



Treatments aimed at the symptoms of PH1 and PH2

Treatments aimed at the causes of PH2

Discussion:

PH is a rare disease affecting 1 to 3 persons per 1,000,000. Further, cases of adult onset end-stage renal failure from this disease are exceedingly rare based off literature review. Despite having classic constellation of symptoms of this crystalopathy, his diagnosis was delayed. Clinical suspicion must be maintained for hereditary causes of renal failure in adults when usual work up remains negative.

Diagnosis

Diagnosis typically made in childhood after recurrent calcium stones and oxalate crystals in urine sediment. Renal ultrasound shows urolithiasis nephrocalcinosis. Urine studies showing marked hyperoxaluria in absence of GI disease. Measurement of 24 hour urinary oxalate is preferred for diagnosis but can be falsely low with decreased Gfr. With renal dysfunction plasma oxalate/creatinine ratio or liver biopsy to measure AGT activity can be used.

Treatment

Goal -- reduction of urinary calcium oxalate saturation and oxalate production

- **Initial treatment**

High dose pyridoxine (10mg to 300mg daily) which helps convert glyoxylate to glycine rather than oxalate

- **With Renal Dysfunction**

Intensive dialysis (Daily 5-hour sessions)

- **Permanent Treatment**

Simultaneous liver and kidney transplant

REFERENCES

Niaudet, Patrick MD. Primary hyperoxaluria, UpToDate. May 31st 2011

Raju DL, Cantarovich M, et al. Primary hyperoxaluria: clinical course, diagnosis, and treatment after kidney failure. American Journal of Kidney Disease. January 2008., Vol51, Issue 1

Harambat, Jerome, et al. Primary hyperoxaluria. International Journal of Nephrology. June 2011

Current and future approaches to the treatment of primary hyperoxaluria. Oxford Textbook of Medicine

http://trialx.com/curetalk/wp-content/blogs.dir/7/files/2011/05/diseases/Primary_Hyperoxaluria-2.jpg

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Myxedema-Associated Hypercalcemia

Kimberly Graham, D.O., Alana K. Fearey, D.O., and Michael E. Grant, M.D.

Introduction

- Hypercalcemia is a relatively common clinical problem occurring when there is increased bone resorption, excessive gastrointestinal absorption, or decreased renal excretion of calcium.
- The most common causes of hypercalcemia are primary hyperparathyroidism and malignancy, accounting for 90% of all cases.
- Ten percent of cases are caused by other conditions.

Case Presentation

- A 45-year-old female with no significant past medical history, presented to her primary care physician with fatigue, falling, decreased appetite, and weakness.
- Labs showed a serum creatinine of 4 mg/dL, a serum calcium of 15 mg/dL, and a TSH level of 177 mI/L. No metabolic alkalosis was present.
- She was admitted to the hospital and treated with IV fluids, calcitonin, and levothyroxine.
- Her PTH and PTH-related peptide were low; further workup was directed towards evaluation of a systemic or neoplastic process as a cause of hypercalcemia, which was causing the acute renal failure.
- CT scans of the chest, abdomen, and pelvis failed to reveal any evidence of neoplasm, lymphoma, or renal abnormalities.
- Urine and serum studies were obtained to assess for multiple myeloma, revealing a polyclonal gammopathy of uncertain significance.
- Bone marrow aspirate did not reveal evidence of malignancy.
- Her condition improved and she was able to be switched from IV to oral levothyroxine.
- Her profound hypothyroidism appears to have contributed to her hypercalcemia.
- After correcting her hypothyroidism, her hypercalcemia resolved and has not recurred.
- Her renal function also improved with correction of the hypercalcemia, with a current creatinine of 1.6.

Discussion

- This case presents an important question: Can myxedema cause hypercalcemia?
- In a study published in 1962, investigators studied the effects of hypothyroidism on calcium balance in rats, based on a patient with similar findings.
- Their observations showed that “thyroid insufficiency may be accompanied by the propensity toward the development of hypercalcemia upon ingestion of large amounts of calcium.”
- Although our patient was not known to be ingesting excessive amounts of calcium, there appears to be no other explanation for her hypercalcemia and its resolution other than profound hypothyroidism and its successful treatment.
- We suggest that, although apparently rare, the differential diagnosis of hypercalcemia should include profound hypothyroidism.

References

Lowe CE, Bird ED, Thomas WC Jr. Hypercalcemia in myxedema. J Clin Endocrinol Metab 1962; 22(3):261-267.

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Narcotic Bowel Syndrome: Under Recognized Diagnosis Resulting in Over-Utilization of Health Care Resources

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Background

Narcotic bowel syndrome (NBS) is defined as chronic (more that 3 months in duration) non-cancer abdominal pain, requiring at least 100 mg of morphine equivalent per day in the setting of continued or escalating dosages of narcotic pain medications with very little or no relief in abdominal pain. The prevalence of narcotic bowel syndrome varies based on the population studied and presenting symptoms, ranging from 0.19% in the general population to 58% in patients with chronic non-cancer abdominal pain and 9% in patients on chronic narcotics with vomiting as the major presenting complaint.

Aims

The aim of our study was to evaluate the healthcare resource utilization in patients with narcotic bowel syndrome

Methods

This is a retrospective chart review study of health care utilization in patients with narcotic bowel syndrome in a subspecialty clinic at a tertiary care center.

Inclusion criteria were :

1) Adult patients 18 years of age or older with chronic non-cancer abdominal pain of otherwise undetermined etiology
2) On 100 mg or more of morphine equivalent per day
3) No history of bowel resection or Inflammatory Bowel Disease
4) Non-pregnant

Results

Medical records of 4723 patients seen in the Gastroenterology Clinic at the University of Kansas Medical Center from 2005 to 2010 were reviewed. Seventy-eight patients met inclusion criteria for NBS. Male to female ratio was 1:3 with mean age of 44 years, consuming on average 410 mg of morphine equivalent daily.

Results (continued)

Duration of abdominal pain ranged from 6 months to 20 years. The disability rate was 74% with hospitalization/emergency room visit rate of 96% within last year (53% had multiple visits).

The most common accompanying symptoms were nausea and vomiting 80%, constipation 72%, anorexia 68% and abdominal bloating 45%. All aforementioned symptoms were present in 26% of patients with NBS.

96.2% of patients with NBS had at least one abdominal imaging study within the past one year for a total of 544 abdominal imaging studies being done, resulting in an average of 7 imaging tests per person. 94.5% of patients had at least one endoscopic evaluation within the past one year, out of which 20.5% had only EGD, 3.9% had only colonoscopy, 57.7% had both and 12.8% had ERCP, upper/lower EUS or both.

Health care provider time devoted to these patients during multiple emergency room/office visits (primary care physicians and gastroenterologists alike) and hospitalizations needs to be taken into consideration as well.

Cost analysis can be done in the future to analyze the financial burden.

Conclusions

Narcotic Bowel Syndrome is common in patients taking opiates for chronic non-cancer pain and is associated with a large burden on health care utilization. Better physician education directed at recognition of narcotic bowel syndrome as an etiology of abdominal pain and judicious use of opiates are required in order to minimize exhaustive, repetitive, costly evaluations.

References

1. Kurz A, Sessler DI. Opioid-induced bowel dysfunction: pathophysiology and potential new therapies. Drugs 2003; 63:649-71.

2. Quality improvement guidelines for the treatment of acute pain and cancer pain. American Pain Society Quality of Care Committee. JAMA 1995 2; 74:1874-80.

3. Mehendale SR, Yuan SC. Opioid-induced gastrointestinal dysfunction. Dig Dis 2006: 24:105-12.

4. Pappagallo M. Incidence, prevalence, and management of opioid bowel dysfunction. Am J Surg 2001: 182: 11S-18S.

5. Friedman JD, Dello Buono FA. Opioid antagonists in the treatment of opioid-induced constipation and pruritus. Ann Pharmacother 2001: 35:85-91.

6. Panchal SJ, Muller-Schwefe P, Wurzelmann JI. Opioid-induced bowel dysfunction: prevalence, pathophysiology and burden. Int J Clin Pract 2007; 61:1181-7.

7. Gammaitoni AR, Fine P, Alvarez N, McPherson ML, Bergmark S. Clinical application of opioid equianalgesic data. Clin J Pain 2003; 19:286-97.

8 Sandgren JE, McPhee MS, Greenberger NJ. Narcotic bowel syndrome treated with clonidine. Resolution of abdominal pain and intestinal pseudo-obstruction. Ann Intern med 1984; 101:331-4.

9. Rogers M, Cerda JJ. The narcotic bowel syndrome. J Clin Gastroenterol 1989; 11:132-5.
10. IMS. Health National Prescription Audit; 2006.

11. Sandoval AJ, Furlan AD, Mailis-Gagnon A. Oral methadone for chronic noncancer pain: a systematic literature review of reasons for administration, prescription patterns, effectiveness, and side effects. Clin J Pain 2005; 21:503-12.

12. Grundemeier DM, Cassara JE, Dalton CB et al. The narcotic bowel syndrome: clinical features,pathophysiology and management. Clin Gastroenterol Hepatol 2007; 5:1128-39.

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Neurosarcoidosis Presenting as Trigeminal Neuralgia

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Introduction

- Sarcoidosis is a noncaseating, granulomatous disease that primarily affects the lungs and skin, but can include other organ systems.
- Central nervous system (CNS) involvement is rare, affecting 5 to 13% of patients, with many cases being subclinical.

Case Presentation

- 38 year old African American female, with a known history of sarcoidosis, presented with refractory trigeminal neuralgia.
- Magnetic Resonance Imaging (MRI) head was done, revealing a 1.5 cm x 0.6 cm x 1.1 cm mass in the left Meckel's cave (Figure 1).
- A partial craniotomy was performed and the mass was excised.

Pathology and Laboratory Results

- Frozen sections showed noncaseating, granulomatous inflammation, suggestive for sarcoidosis (Figure 2).
- Tissue stains for acid fast bacilli and fungi were negative.
- Serology studies, including Human Immunodeficiency Virus (HIV), Quantiferon Gold, and Antinuclear Antibody (ANA) were negative. Angiotensin Converting Enzyme (ACE) on serum was normal.

Clinical Outcome

- The patient's symptoms improved dramatically post operatively.
- The patient was dismissed with a tapering dose of steroids.
- Outpatient follow up with a rheumatologist was scheduled.

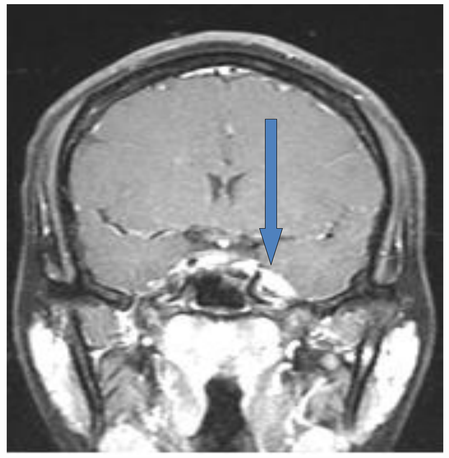


Figure 1: MRI T1 with gadolinium showing an enhancing lesion in the region of Meckel's cave.

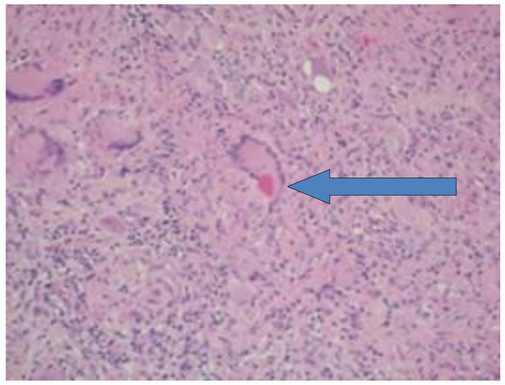
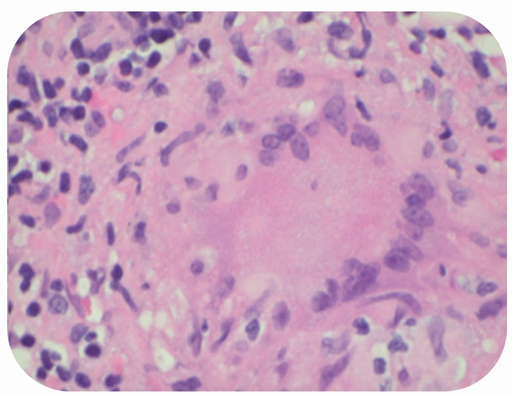


Figure 2: Low powered image (above) and high-power image (below) of inflammatory cells with multinucleated giant cells, characteristic of noncaseating, granuloma formation.



Discussion

- Neurosarcoidosis presents within two years of the initial diagnosis of sarcoidosis, most commonly affecting cranial nerve (CN) VII.
- There are very few case reports of neurosarcoidosis presenting as trigeminal neuralgia, a unilateral, sharp, intermittent pain resulting from compression of one or more of the CN V branches.
- Laboratory evaluation is limited; analysis of cerebral spinal fluid (CSF) can help rule out infectious etiologies.
- ACE is elevated in the serum of 29-60% of patients, but absence of elevation does not rule out neurosarcoidosis.
- MRI is the most common imaging modality used to investigate possible neurosarcoidosis.
- The gold standard for diagnosis is histological examination.
- Treatment includes steroids or immunomodulators.

Conclusion

- Although rare, neurosarcoidosis should be a differential diagnosis for a patient with known sarcoidosis presenting with neurological symptoms.

References

Chang CS, Chen WL, Chien-Te L, Wang PY. Cavernous Sinus Syndrome Due to Neurosarcoidosis: A Case Report. Acta Neurol Taiwan 2009; 18:37-41.
Iannuzzi MC, Rybicki BA, Tierstein AS. Sarcoidosis. N Engl J Med 2007; 357: 2153-65.
Joseph FG,Scolding NJ. Neurosarcoidosis: A Study of 30 New Cases. J Neurol Neurosurg Psychiatry 2009; 80:297-304.
Stern BJ, Krumholz A, Johns C, Scott P, Nissim J. Sarcoidosis and Its Neurological Manifestations. Arch Neurol 1985; 42:909-17.

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Noncompaction Cardiomyopathy: Uncommon and Often Missed Cause of Congestive Heart Failure with Significant Clinical Implications

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Background

- Noncompaction cardiomyopathy, also known as noncompaction of the ventricular myocardium (NCVM), is an uncommon congenital cardiomyopathy
- Characterized by multiple prominent trabeculations in the ventricular wall and deep intra-trabecular recesses within the ventricular cavity
- Several clinical features that require special consideration in medical management
- Diagnosis and proper medical management is thought to be missed or delayed – likely due to lack of awareness and difficulty of diagnosis

Case Description

History of Present Illness

- 56 year old African American woman with a significant history of congestive heart failure (CHF) and hypertension
- Presented to the emergency department with angina-like chest pain starting 4 hours prior to admission
- Chest pain described as pressure-like that was worse with exertion and better but not relieved with rest

Significant Patient History

- Hypertension and CHF only known medical problems
- Past surgeries include hysterectomy and appendectomy
- Family history remarkable for diabetes, cancer, and heart attack
- Denies regular alcohol, tobacco, or drug use

Case Description

Initial Assessment

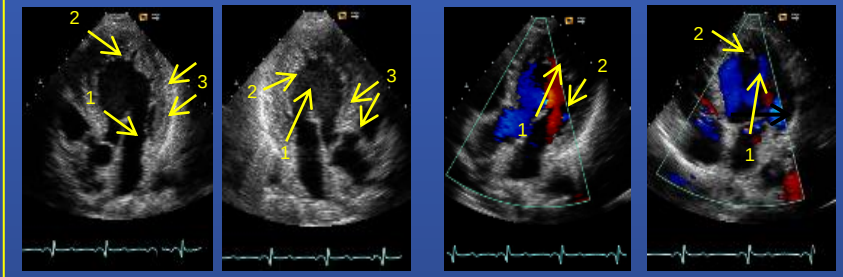
- Physical exam revealed S4 gallop and bilateral lower lobe crackles; otherwise unremarkable
- Troponin mildly elevated at 0.5 ng/mL
- Lab otherwise unremarkable
- EKG showed T-wave inversion in leads V3-V6 and mild anterior lead ST-elevation – unclear if acute myocardial infarction versus left ventricular strain

Hospital Course

- Urgent left heart catheterization performed: no underlying coronary artery disease, but severe global left ventricular dysfunction noted
- Follow-up 2D Doppler findings suggestive of congestive heart failure due to NCVM
  - Isolated left ventricular systolic dysfunction with an ejection fraction of 40%
  - Multiple trabeculations in left ventricle with blood flowing through them
  - Two distinct layers of myocardium – noncompacted and compacted layers
- Patient treated with conservative CHF management including optimization of cardiac medications and diuresis with oral furosemide
- Discharged with outpatient follow-up for further evaluation & management of NCVM including Holter monitoring and possible anticoagulation therapy

Echocardiographic Images

Figure 1 Figure 2 Figure 3 Figure 4



Figures 1 & 2: standard 2D echo demonstrating 1) trabeculations 2) intra-trabecular recesses 3) two distinct lavers of myocardium

Figures 3 & 4: 2D Doppler echo illustrating 1) blood flow through the intra-trabecular recesses 2) trabeculations

Echocardiographic Images

Etiology

- Rare congenital cardiomyopathy found in ~0.014% of echocardiograms
- Typically diagnosed in adulthood
- Cause thought to be due to arrest of embryonic myocardial development
- Both familial and sporadic forms identified

Diagnosis

- Diagnosis classically done with 2D echo, but cardiac MRI is an alternative modality
- No current universal diagnostic criteria

- Diagnosis suggested by: 1) prominent trabeculations 2) intra-trabecular recesses with blood flow 3) two distinct myocardial layers 4) no other possible cause present

Clinical Features & Management

- Clinical presentation can range from asymptomatic to life-threatening
- Three unique features: 1) progressive CHF 2) arrhythmias 3) intra-ventricular thrombi
- Management considerations: 1) optimize CHF treatment 2) Holter monitoring 3) aspirin vs. warfarin for anticoagulation therapy

Persistent Hypoglycemia in a Diabetic Patient

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Introduction

Hypoglycemia occurs commonly in the diabetic patient. In some clinical situations, a hypoglycemic workup is indicated when concerned about an endogenous cause. Even so, iatrogenic causes of hypoglycemia in known diabetics must be ruled out to avoid unnecessary testing and therapy. In the setting of severe hypoglycemia, understanding the etiology is crucial as this could ultimately lead to death if untreated.

Case Presentation

HPI - A 69 year old African American male was admitted for persistent symptomatic hypoglycemia (dizziness, blurry vision, sweats, lethargy, and fatigue). He is a known diabetic of 6 years duration with good glycemic control. He was admitted to the hospital twice, within a 5 month time frame, with glucose levels in the 30's.
PMH/PSH – CAD, ICM, HTN, HLD, CKD, DM2, Pacemaker placement
Social history – Single, Disabled, Former Smoker, No EtOH, No illicit drugs
Family History – Mother: DM2, Father: Heart Failure
Medications – Plavix, Triamcinolone cream, Losartan, Carvedilol, Spironolactone, Furosemide, Aggrenox, Allopurinol, Omega-3 Fatty Acids, ASA, Ranitidine, Lovastatin, Nitroglycerin
Physical Exam – Hypotension, otherwise VSS, exam unremarkable other than 1+ pitting edema in bilateral lower extremities
Labs – revealed low glucose, elevated creatinine, elevated BUN
Medication Reconciliation – An extensive medication reconciliation ensued, evaluating administration of insulin secretagogues (patient previously was on glimepiride). He and his family were adamant that he was not taking any glucose lowering agents as previously instructed at his last hospitalization for the same problem.

Hospital Course

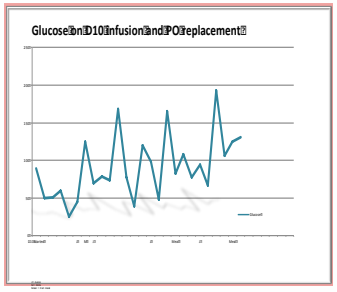
•Persistent hypoglycemia despite multiple Dextrose 50 injections
•D10 drip started with and still with some persistent hypoglycemia. (Graph 1)
•A 72 hour fast was initiated, and the glucose trend while fasting is demonstrated in Graph 2. It was anticipated that the patient's glucose level would quickly drop when withholding food and D10.

- Initial glucose within normal range
- Quickly equilibrated and blood glucose unexpectedly began to rise.
- Pro-insulin, C-peptide, and insulin levels were drawn and all elevated at start of fast.

•After the fast was initiated the patient's family brought his medications from home for review.

- Glimepiride 4 mg amongst his medication bottles.
- Admitted to usage for 2 days prior to admission.
- The fast was terminated and medication counseling for cessation ensued

Graph: 1 On D10 Infusion



Graph 2: Glucose during fast

Discussion

Hypoglycemia in the diabetic patient:
Hypoglycemia in the diabetic patient is usually secondary to exogenous insulin and/or oral diabetic agents whether it be accidental, surreptitious, or malicious.
In this patient the use of exogenous agents was adamantly denied by patient and family, he had received counseling on this multiple times before. Therefore, the concern in an otherwise well individual would broaden the differential to include:

1) Insulinoma
2) Nesidioblastosis
3) Insulin autoimmune hypoglycemia

If Whipple's triad is present, a 72-hour fast is the diagnostic test of choice in determining the etiology of hypoglycemia. This involves monitoring of glucose levels and correlating levels of Insulin, Pro-insulin, C- Peptide, and Beta-hydroxybutyrate with hypoglycemic level.

Sulfonylurea induced hypoglycemia:
Hypoglycemia is a well known side effect of oral sulfonylureas. In a study comparing glyburide to glimepiride, prevalence of more severe hypoglycemia with glyburide was suggested to be due to renal clearance. Even so, hypoglycemia remains a major side effect of Glimepiride.

Treatment:
The first intervention is cessation of the offending agent (in this case Glimepiride). Next is supportive treatment of hypoglycemia with dextrose infusions and carbohydrate rich oral intake with close glucose monitoring until medication has cleared. There has also been some efficacy shown with utilization of Octreotide as an antidote for sulfonylureas.

Prevention:
Ultimately, prevention is the best intervention. Adequate counseling on proper use and, in this case, cessation should be offered, followed by close follow-up.

Symptoms, Signs, or both	Glucose (mg/dl)	Insulin (μ U/ml)	C-Peptide (nmol/liter)	Proinsulin (pmol/liter)	B-Hydroxy-butyrate (mmol/liter)	Glucose increase after glucagon (mg/dl)	Circulating oral hypo-glycemic	Antibody to insulin	Diagnostic interpretation
No	<55	<3	<0.2	<5	>2.7	<25	No	No	Normal
Yes	<55	>>3	<0.2	<5	≤2.7	>25	No	-/+	Exogenous Insulin
Yes	<55	≥3	≥0.2	≥5	≤2.7	>25	No	-	Insulinoma, NIPHS, PGBH
Yes	<55	≥3	≥0.2	≥5	≤2.7	>25	Yes	-	Oral hypoglycemic agent
Yes	<55	>>3	>>0.2[a]	>>5[a]	≤2.7	>25	No	+	Insulin autoimmune
Yes	<55	≤3	<0.2	<5	≤2.7	>25	No	-	IGF[b]
Yes	<55	≤3	<0.2	<5	>2.7	<25	No	-	Not Insulin (or IGF) mediated

PGBH, post gastric bypass hypoglycemia.
a Free C-peptide and proinsulin concentrations are low
b Increased pro-IGF-II, free IGF-II, IGF-BIGF-I ratio
(Table 3 Evaluation and Management of Adult Hypoglycemic Disorders: An Endocrine Society Clinical Practice Guideline. *The Journal of Clinical Endocrinology & Metabolism*, March 2009, 94(3):709-728.)

References

1. Whipple AO 1938 The surgical therapy of hyperinsulinism. J Int Chir 3:237-276
2. Evaluation and Management of Adult Hypoglycemic Disorders: An Endocrine Society Clinical Practice Guideline. The Journal of Clinical Endocrinology & Metabolism, March 2009, 94(3):709-728.
3. Szoke, E., et al. Effects of glimepiride and glyburide on glucose counterregulation and recovery from hypoglycemia. *Metabolism. 2006;* 55:1, 78-83.
4. McLaughlin, S MD, Crandall, C. MD, McKinney, P. MD. Octreotide: An antidote for sulfonylurea-induced hypoglycemia. *Annals of Emergency Medicine.* 2000; 36:2, 133-138.
5. Sanofi Aventis. Amaryl (Glimepiride). Packet insert. *pk.sanofi-aventis.com/products/Amaryl-Leaflet-New.pdf.*

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Post-CABG Coronary Steal Syndrome: Chest Pain After Coronary Artery Bypass Surgery Secondary to Unrecognized Subclavian Stenosis

Jennifer Fink, MD

OBJECTIVE

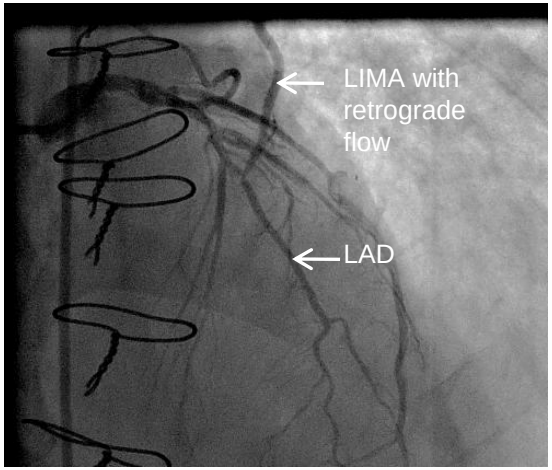
To encourage primary care physicians and cardiologists to be diligent in questioning past and future recipients of coronary artery bypass surgery, to prevent development of coronary steal syndrome.

INTRODUCTION

Subclavian steal syndrome is a well-recognized entity that results from inadequate blood flow through a narrowed subclavian artery causing arm claudication with exercise. Once diagnosed, it is easily treated with placement of a subclavian artery stent using angiography. However, if this is not recognized by clinicians prior to coronary artery bypass surgery, it can result in coronary steal syndrome. This syndrome is due to reversal of blood flow through the internal mammary artery anastomosis with exertion of upper extremities. The resulting demand ischemia can manifest as arm claudication or chest pain. Clinicians, including primary care physicians, must be aware of this rare complication to prevent further cardiac damage from persistent ischemia.

CASE PRESENTATION

A 65 year-old Caucasian male presented with angina three weeks after coronary artery bypass surgery with 5 grafts, including one from the left internal mammary artery to the left anterior descending artery. Initially thought to be a critical stenosis or complete graft occlusion, the patient was transferred to our medical center for urgent angiography and possible graft revision. EKG showed a subtle ST-elevation in lead III, and serum troponin was elevated. However, on further review of angiography done at an outside facility, it was discovered that the patient had a 90% stenosis of his left subclavian artery with retrograde flow of contrast through the anastomosis of the left internal mammary artery. On questioning, the patient reported significant arm pain with routine activities—though he had never reported this on previous encounters. An endovascular stent was placed in the left subclavian artery with good resultant blood flow and immediate resolution of chest pain.



TREATMENT

Occlusion of the subclavian artery is often managed via a percutaneous approach rather than surgery.[2] It is a fairly uncomplicated procedure to place a subclavian stent in the angiography lab with immediate improvement in symptoms and/or ischemia. Revascularization in patients with subclavian disease is usually reserved for patients with exercise-limiting angina pectoris due to coronary-subclavian steal syndrome. [2] Overall, the rate of procedural success is 98.5% with a major complication rate of 1%. At a mean follow-up of 19 ± 15 months, the primary patency rate (PPR) is 89% and the secondary patency rate (SPR) is 98.5%. [1]

REFERENCES

1. Jan M. Fuad, Allaqaband Suhail, Bajwa Tanvir, "Chapter 111. Minimally Invasive Treatment of Peripheral Vascular Disease" (Chapter). Valentin Fuster, Richard A. Walsh, Robert A. Harrington: Hurst's The Heart, 13e: http://www.accessmedicine.com.proxy.kumc.edu:2048/content.aspx?aID=7838554.

2. Georges Fayad, Thomas Modine, Jean-Paul Beregi, and Mohammad Koussa. A new form of coronary subclavian steal syndrome: 'the spinning wheels' syndrome .Interact CardioVasc Thorac Surg 2008;7:355-357; published online before print as doi:10.1510/icvts.2007.169334

DIAGNOSIS

HISTORY

Patients usually present with coronary steal syndrome with one of the following symptoms: chest pain or arm claudication with upper extremity activity, or as a myocardial infarction. History taken in any patient preparing for a coronary artery bypass surgery, or with symptoms after CABG, should include specific questions about arm claudication or chest pain that occur with upper arm exercise.

PHYSICAL EXAM

There is no specific physical exam maneuver that can elicit the symptoms of coronary steal syndrome; however, it may be helpful to test for reoccurrence of symptoms after repetitive movements of the upper extremities.

IMAGING

Diagnosis of subclavian steal syndrome and coronary steal syndrome requires coronary angiography . This will demonstrate limited blood flow through the subclavian artery and reversal of blood flow through the internal mammary artery upon filling with contrast.

DISCUSSION

Subclavian steal syndrome can be easily recognized by its classic presentation. With careful questioning of patients prior to coronary artery bypass surgery and possible implementation of standardized subclavian angiography if LIMA is to be used during bypass, coronary steal syndrome can be prevented. If a patient presents with continued chest pain or arm claudication after bypass, the diagnosis of coronary steal syndrome should be considered to prevent further ischemia and damage to an already compromised myocardium.

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Primary Angiitis of CNS: A Diagnostic Dilemma

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Introduction

PACNS is not a rare but uncommon case that we encounter. Early differentiation from Reversible Cerebral Vasoconstriction Syndrome (RCVS) is important and has profound impact on clinical outcome.

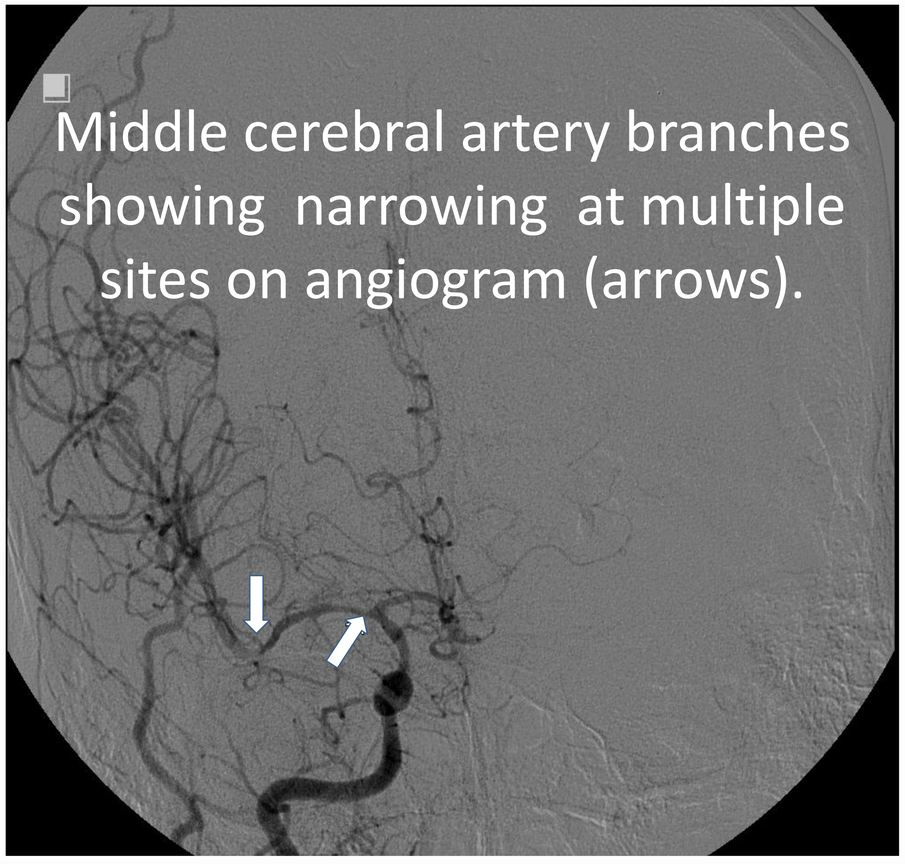
Case

A 42-year-old female, known to have migraine headaches, presented with occipital headaches, neck stiffness, and lower extremity weakness of few hours duration. Physical examination showed motor strength 4/5 in all 4 extremities.

CSF analysis showed: protein 51mg/dL, glucose 55mg/dL, WBC 9/mm^3, lymphocytes 42%, neutrophils 47%. HIV, Lyme's disease, tularemia, syphilis, *Bartonella henselae*, mycoplasma, *Coxiella burnetii*, West Nile virus serologies, and ANA, C-ANCA, P-ANCA were negative.

MRI showed ischemia in the right paracentral lobule. MRA revealed multiple short segment areas of stenosis with normal intervening segments throughout bilateral middle, anterior, and posterior cerebral artery, suggestive of vasculopathy. Findings were verified by arteriogram and biopsy demonstrated mild gliosis. Impression of PACNS was made and the condition improved with IV methylprednisolone.

Variables	RCVS	PACNS
Sex	Female predominance	No sex predilection
Onset	Seconds to minutes	Sub-acute
Headache	Acute throbbing	Dull, insidious
CSF	Normal-near normal	Abnormal > 95%
CT/MRI	Normal in majority or small watershed infarcts.	Abnormal > 90%, Small infarctions
Neuro-vascular imaging	Diffuse stenosis and dilatation or arteries	Frequently normal or indistinguishable from RCVS



Discussion

RCVS is the most important clinical mimic of PACNS.

PACNS is fatal as compared to the more benign and reversible course of RCVS. Misdiagnosing PACNS patients with RCVS can prove fatal.

Early administration of immuno-suppressive agents has significant impact on the prognosis of PACNS

References

1. Calabrese LH, Mallek JA. Primary angiitis of the central nervous system: Report of 8 new cases, review of the literature, and proposal for diagnostic criteria. Medicine (Baltimore) 1988; 67(1):20-39.
2. Calabrese LH, Duna GF, Lie JT. Vasculitis in the central nervous system. Arthritis Rheum 1997; 40:1189-1201.
3. Calabrese LH, Dodick DW, Schwedt TJ, Singhal AB. Narrative review: Reversible cerebral vasoconstriction syndromes. Ann Intern Med 2007; 146(1):34-44.

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Primary Small Cell Carcinoma Of Liver: Rare And Aggressive Tumor

Furqan S Siddiqi, MD, Zubair Hassan, MD

Introduction

Primary small cell carcinoma of liver is a rare tumor. Only 15 cases has been reported in literature.

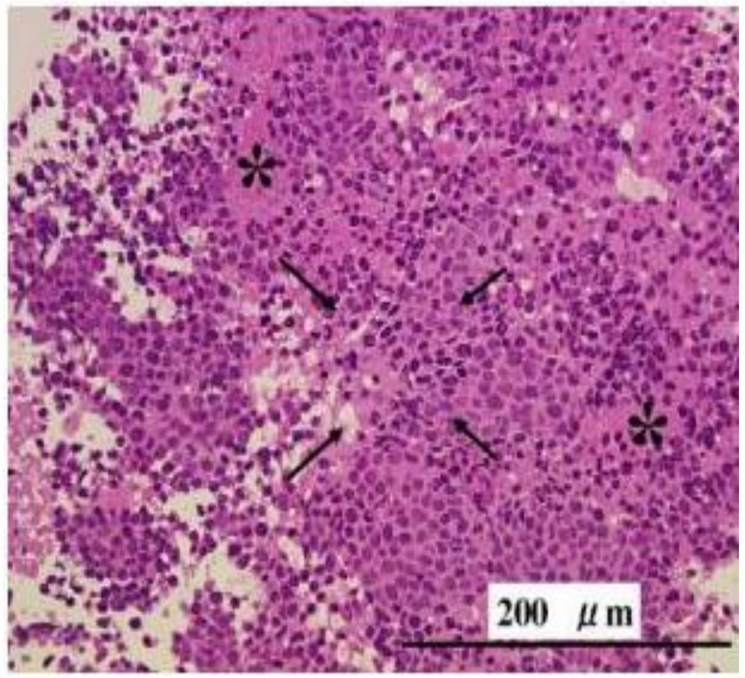
Case

A 63-year-old female presented with right upper quadrant pain of gradual onset. Her past medical history was significant for DVT, PE, and smoking for 20 years.

Her exam showed mild tenderness in the right hypochondria and the liver edge was palpable 1 cm below right costal margin. A CT scan of the abdomen showed a 8.6 x 7.6 cm mass in right lobe of the liver with extension in the intrahepatic portion of portal vein along with celiac adenopathy.

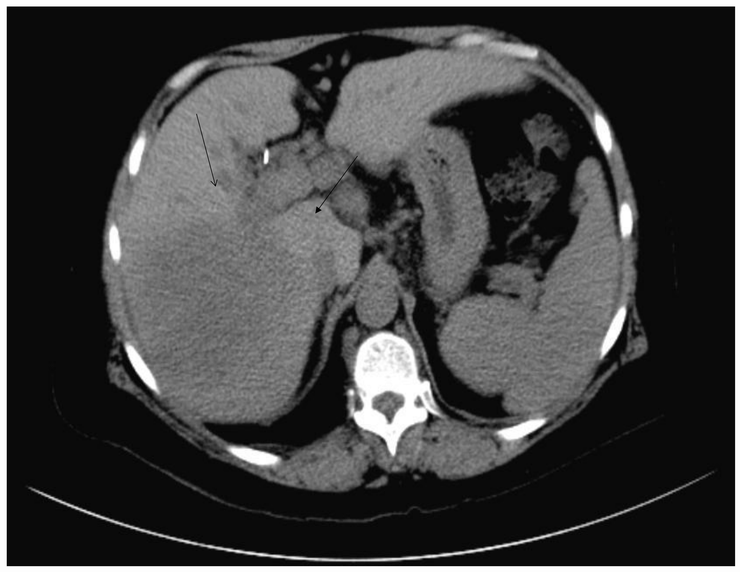
Results for serum markers were alpha fetoprotein 3.48ng/ml (0-6.1), carcino-embryonic antigen 3.8 ng/ml(0-5), and CA 19-9 86ng/ml (<37). Anti-HCV was positive. The results of a liver biopsy were consistent with small cell carcinoma. Immunohistochemical staining was positive for markers of neuro-endocrine origin including synaptophysin and chromogranin, and negative for HepPar1, TTF-1, CK20, and cirrhosis. Chest X-ray, CT of the chest, and PET scan were negative for any pulmonary lesion.

Carboplatin and Etoposide was started, but the patient died within 30 days of diagnosis.



H & E stain showing **small round cells** and **cell necrosis**(*) resembling SCC of lung.

(Morikawa H, Nakayama Y, Maeda T, Nadatani Y, Kobayashi S, Iwai S, Enomoto M, et al. A case of primary small cell carcinoma of the liver that was treated with chemotherapy. Hepatol Int 2008;2(4):500-504.



Abdominal CT scan shows a right lobe liver mass.

Discussion

Comparison of 15 cases from the literature revealed:

- Male:female ratio was 1.8:1
- 85.71% patients were above 50 years of age at the time of diagnosis
- Synaptophysin was positive in 100% (8/8) of cases
- Neuron specific enolase was positive in 87.5 % (7/8) of cases
- More than 90% (11/12) of cases were diagnosed at an advanced stage

Of 7 deaths, 5 died within 3 months of diagnosis despite standard treatment.

Conclusion

- Primary small cell carcinoma of liver is a rare tumor usually diagnosed at advanced stage.
- Synaptophysin was a reliable marker for diagnosis.
- Tumor proves to be fatal in majority of cases.

References

1. Zanconati F, Falconieri G, Lamovec J, Zidar A. Small cell carcinoma of the liver: a hitherto unreported variant of hepatocellular carcinoma. Histopathology 1996;29:449-53
2. Kim KO, Lee HY, Chun SH, Shin SJ, Kim MK, Lee KH, Hyun MS, et al. Clinical overview of extrapulmonary small cell carcinoma. J Korean Med Sci 2006;21(5):833- 837.

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Rapidly Growing Mycobacteria (RGM) And Pacemaker Infection

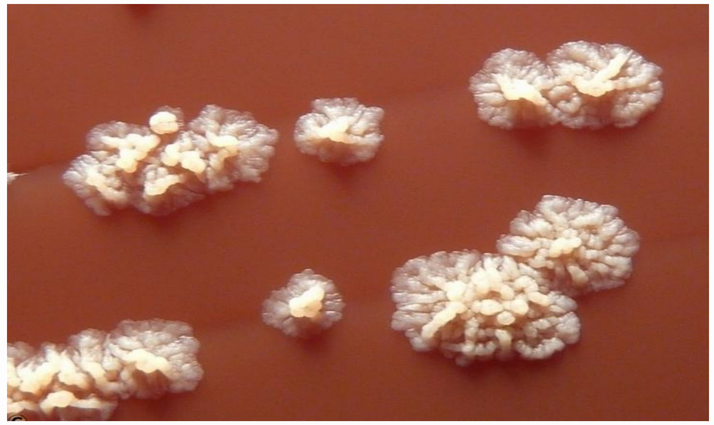
Rayane Nassar, MD and Maha Assi, MD, MPH

Introduction

- Infection rates of pacemakers and defibrillators range from 1% to 7%.
- RGM known as *M. fortuitum, M. abscessus, M.chelonae* are uncommon pathogens of pacemaker infection.

Case Presentation

- A 68-year-old male with dilated cardiomyopathy s/p defibrillator placement 3 years prior was admitted with a five-month history of fever, chills, and myalgias.
- Outside records:
  - Blood culture positive for *M. fortuitum,* 5 months prior
- On admission:
  - BP: 93/53 mmHg
  - No focal signs of infection of generator pocket
  - WBC: 4900 /µl
  - Hb: 10.1 g/dl
  - Platelets: 83000/µl
  - Blood culture grew *M. fortuitum*
- Device infection was suspected.
- Defibrillator was removed and a temporary pacemaker placed.
- Defibrillator leads grew *M. fortuitum*.
- Therapy started with amikacin 10mg/kg IV daily, cefoxitin 2 grams IV q 8 hours, and Levaquin 750 mg IV daily.
- Blood culture was negative after one week of therapy.



Mycobacterium Fortuitum
Blood Agar

Mycobacterium Fortuitum
Scanning Electron Micrograph

Discussion

- RGM are ubiquitous in the environment and have an indolent disease course.
- It shows clinical signs after trauma or surgery.
- Disseminated disease is seen in immuno-compromised patients.
- Review of the English literature revealed 5 cases of RGM pacemaker infection.
- Infections are mainly nosocomial (within 6 months), but delayed onset was also reported (>1 year).
- Suspect infection in patients with implanted cardiovascular devices even with absence of localized signs of infection on the generator site.
- Optimal treatment is removal of all device hardware, with empirical antibiotics until susceptibility results.
- RGM are in general susceptible to amikacin, fluoroquinolones, cefoxitin and linezolid
- The duration of therapy is 6 to 12 months.

Take Home Messages

- Suspect device infection in patients with positive blood culture for RGM even in the absence of pocket inflammation.
- Removal of hardware is crucial for curative therapy.
- Start empiric IV antibiotics until susceptibility testing is available.

References

1. Wallace RJ, Brown BA, Griffin DE. Nosocomial outbreaks pseudo outbreaks caused by non tuberculous mycobacteria. Ann Rev Microbiol1998; 52:453-490.
2. Cutay AM, Horowitz HW, Pooley RW, Van Horn K, Wormser GP. Infection of epicardial pacemaker wires due to mycobacterium abscessus. Clin Infect Dis 1998; 26:520-521.
3. Kessler AT, Kourtis AP. Mycobacterium abscessus as a cause of pacemaker infection. Med Sci Monit 2004; 10:CS60-CS62.
4. Pastor E, Andreu AL, Llombart M. Mycobacterium Fortuitum: una rara causa de infeccion de marcapasos. Enferm Infecc Microbiol Clin 2006; 24:135-139.

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Recurrent Interstitial Pneumonitis and Pulmonary Hemorrhage Secondary to Amiodarone Toxicity

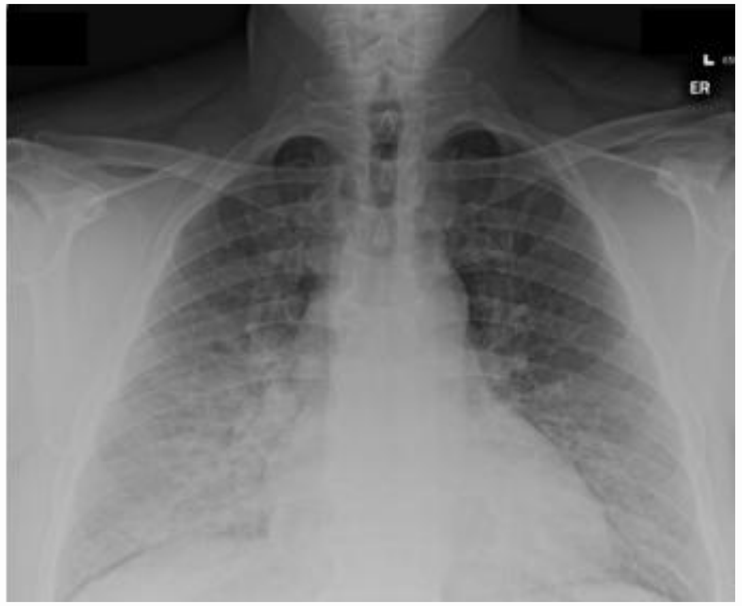
Rami Jambeih M.D. Victor Salloum M.D. Joe Lin M.D.

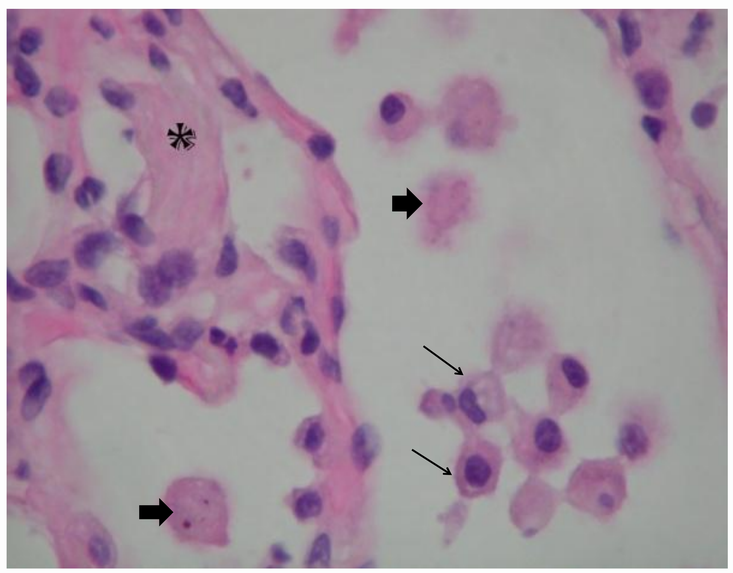
Introduction

Amiodarone is a commonly used drug with a wide range of toxicity. Pulmonary toxicity is among the most serious complications.

Case Presentation

- A 60-year-old male presented with dyspnea and hypoxemia.
- PMH includes atrial fibrillation for which he was started on Amiodarone 200 mg daily 9 months prior.
- CXR showed diffuse interstitial infiltrates.
- He failed a course of antibiotic treatment for 10 days.
- High resolution CT scan showed bilateral ground glass infiltrates suggestive of **Amiodarone induced interstitial pneumonitis.**
- Amiodarone was stopped and he was started on Prednisone.
- Symptoms improved at one-month follow-up and CXR infiltrates resolved.
- Prednisone was tapered and stopped after 2 weeks.
- One week later, he developed hypoxic respiratory failure with hemoptysis and bilateral lung infiltrates.
- Bronchoalveolar lavage revealed 3 bloody returns.
- Transbronchial biopsy showed **fibrosis** (*), **lipid laden** (small arrows), and **hemosiderin laden macrophages** (large arrows) favoring the diagnosis of **Amiodarone toxicity with diffuse alveolar hemorrhage**.





Discussion

- Pulmonary toxicity secondary to amiodarone use occurs in 5-15% of patients.
- Manifestations range from mild to severe and even fatal disease such as ARDS.
- Most common presentation is interstitial pneumonitis accounting for one-third of patients.
- **Alveolar hemorrhage is a rare complication of amiodarone pulmonary toxicity**. Only a few cases were reported.
- Amiodarone is a highly lipophilic drug that avidly binds to adipose tissues, resulting in a large distribution volume and a prolonged half-life reaching 180 days.
- Pulmonary toxicity may progress despite drug discontinuation.
- Treatment includes stopping the offending drug and initiation of glucocorticoid therapy in severe cases.
- In our case, the rapid tapering of Prednisone apparently was responsible for the acute recurrence of a more severe form of interstitial pneumonitis with evidence of diffuse alveolar hemorrhage.

Conclusion

This case highlights the deleterious pulmonary side effects of Amiodarone and emphasizes the importance of **slow tapering of glucocorticoids following amiodarone-induced lung injury.**

References

1. Mason JW. Amiodarone. N Engl J Med 1987; 316:455-466.
2. Dean PJ, Groshart KD, Porterfield JG, Iansmith DH, Golden EB Jr. Amiodarone-associated pulmonary toxicity. A clinical and pathologic study of eleven cases. Am J Clin Pathol 1987; 87:7-13.
3. Vizioli LD, Cho S. Amiodarone-associated hemoptysis. Chest 1994; 105:305- 306.
4. Podrid PJ. Amiodarone: Reevaluation of an old drug. Ann Intern Med 1995; 122:689-700.
5. Okayasu K, Takeda Y, Kojima J, Yoshizawa A, Kobayashi N, Sugiyama H, Kudo K. Amiodarone pulmonary toxicity: A patient with three recurrences of pulmonary toxicity and consideration of the probable risk for relapse. Intern Med 2006; 45:1303-1307.

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Retroperitoneal Compartment Syndrome:
A Case of Reversible Renal Insufficiency

Samuel Akidiva, M.D., Dennis L. Ross M.D., Michael W. Lievens M.D.

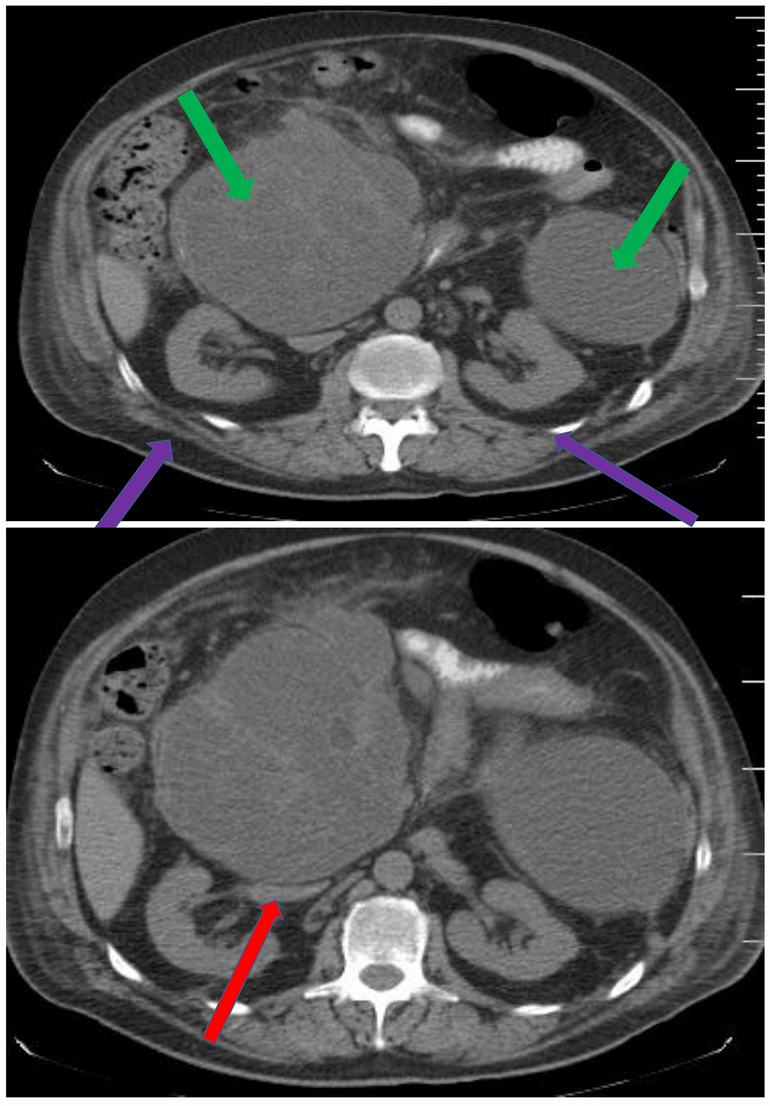
Introduction
Abdominal compartment syndrome is intra-abdominal hypertension induced organ dysfunction without a strict intra-abdominal pressure threshold. When the pressure causing organ dysfunction is retroperitoneal in location its referred to as retroperitoneal compartment syndrome. We highlight a case of reversible dialysis dependent renal failure in a patient with necrotizing pancreatitis with pancreatic psuedocysts causing retroperitoneal compartment syndrome.

History
A 60-year-old patient with necrotizing pancreatitis diagnosed and treated at an outside hospital presented a month later with intractable nausea and vomiting, early satiety, weight loss, and renal failure on scheduled dialysis.

Physical Exam
His exam revealed jaundice, cachexia, massive ascites, and edema.

Selected Labs
Creatinine 5.97 mg/dL; BUN 40 mg/dL; Bilirubin 1.6 mg/dL; Alkaline Phosphatase 164 U/L; Glucose 214 mg/dL. Bilirubin and Alkaline Phosphatase rose to 6.2 mg/dL and 1467 U/L respectively just before surgery.

Surgery
Pseudocyst contents were under intense pressure. Good urine output was obtained within minutes of drainage. Creatinine stabilized at 1.5 mg/dL when off dialysis.



CT SCAN ABDOMEN;
Greeen arrows: pancreatic pseudocysts.
Purple arrows: retroperitoneal compression of kidneys.
Red arrow: renal vascular compression.

Discussion
Pancreatitis is a relatively common disease with many different underlying causes. When there is severe necrosis, pseudocysts develop to wall off the inflammation and limit the extent of the tissue damage. Surgery to remove these pseudocysts usually is delayed to allow for maturation of the cysts and typically requires at least six weeks. These cysts can cause pressure symptoms based on their size and location. Early intervention has been advocated in certain cases of pancreatic pseudocysts.

Conclusion
When acute renal failure that occurs in the setting of pancreatitis with pancreatic pseudocysts does not resolve, it is important to consider retroperitoneal compartment syndrome. **Timely diagnosis and treatment may prevent progression of renal injury to end stage renal disease requiring lifelong dialysis.**

References
Bradley EL, Clements JL Jr, Gonzalez AC. The natural history of pancreatic pseudocysts: A unified concept of management. Am J Surg 1979; 137:135.

Vitas GJ, Sarr MG. Selected management of pancreatic pseudocysts: Operative versus expectant management. Surgery 1992; 111:123.

Sugrue M. Abominal compartment syndrome. Curr Opin Crit Care 2005; 11:333.

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Rheumatoid Pleural Effusion in a Patient Without a Previous Diagnosis of Rheumatoid Arthritis

Anna Johnson, MD

Introduction

Rheumatoid pleural effusion is a well-known complication of rheumatoid arthritis, although a rare one. Patients usually carry a diagnosis of rheumatoid arthritis (RA) prior to being diagnosed with a rheumatoid effusion.

Clinical Case

•A 68 year old female presented with 3-4 days of dyspnea on exertion and was found to be hypoxemic. Chest x-ray showed a large left-sided pleural effusion.

• Thoracentesis drained about 300 ml of yellow serous fluid. Pleural fluid analysis revealed an exudative effusion with lymphocytic predominance. The pH of the fluid was 8.0, glucose was 92 mg/dL, and ADA was 19.9 U/L.

• Pleural gram stain, cultures and AFB were negative. Pleural cytology was negative for carcinoma, and a chest CT did not show a mass. Pleural fluid RF was 2200 IU/mL.

• The patient did not have a diagnosis of RA on presentation. However, the patient's exam revealed inflammatory arthritis in her hands, and X-rays showed erosions in the hands. Serum RF and anti-CCP were positive.

• A thoracic catheter could not effectively drain the effusion, and a large effusion persisted on repeat imaging.

• After infection, malignancy and TB were ruled out, it was concluded that the patient had a rheumatoid effusion. She was initiated on azathioprine and prednisone with gradual improvement in her symptoms, and near-resolution of her effusion on repeat chest x-ray 4 weeks later.

Differential Diagnosis

Lymphocytic Pleural Effusion

- Malignancy
- Tuberculosis
- Rheumatoid Effusion
- Chylothorax
- Post-CABG

Results

	Pleural fluid	Serum
Protein	4.9 g/dL	6.6 g/dL
LDH	688 U/L	110 U/L
Lymphocytes	81%	
Glucose	92 mg/dL	134 mg/dL
pH	8.0	
ADA	19.9 U/L	
Cytology	Negative	
RF	2200 IU/mL	792 IU/mL

Table 1. Laboratory evaluation.

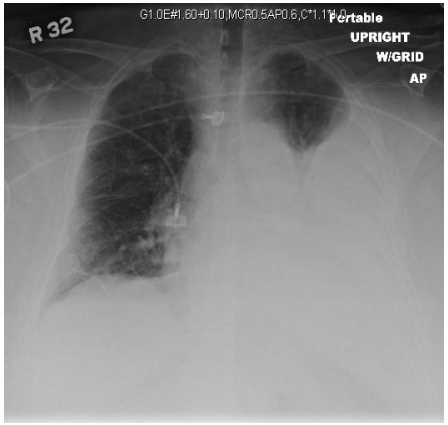

Figure 1. Chest x-ray with a large left-sided pleural effusion.

Conclusions

•This case illustrates a rare presentation of rheumatoid effusion in a patient without a previous diagnosis of RA.

• Although the patient had inflammatory synovitis on exam, the lack of a previous diagnosis of RA could have delayed the appropriate diagnosis had the exam and the lack of another explanation for the effusion not raised suspicion.

• This case was atypical for rheumatoid effusion in that the pleural fluid had a high glucose and a high pH.

• However, the lack of evidence for another cause of the lymphocytic pleural effusion combined with the high pleural fluid RF and the significant improvement with immunosuppressive medications confirmed the diagnosis of rheumatoid effusion.

• This case demonstrates that rheumatoid effusion should be in the differential for an atypical pleural effusion without obvious cause even when autoimmune disease has not yet been established.

References

1. Solling Avnon, L. *Pleural effusion associated with rheumatoid arthritis: what cell predominance to anticipate?* Rheumatol Int. 2007; 27:919-925.
2. Bouros, D. *Pleural Involvement in Systemic Autoimmune Disorders*. Respiration. 2008;75:361-371.
3. Tanoue, LT. *Pulmonary manifestations of rheumatoid arthritis*. Clinical Chest Medicine. 1998; 19:667.
4. Gary Lee, YC. *Adenosine Deaminase Levels in Nontuberculous Pleural Effusions.* Chest. 2001; 120: 356-361.

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Rose Handler's Knee: A Case of Osteoarticular Sporotrichosis

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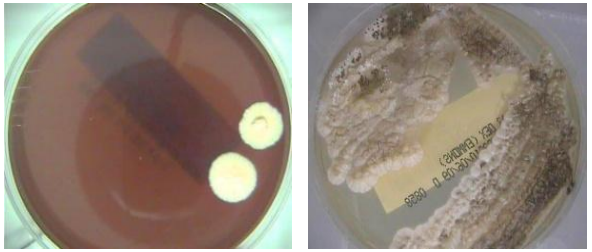
BACKGROUND

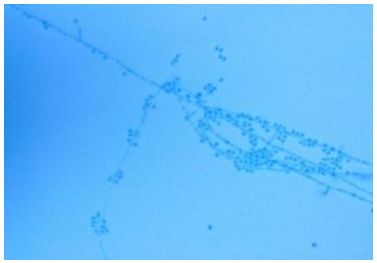
Sporotrichosis, also known as "Rose Handler's Disease", is caused by the dimorphic fungus Sporothrix schenckii. It is found throughout the world in decaying vegetation, wood, sphagnum moss and soil. Typically, healthy adults acquire this disease by direct inoculation of skin during outdoor activities. Most commonly it presents as subacute or chronic lymphocutaneous lesions of the extremities. Hematogenous dissemination may result in unusual presentations including pulmonary, meningeal and osteoarticular disease. Extracutaneous manifestations are uncommon and most often reported in immunocompromised hosts in association with alcoholism, diabetes, COPD and AIDS.

CASE PRESENTATION

A 45 year old alcoholic male presented with worsening right knee pain, swelling and intermittent purulent drainage for several months. He had experienced a minor soft tissue injury of his right knee involving a chainsaw five years prior and an injury during a basketball game three years prior. In the past one year, he had multiple I&D procedures with negative cultures. He received multiple courses of oral and intravenous antibiotic regimens without improvement. His most recent I&D procedure was performed with placement of an antibiotic cement spacer with no improvement. Extensive bony destruction, purulence and a clear sinus tract were noted during this surgery. Finally, intraoperative tissue and bone cultures grew Sporothrix schenckii after a thirty day incubation period. Therapy was started with liposomal Amphotericin B, followed by oral Itraconazole with a plan to treat for at least one year in anticipation of knee replacement due to extensive bony destruction.



Colonies of Sporothrix schenckii from surgical specimen of this patient



Lactophenol cotton blue stain from the above colony: Sporothrix schenchiii

REFERENCES

Kauffman CA, Bustamante B, Chapman SW, Pappas PG. Clinical Practice Guidelines for the Management of Sporotrichosis: 2007 Update by the Infectious Diseases Society of America. Clin Infect Dis 2007; 45:1255-1265.

Araujo TD, Marques AC, Kerdel F. Review Sporotrichosis. International Journal of Dermatology 2001;40:737-742.

Campos-Macias P, Arenas R, Vega-Memije ME, Kawasaki, M. Journal of Dermatology 2006;33:295-299.

Kaufman, C. Clinical features and diagnosis of sporothricosis. Basic Biology and Epidemiology of Sporotrichosis. UptoDate.

Long SS, Pickering LK, Prober CG, et al. Principles and Practices of Pediatric Infectious Disease. 3rd ed. Philadelphia, Pennsylvania: Elsevier Inc.; 2008 1193-1194.

DISCUSSION

Osteoarticular sporotrichosis causing septic arthritis and osteomyelitis is not a common presentation. It often involves a single joint such as the knee, elbow, ankle or wrist. A high index of suspicion should remain for Sporothrix schenckii when there is a history of injury involving possible soil inoculation, negative bacterial cultures and antibiotic treatment failure. Generally the outcome of osteoarticular sporotrichosis is poor due to delay in diagnosis and initiation of antifungal therapy. Diagnosis is often delayed by several months. This disease is difficult to treat with a high recurrence rate and poor outcome even after prolonged antifungal therapy.

DIAGNOSTIC TESTS

Culture is the gold standard for diagnosis of Sporothrix Schenckii. Material from cutaneous lesions, sputum, synovial fluid, CSF or biopsy should be obtained depending on location of infection. A majority of cases will show growth within eight days, however, some cases may take up to four weeks.

TREATMENT

First line treatment is Itraconazole 200mg orally twice daily for a minimum of twelve months.
Amphotericin B is indicated for more severe cases.
Ketoconazole and fluconazole have not been shown to be effective.
Surgical debridement alone for osteoarticular sporotrichosis is not effective but often needed in addition to antifungal treatment.

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Subarachnoid Hemorrhage: Not Always A Simple Aneurysm

Amanda Waltner, MD and Andrew Massey, MD

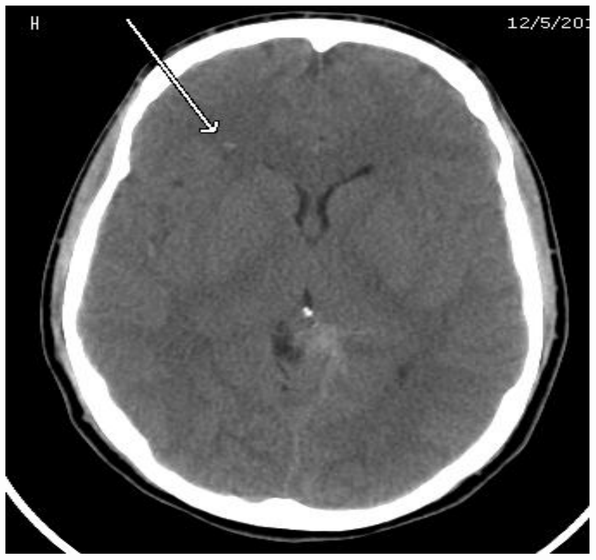
Introduction

Subarachnoid hemorrhage (SAH) is a devastating condition. It occurs in 25/100,000 people yearly and is associated with a 51% mortality. Most commonly it is caused by saccular aneurysms. It is imperative that inquiry is made for other causes of SAH, especially in those who are young and without traditional risk factors.

Case History

A 24-year-old Caucasian male presented to the ED with headache for the past two weeks not relieved with acetaminophen plus codeine. He had no neurological deficit or other abnormalities. CT of the head revealed a left cerebral SAH without shift and petechial hemorrhage in the right frontal lobe. Labs were significant for hyponatremia and hypokalemia, and high leukocyte count.

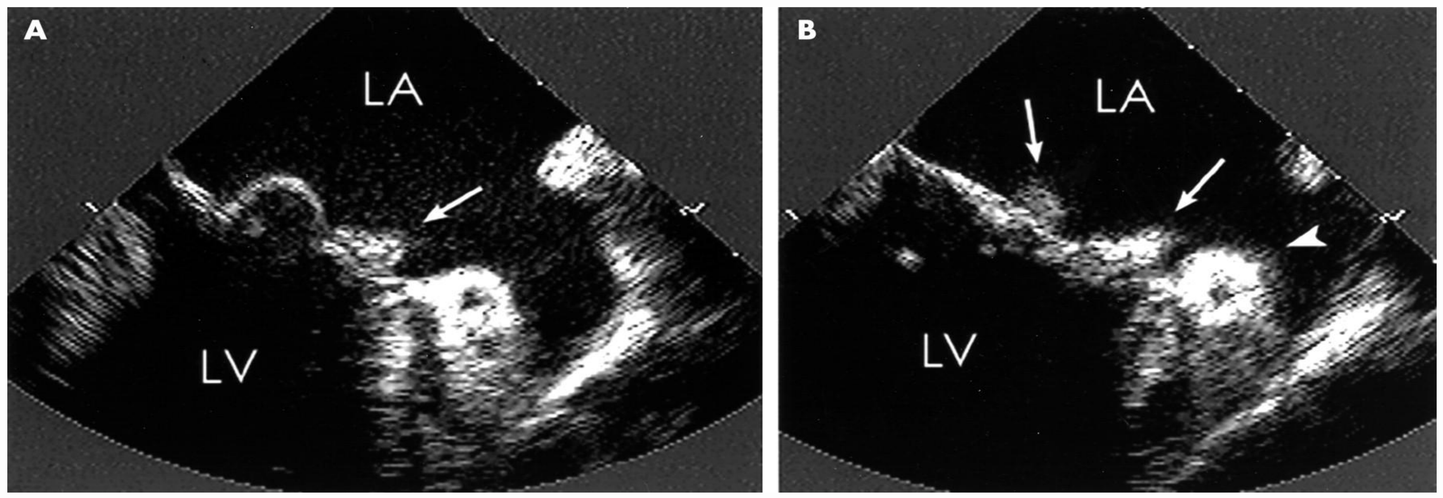
On day #3 of admission, he developed acute respiratory failure, requiring intubation, and decreased consciousness and confusion. Chest x-ray displayed pulmonary edema. There was a 4/6 systolic murmur on cardiac exam. Echocardiogram revealed a mitral vegetation with severe holo-systolic insufficiency. Blood cultures were positive for Group B Streptococcus. Thus it seems most likely that the patient developed a mycotic aneurysm from septic emboli resulting in his SAH. He was started on IV antibiotics and received an artificial valve. He did well post-op and was discharged to home in fair condition.



CT scan depicts the patient's left cerebral SAH and right petechial hemorrhage (arrow).

Discussion

Mycotic aneurysms account for less than 1% of all SAH. Approximately 20% of these aneurysms are secondary to endocarditis, though prior to antibiotics this was much higher. Most commonly, they are caused by infections with staphylococcus aureus. Fortunately, SAH secondary to these have a mortality of only 25% when treated with surgery and appropriate antibiotics. **While mycotic aneurysms are rare, identification of them in a timely fashion is imperative for the patient to receive appropriate treatment to decrease mortality.**



Echocardiogram with severe mitral vegetation (arrows).

References

1. Benderson JB, et al. Guidelines for the management of aneurysmal subarachnoid hemorrhage: a statement for healthcare professionals from a special writing group of the Stroke Council. Stroke 2009; 40:994-1025.
2. Peters PJ, et al. A dangerous dilemma: Management of infectious intracranial aneurysms complicating endocarditis. Lancet Infectious Disease 2006; 6:742.
3. Schwartz TH, Solomon RA. Perimesencephalic nonaneurysmal subarachnoid hemorrhage: Review of literature. Neurosurgery 1996; 39:433.
4. Shaikholeslami R, Tomlinson CS et al. Mycotic aneurysm complicating staphylococcal endocarditis. Canadian Journal of Cardiology 1999;47:193.

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The Perfect Storm: Pregnancy, Malignancy, and Embolic Complications
Multidisciplinary Approach to Right Atrial Mass in a Pregnant CML Patient

Amanda Valliant, M.D.; Elisha Brumfield, D.O.; Michael Cannon, M.D.

Introduction

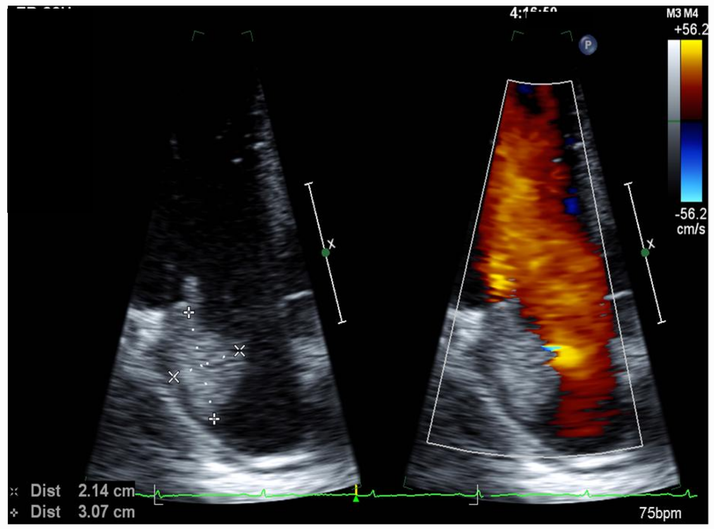
Pregnancy and puerperium are established risk factors for venous thromboembolic disease (VTE). Active malignancy adds an additional layer of risk for VTE, yet there are no clear recommendations for prophylaxis with systemic anticoagulants in this population.

Case Description

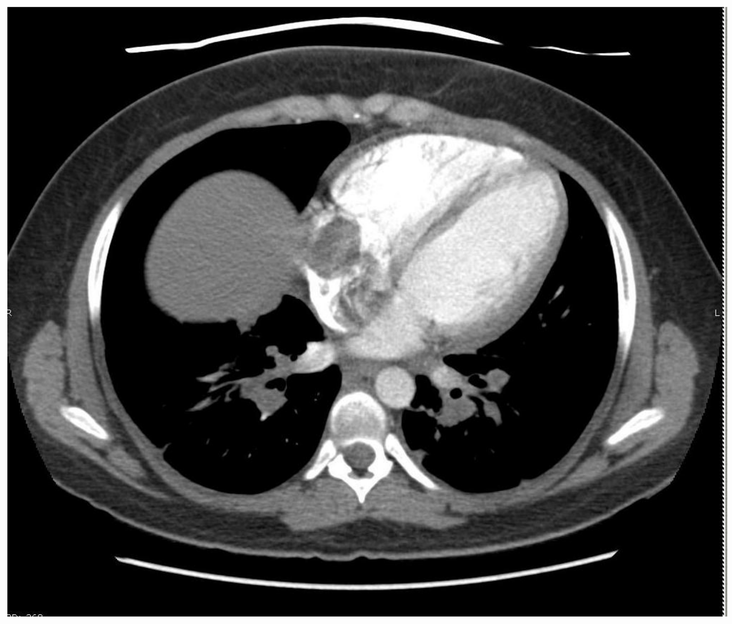
An 18-year-old gravid female known to have Chronic Myelogenous Leukemia (CML) presented at 30 weeks gestational age after being found unresponsive by her mother. She had a large pulmonary embolism (PE) as well as a right atrial mass of unclear etiology extending down into the IVC.

She had an infected venous port catheter removed 7 days prior to presentation and was being treated for an oxacillin resistant coagulase negative staphylococcus infection. There was concern for a vegetation on the tricuspid valve in addition to the atrial mass, and she was treated with vancomycin for possible SBE. Blood cultures were negative. There was no DVT demonstrated in the bilateral lower extremities, subclavian, or internal jugular venous systems.

During pregnancy her CML was managed with periodic leukopheresis and hydroxyurea. She was delivered by caesarean section on hospital day 5, and started on warfarin in addition to heparin. Biopsy of the right atrial lesion was performed due to concern for infected clot or malignancy, but demonstrated only clot.



Transthoracic echo image showing the large mass within the right atrium.



CTA reveals the mass/clot extending into the IVC.

Discussion

Right heart thromboemboli (RHTE) are typically associated with a catheter tip in the right atrium and an incidence of up to 12.5%.

Our patient demonstrated no evidence of thrombus in the subclavian or internal jugular systems at presentation, but had a catheter in place for about one month with removal only one week prior to presentation.

Central venous catheter, malignancy, procoagulant state (pregnancy), and concurrent infection were risk factors for thrombotic complications and subsequent PE in our patient.

No clear guidelines exist for prophylactic systemic anticoagulation in patients with active malignancy during pregnancy due to teratogenic effects of warfarin and potential hemorrhagic risk associated with heparin. Risks and benefits must be weighed in regard to treatment and prophylaxis for thromboembolic complications.

References

Bates SM, et al. Venous thromboembolism, thrombophilia, antithrombotic therapy, and pregnancy. American College of Chest Physicians Evidence-Based Clinical Practice Guidelines (8th Edition), 2007.
Burns K, McLaren A. Catheter-related right atrial thrombus and pulmonary embolism: A case report and systematic review of the literature. Can Respir J, 2009.
Dargoud Y, et al. A risk score for the management of pregnant women with increased risk of venous thromboembolism: a multicentre prospective study. Br J Haematol, 2009.
Manning WJ. Echocardiography in detection of intracardiac sources of embolism. www.utdol.com. 10/8/2011.

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The Silence of Neurosyphilis

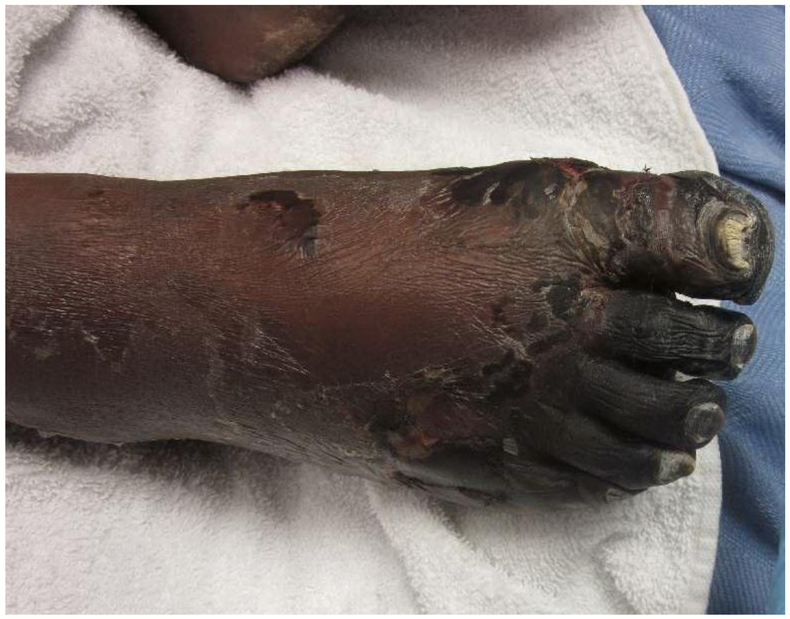
Karim Richard Masri, M.D., Sylvia Orozco-Do, M.D. and Andrew Massey, M.D.

Introduction

Meningosyphilis is an uncommon cause of stroke in the post-antibiotic era and is considered a disease of the past. With the advent of antibiotics, it is rarely encountered. We present a case of late-stage syphilis infection.

Case

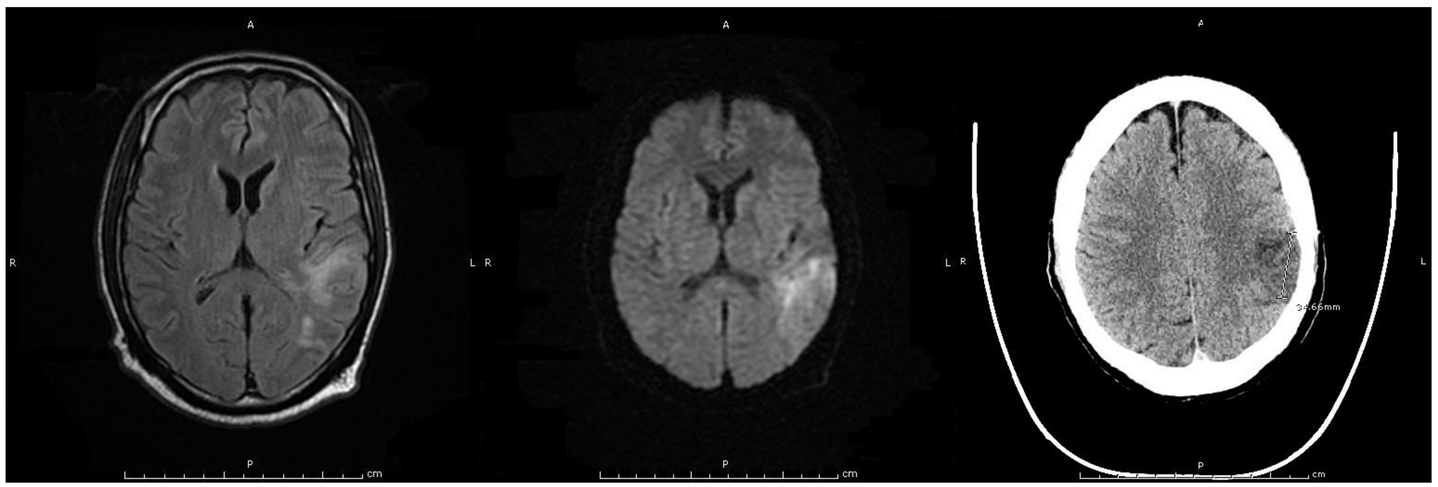
A 54-year-old African-American male presented with bilateral pedal frostbite after a snow storm. He demonstrated loss of sensation in his lower extremities. He was confused and dysphasic and was unable to articulate his history coherently but did endorse abdominal pain, nausea and vomiting. Initial CT scanning of the head could not rule out a subacute infarct versus abscess in the left posterolateral temporal lobe. A comprehensive workup was unrevealing except for positive serum and CSF VDRL. Tabes dorsalis was suspected.



Right foot gangrene.

Tabes dorsalis

- 20 years post-infection
- Dorsal columns and dorsal roots affected
- Sensory abnormalities and/or lancinating pains affecting the face, back or limbs
- Paresthesias, absent lower extremity reflexes, depressed vibratory and position sensation, attenuated touch and pain
- Gastric crises which manifest as recurrent nausea, vomiting with severe epigastric pain
- **Argyll-Robertson pupil is one of the most common presenting signs in tabes dorsalis** but our patient did not display this manifestation



(LEFT) T2 Flair demonstrates high signal in the left temporal parietal region and (MIDDLE) the diffusion study reveals that the high signal on T2 Flair is due to cytotoxic edema. (RIGHT) Abnormal geographic region of decreased attenuation left parietal frontal lobe. This may be reflective of an area of acute-to-subacute non-hemorrhagic infarct.

Patient Follow Up

The patient eventually underwent bilateral toe amputations and numerous debridement procedures and was placed in a nursing home for physical rehabilitation.

Discussion

Neurosyphilis is a known cause of central nervous system vasculitis with the potential for stroke. In patients who present with symptoms suggestive of a stroke, syphilis should always be considered in the differential diagnosis. Tabes dorsalis typically manifests with sensory deficits in the lower extremities and with gastric crises, both of which were present in our patient. Diagnosis of neurosyphilis is made with a CSF-VDRL. **A negative serum VDRL or RPR does not rule out CNS manifestations.** Treatment for neurosyphilis, including tabes dorsalis, is 18-24 Penicillin G infused daily for two weeks.

Early Neurosyphilis Symptoms and Complications

- Meningismus
- Altered mental status or confusion
- Audiovisual impairments
- Stroke
- Seizures

Late Neurosyphilis Complications

- Stroke
- General paresis
- Tabes dorsalis

References

Centers for Disease Control and Prevention. Atlanta, GA, 2010. Available from: http://www.cdc.gov/std/stats09/Syphilis.htm

Musher D. Early syphilis. In: Holmes, KK, Sparling PF. Mardh, PA, et al (Eds), Sexually Transmitted Diseases. New York, NY, McGraw-Hill, 1999, p.479.

Clark, EG, Danbolt, N. The Oslo study of the natural course of untreated syphilis: An epidemiologic investigation based on a re-study of the Boeck-Bruusgaard material. Med Clin North Am 1964; 48:613.

Pleimes M, Hartschuh W, Kutzner H, Enk AH, Hartmann M. Malignant syphilis with ocular involvement and organism-depleted lesions. Clin Infect Dis 2009;48(1):83-5.

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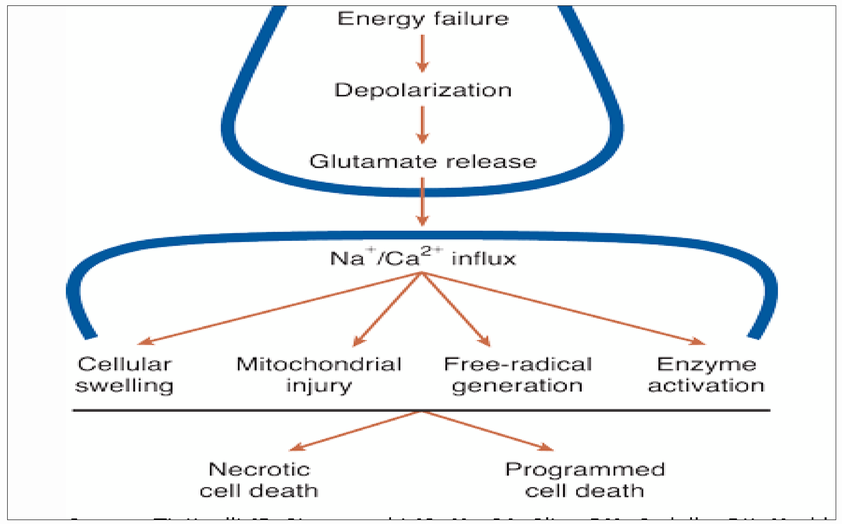
Therapeutic Hypothermia: A Cool Treatment Of Cardiopulmonary Arrest

Deepa Bhanot, MD; Jill Hanrahan, MD; Ghiyath Al-tabbal, M.D.

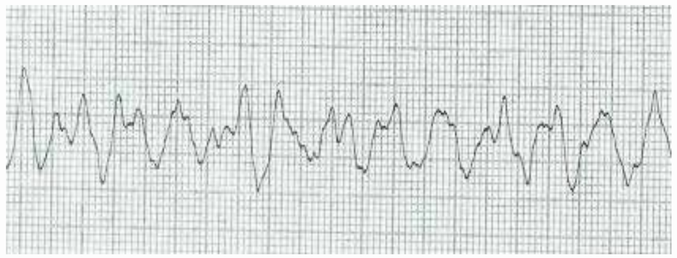
Introduction

- Therapeutic hypothermia was pioneered by 2 landmark studies (Safar et.al and Bernard et.al) in 2002.
- Brain temperature during the first 24 hours after resuscitation from cardiac arrest has a significant effect on survival and neurological recovery.
- Cooling to 32-34°C for 24 hours was associated with a decreased mortality.

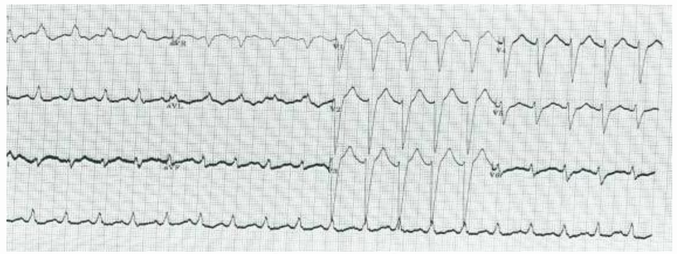


Case Presentation

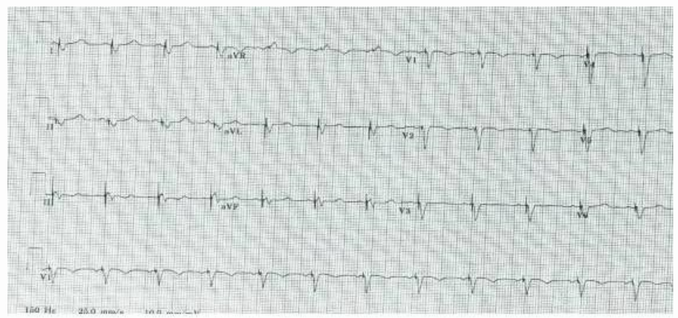
- A 49-year-old female was comatose s/p CPR after sudden collapse.
- The patient was taking pseudoephedrine for decongestion prior to the episode.
- EKG s/p V fib showed profound QT prolongation (>550 msec).
- Therapeutic hypothermia was instituted followed by full neurological recovery.
- A biventricular device was placed.
- Genetic testing was to be completed on follow up.



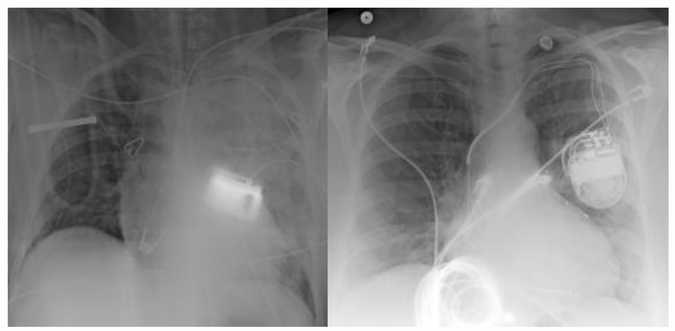
Ventricular fibrillation



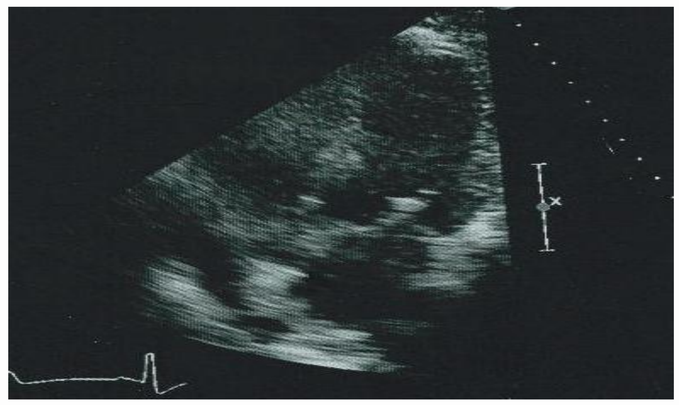
Prolonged QT



After BiVentricular device



CXR before and after



2D Echo before

Conclusions

- Newer therapeutic modalities in our arsenal to treat patients with as grim a scenario as cardiopulmonary brain resuscitation to preserve the patient's neurological function include therapeutic hypothermia.
- The clinician should exercise caution when the patient is on medications, even OTC.

References

- Safar PJ, Kochanek PM. Hypothermia after cardiac arrest. N Engl J Med 2002; 346:612-613.
- Zeiner A, Holzer M, Sterz F, et al. Hyperthermia after cardiac arrest is associated with an unfavorable neurologic outcome. Arch Intern Med 2001. 161:2007-12.
- Hypothermia after Cardiac Arrest Study Group. Mild therapeutic hypothermia to improve the neurologic outcome after cardiac arrest. N Engl J Med 2002; 346:549-56.
- Bernard SA, Gray TW, Buist MD, et al. Treatment of comatose survivors of out-of-hospital cardiac arrest with induced hypothermia. N Engl J Med 2002; 346: 557-63.
- Oddo M, Ribordy V, Feihl F, et al. Early predictors of outcome in comatose survivors of ventricular fibrillation and non-ventricular fibrillation cardiac arrest treated with hypothermia: a prospective study. Crit Care Med 2008; 36: 2296-301.

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2. Cuttner J. Thrombotic thrombocytopenic purpura: a ten year experience.Blood 1980;56:302.
3. Amorosi EL, Ultmann JE. Thrombotic thrombocytopenic purpura: reportof 16 cases and review of the literature. Medicine 1966;45:139.

Thrombotic Thrombocytopenia Purpura Without Anemia: An Unusual Presentation

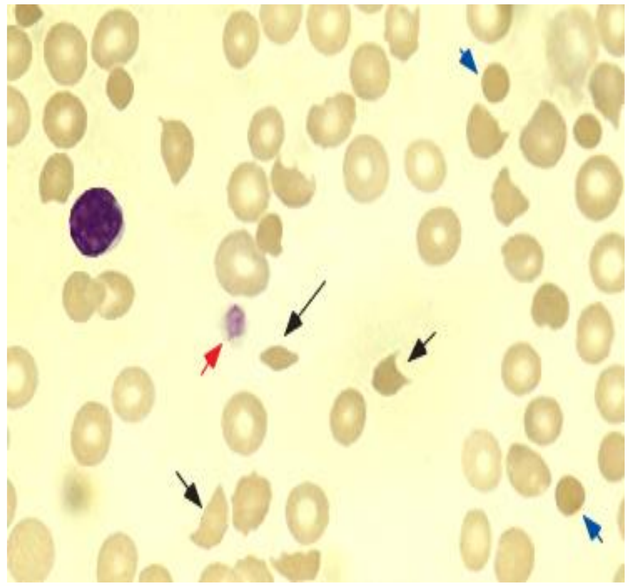
Aisha Aman, MD, Nassim Nabbout, MD, FACP

Introduction

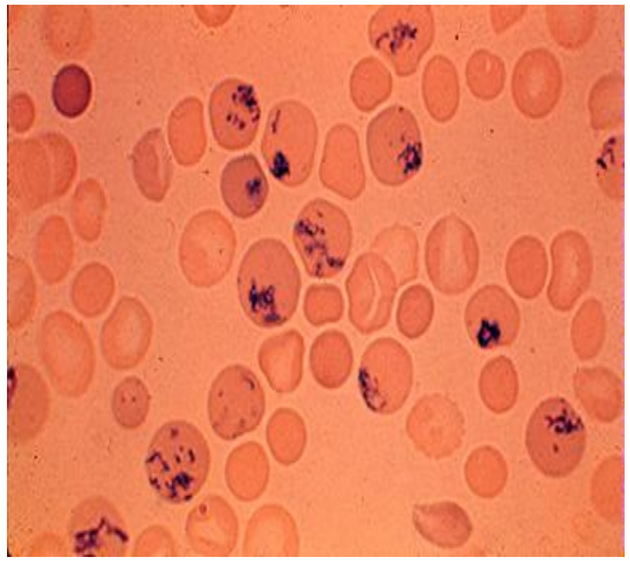
- Thrombotic thrombocytopenia purpura (TTP) is characterized by a pentad of fever, microangiopathic hemolytic anemia, thrombocytopenia, neurologic symptoms, and renal failure.
- To establish a diagnosis, only thrombo-cytopenia and microangiopathic hemolytic anemia are required.
- We present a rare case of a TTP without anemia but with clear cut microangiopathic hemolysis and thrombocytopenia.

Case Presentation

- A 32-year-old female with no significant past medical history except for polycystic ovary presented on a Friday afternoon with sore throat, headache, and low grade fever.
- The physical examination and the rest of her labs were within normal range except for thrombocytopenia with platelets of 46,000 per µL and mild macrocytosis (MCV -99) without anemia.
- The hemoglobin was normal at 12.4 gm/dl. The rest of the labs were drawn and she was asked to follow-up on Monday as immune thrombocytopenia was felt to be the most likely diagnosis.
- On Monday, the labs showed schistocytes on peripheral smear, reticulocytosis, and elevated LDH, consistent with TTP. By then, the patient had developed neurologic symptoms manifested by slurred speech.



Schistocytes*



Reticulocytes*

Discussion

- Since the patient was young, her bone marrow responded very well, and she developed adequate reticulocytosis that masked the anemia and resulted in macrocytosis.
- This case of TTP was unusual because it presented with macrocytosis without any anemia.
- She received plasmapheresis and achieved full recovery.

Conclusion

- Microangiopathic hemolysis and thrombocytopenia should lead to prompt consideration of TTP regardless of initial hemoglobin level, as anemia may not be present until TTP evolves.

References

Cuttner J. Thrombotic thrombocytopenic purpura: a ten year experience. Blood 1980; 56:302-306.

Amorosi EL, Ultmann JE. Thrombocytopenic purpura: report of 16 cases and literature review. Medicine 1966: 45:139-159.

* Rosenthal DS. Evaluation of the peripheral blood smear. May 2011. http://uptodate.com/.

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