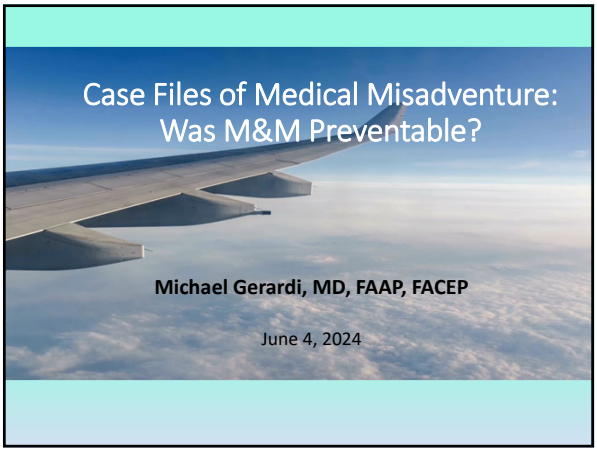

THE
EMERALD COAST
CONFERENCE


Case Files of Medical Misadventure:
Was M&M Preventable?
Michael Gerardi, MD, FAAP, FACEP
June 4, 2024

Case Files of Medical Misadventure: Was M&M Preventable?

- Michael Gerardi, MD, FAAP, FACEP
- President-elect , American Association for Emergency Psychiatry

- June 4, 2024

Disclosures

- Volunteer Member of Envision Physician Services Claims Committee
- Medical Legal Expert
- Past President of Superior Insurance Company, RRG 2003 - 2013

5

Objectives

1. Understand the top causes of medical legal risk in Emergency Medicine

2. Improve quality and outcomes for emergency medical patients by implementing risk management and safety initiatives.

3. Use actual cases of medical misadventures as instructive examples of major clinical pitfalls.

6

Thomas L. Leaman, M.D.

- To err is human
- To forgive is divine
- To sue, American

8

How does an attorney sleep?

How does an attorney sleep?

- First he lies on one side and then he lies on the other.

How many lawyer jokes are there?

How many lawyer jokes are there?

- Only three….
- The rest are true stories.

What do you throw to a drowning lawyer?

What do you throw to a drowning lawyer?

- Her/His partners

What do you call a lawyer gone bad?

What do you call a lawyer gone bad?

- Senator

Why does Massachusetts have the most lawyers in the country and New Jersey the most toxic waste sites?

Why does Massachusetts have the most lawyers in the country and New Jersey the most toxic waste sites?

- New Jersey got first choice.

What do lawyers use for birth control?

What do lawyers use for birth control?

- Their personalities

"Discourage Litigation. Persuade your neighbors to compromise whenever you can. Point out to them how the nominal winner is often the real loser – in fees, expenses, and waste of time"

"Discourage Litigation. Persuade your neighbors to compromise whenever you can. Point out to them how the nominal winner is often the real loser – in fees, expenses, and waste of time"

-Abraham Lincoln

What is malpractice?

- Duty
- Breach of Duty/Standard of Care
- Legal Causation
- Damages

Typical EM lawsuits

- Appendicitis
- Foreign body
- Meningitis
- Stroke
- Myocardial Infarction
- Ectopic pregnancy
- Child abuse reporting issues

25

Top Final Diagnoses in ED Cases

	PERCENT OF CASES	AVERAGE INDEMNITY
ORTHOPEDIC INJURIES	14%	$150K
STROKE	9%	$550K
ANEURYSM, EMBOLISM, THROMBOSIS	8%	$500K
MYOCARDIAL INFARCTION	7%	$600K
INFECTION, BLOOD	7%	$910K

7/11/2024

NATIONAL GRADE BY CATEGORY	
ACCESS TO EMERGENCY CARE	D-
QUALITY & PATIENT SAFETY ENVIRONMENT	C
MEDICAL LIABILITY ENVIRONMENT	C-
PUBLIC HEALTH & INJURY PREVENTION	C
DISASTER PREPAREDNESS	C-
OVERALL	D+

28

New Jersey

	2009		2014	
	Rank	Grade	Rank	Grade
Access to Emergency Care	16	C	36	F
Quality & Patient Safety Environment	11	A-	19	C+
Medical Liability Environment	50	F	44	F
Public Health & Injury Prevention	13	B	11	B
Disaster Preparedness	26	C+	13	C+
OVERALL	17	C+	30	D+

New York

	2009		2014	
	Rank	Grade	Rank	Grade
Access to Emergency Care	36	D-	17	C-
Quality & Patient Safety Environment	12	A-	23	C+
Medical Liability Environment	43	F	49	F
Public Health & Injury Prevention	18	B-	12	B
Disaster Preparedness	6	A-	4	B
OVERALL	21	C	13	C

30

ED Quality and Risk Management Programs

- Prompt response to patient complaints
- Track patient experience surveys
  - Department and individuals
- Ability to implement QRS programs
- Regular Chart Reviews
  - Physician documentation
  - 72 hour returns
  - ED Deaths
  - Discharge summaries

31

Documentation

33

Is it true?

"If it is not documented, it was not done."

Elvoy Raimes, MD; 1997
Illinois Medical Society

34

"Memories fade, people lie, witnesses die, but the medical record lives on."

Discharge Instructions

- A state of wellness documented before the patient goes out the door
- 90,000 records - 16% had abnormal VS which were not repeated.
- Repeat vitals with doctor / nurse signature

36

Enhancing Reliability - Scribes

Scribes prompted the Clinician in real-time to document each of the areas listed

	Percent of Records In Compliance	
	Pre-Intervention	Post-Intervention
ABDOMINAL PAIN		
Radiology Results Documented	24%	92%
2nd Physical Exam Documented	20%	98%
D/C Note Documented	28%	98%
CHEST PAIN		
Radiology Results Documented	16%	98%
EKG Results Documented	26%	100%
D/C Note Documented	36%	98%

Limited Value of Guidelines

- Should not replace the good judgment
- Rarely universal agreement with their recommendations
- Often out of date by the time they are distributed
- **Many physicians are not aware of their existence**

Transfer Policies & Procedures for Clinical Procedures

- Memorandum of understanding
- Transfer consent forms regularly reviewed
- Clinical services
  - Trauma
  - Ob/Gyn
  - Peds Ortho
  - Pediatrics
  - Hand surgery
  - CVA
  - Ophthalmology
  - Cardiac catheterization

39

Discrepancy Procedures

- Laboratory
  - Blood culture, Lyme Disease
- Radiology
  - Nodules
- ECG's

40

PA and Nurse Practitioner Guidelines

- Do they exist?
- Are they followed?
  - Chart reviews
- Levels of Physician Oversight
  - Level 1: Ankle sprains
  - Level 2: Complex lacerations
  - Level 3: Neonatal fever, CT for RLQ pain

41

Turnover Procedures

- Safer Sign Out (ACEP / EMPSF)
- EMR Modules

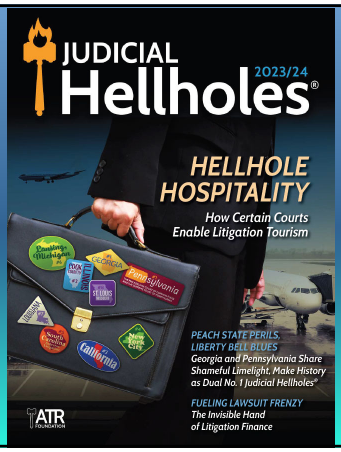
42

What Does the Future Hold with Regard to Medical Liability?

43

- ✓ *Acute Appendicitis*
- ✓ *Abdominal pain and appendicitis*
- ✓ *Chest pain*
- ✓ *Ectopic Pregnancy*
- ✓ *Wounds/Lacerations*
- ✓ *C spine Fractures*
- ✓ *Abdominal Aortic Aneurysm*
- ✓ *Spinal Epidural Abscess*
- ✓ *Pneumonia*
- ✓ *Testicular Torsion*
- ✓ *Geriatrics*
- ✓ *Multi-Tasking and Cognitive Errors*
- ✓ *ECG-Atypical STEMIs and Arrhythmias*
- ✓ *Airways*
- ✓ *Psych / Mental Health*
- ✓ *Transfers*
- ✓ *Stroke*

- ✓ *Acute Appendicitis*
- ✓ *Meningitis*
- ✓ *Asthma*
- ✓ *Neonatal Issues*
- ✓ *Abdominal Pain*
- ✓ *Shock*
- ✓ *Child Abuse*
- ✓ *Hip Pain*
- ✓ *Vomiting*
- ✓ *Airways*



45

JUDICIAL Hellholes®
2023/24

1 GEORGIA
1 THE SUPREME COURT OF PENNSYLVANIA & THE PHILADELPHIA COURT OF COMMON PLEAS
2 COOK COUNTY, ILLINOIS
3 CALIFORNIA
4 NEW YORK CITY
5 SOUTH CAROLINA ASBESTOS LITIGATION
6 LANSING, MICHIGAN
7 LOUISIANA
8 ST. LOUIS

46

#1 GEORGIA

TOP ISSUES
- Proliferation of Nuclear Verdicts
- Phantom Damages Provide Windfalls to Plaintiffs and Attorneys
- Expansion of Premises Liability
- Georgia Supreme Court Issues More Liability-Expanding Decisions
- Predatory Lawsuit Loans Complicate and Inflate Settlements

ECONOMIC IMPACT OF LAWSUIT ABUSE
Lawsuit abuse and excessive tort costs wipe out billions of dollars of economic activity annually. Georgia residents pay a "tort tax" of **$1,213.80** and **123,900** jobs are lost each year according to a recent study by The Perryman Group. If Georgia enacted specific reforms targeting lawsuit abuse, the state would increase its gross product by **$13.1 billion**.

TRIAL LAWYER ADVERTISING
Plaintiffs' lawyers are well aware of the state courts' propensity for liability-expanding decisions and nuclear verdicts and spend millions of dollars on advertising. In 2022, trial lawyers spent an eye-popping **$84.29 million** on more than **1.26 million** local legal services television advertisements in Georgia.

Georgia vaulted to the top of the Judicial Hellholes® report in 2022 thanks in large part to a massive $1.7 billion punitive damages award in a product liability case in **Gwinnett County** that was riddled with ethically questionable events and severely biased court orders. Unfortunately, 2023 brought about more of the same for the Peach State. Courts across the state continue to award nuclear verdicts and the **Georgia Supreme Court** issued a disappointing premises liability decision and other liability-expanding decisions that will only make a terrible environment worse.

In addition, Georgia continues to embrace an archaic seatbelt gag rule that precludes a jury from hearing evidence about whether an occupant wore a seatbelt at the time of a crash, and third-party litigation financing provides the resources to drive

47

#1 Pennsylvania
THE PHILADELPHIA COURT OF COMMON PLEAS AND THE SUPREME COURT OF PENNSYLVANIA

TOP ISSUES
- Litigation Tourism
- Flood of Medical Liability Litigation in Philly
- Uptick in Nuclear Verdicts
- Liability-expanding Decisions by High Court

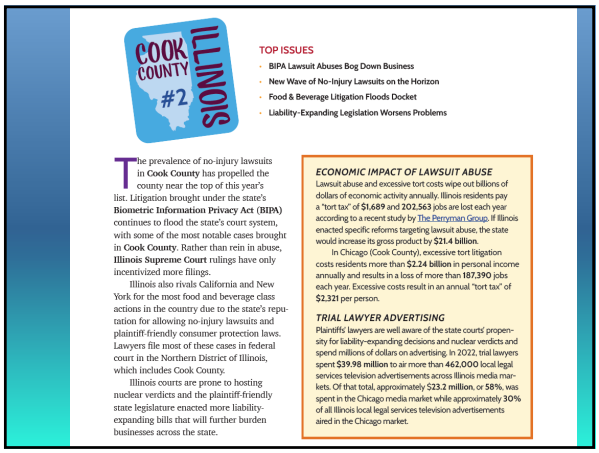
ECONOMIC IMPACT OF LAWSUIT ABUSE
Lawsuit abuse and excessive tort costs wipe out billions of dollars of economic activity annually. Pennsylvania residents pay a "tort tax" of **$1,391.33** and **171,091** jobs are lost each year according to a recent study by The Perryman Group. If Pennsylvania enacted specific reforms targeting lawsuit abuse, the state would increase its gross product by **$18.04 billion**.

TRIAL LAWYER ADVERTISING
Plaintiffs' lawyers are well aware of the state courts' propensity for liability-expanding decisions and nuclear verdicts and spend millions of dollars on advertising. In 2022, trial lawyers spent more than **$92 million** to air approximately **765,000** local legal services television advertisements across Pennsylvania's media markets.

The **Philadelphia Court of Common Pleas** and the **Supreme Court of Pennsylvania** joined Georgia as the nation's top Judicial Hellholes®. In 2022, the **Supreme Court of Pennsylvania** eliminated the state's venue rule for medical liability litigation. There was concern this decision would open the flood gates for personal injury lawyers to file medical liability claims in courts they view as favorable and that is just what has happened, especially in the perennial Judicial Hellhole® court – the **Philadelphia Court of Common Pleas**. Additionally, the Pennsylvania Supreme Court broadly applied the state's venue rule, which will further increase litigation tourism in the state.

It comes as no surprise, as the Philadelphia court continues to issue nuclear verdicts at a staggering rate. An eye-popping almost $1 billion award was levied against Mitsubishi in a product liability case in 2023. The **Philadelphia Court of Common Pleas**

48



Case of Foot Pain

- On June 15, 2014, Plaintiff William (Billy) Fern was a 25-year-old male with a history of ulcerative colitis and past pulmonary embolism.
- The week prior, Mr. Fern completed a 6-month anticoagulation course medication due to a pulmonary embolism.
- Mr. Fern went to an UC with complaints of 2 days of foot pain.
- Central DuPage Hospital's ED for evaluation of a venous clot in the leg
- Dr Jeffrey Bohmer, where he complained of worsening foot pain.

51

- Venous occlusion was ruled out with a venous doppler. Discharged with "limb pain," but no diagnosis.
- F/U with a primary care physician in one or two days.
- The following day, visited family physician Dr. Lisa Rondeau with still worsening foot pain.
- X-Ray, which came back negative
- DX: musculoskeletal pain.
- June 18: mother called Dr. Rondeau's office and reported his foot was still in a lot of pain, and he was having trouble sleeping because his toe kept "falling asleep."
- Dr. Rondeau allegedly never received the message. Pt. was not seen that day.

52

- On June 19, returned to Dr. Rondeau's office on crutches.
- Foot was red, painful to the touch, and unable to bear weight.
- Diagnosed with cellulitis, and Dr. Rondeau scheduled a follow up the next day with an orthopedic surgeon.
- During a deposition several years after the incident, Dr. Rondeau claimed Mr. Fern's mother gave her "a look," which later evolved into her remembering "a shrug" at trial, which Dr. Rondeau claimed suggested Billy may have sustained trauma.
- Dr. Rondeau never noted this in Billy's chart or followed up with his mother about the alleged gesture.

53

- June 20: hospital around noon, having been sent there by the orthopedic surgeon.
- By 7 p.m., Mr. Fern's foot became cool to the touch.
- Vascular surgeon: arterial occlusion.
- Vascular surgeon performed an exploratory surgery on June 21 and discovered a significant number of embolized clots and arterial occlusions.
- As a result of the delay, Mr. Fern required amputation of his foot.
- S/p amputation, pt. underwent months of hyperbaric treatment, and he continues to experience frequent pain, infections and requires rehabilitation to this day.

54

Trial September 18 – 29, 2023

- On September 29, the jury returned a verdict of $????????
  - $3 million for past loss of a normal life
  - $6.5 million for future loss of a normal life
  - $4 million for past pain and suffering
  - $6.5 million for future pain and suffering
  - $3.6 million for past emotional distress
  - $3 million for future emotional distress,
  - $5 million for disfigurement,
  - $972,000 for past medical expenses
  - $175,000 for future medical expenses.

55

Trial September 18 – 29, 2023

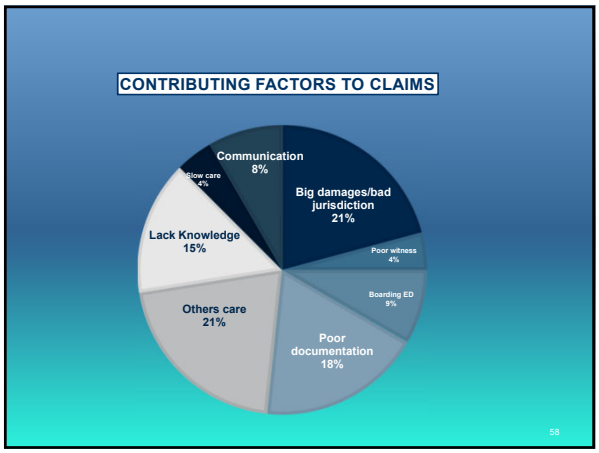
- On September 29, the jury returned a verdict of $**32,747,000**
  - $3 million for past loss of a normal life
  - $6.5 million for future loss of a normal life
  - $4 million for past pain and suffering
  - $6.5 million for future pain and suffering
  - $3.6 million for past emotional distress
  - $3 million for future emotional distress,
  - $5 million for disfigurement,
  - $972,000 for past medical expenses
  - $175,000 for future medical expenses.

56

TOP 5 TYPE BY NUMEROSITY

- CASES CLOSED Circa Early 2020's
- SPINAL CORD EPIDURAL & COMPRESSION (ED/HM)
- SEPSIS INCLUDING NEC FAC (ED/HM)
- FTD BOWEL PERF, GI BLEED, OBSTRUCTION (ED/HM)
- STROKE (ED/HM)
  BRAIN BLEED, SAH, OCCLUSIVE TUMORS (RAD/ED)
- RAT BITE FEVER (ED)

57



Wounds / Lacerations

- Over 12 million visits a year throughout USA for traumatic wounds make them one of the most common reasons for an emergency department (ED) visit.
- EM text cites wound care as accounting for 5–20% of all ED malpractice claims and 3–11% of all dollars paid out

Henry GL. Specific High-Risk Medical-Legal Issues. In: Henry GL, Sullivan DJ, editors. Emergency Medicine Risk Management. Dallas: American College of Emergency Physicians; 1997. pp. 475–494.

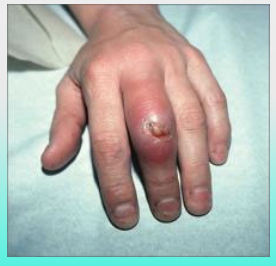
59

Case: 18 Year Old Male With Left Hand Injury and Pain

- HPI: 18 y.o. left-handed male:
  - "messing around with friends the night before"
  - loose brick landed on dorsum of left hand over 3rd MCP joint
  - injury occurred 15 hours prior to ED visit
  - swelling and redness of laceration
  - c/o limited movement of the finger with pain with flexion and extension
- No allergies
- Tetanus unknown
- Past Med Hx: negative / non-contributory

Case: 18 Year Old Hand Injury (continued)

- Physical Exam:
  - General: Alert, oriented, no acute distress
  - Ext: 1 cm laceration over 3rd MCP joint on the dorsum and edema and erythema and swelling between the 2nd and 4th metacarpals clear to the base of the metacarpals
  - Even passive ROM of the 3rd MCP causes pain with both flexion and extension
  - Skin: no red streaks
  - Neurovasc: Cap refill brisk. Sensation WNL.



Case: 18 y.o. Hand Injury ED Course

- XR (-) for fracture
- Procedure: Anesthetized 0.5% Marcaine, irrigated with normal saline and explored.
- Extensor tendon was intact, but the tendon sheath was frayed
- Cleaned again with 10% betadine solution
- 2 loose 4-0 ethilon sutures were placed
- Ancef 1 g IM and dT IM
- Wound dressed with polysporin, adaptic and a volar splint

Case: 18 y.o. Hand Injury Disposition

- Diagnosis: left hand laceration, 15 hours old, with cellulitis
- Disposition: Discharge to home
  - Keflex prescription
  - Referral to a plastic surgeon in a couple of days but return to ED with worsening symptoms or unable to be seen by a plastic surgeon
- Phone call to ED the next day: complaints of swelling of the hand and fingers and pain. Has been taking Advil because he **cannot afford Rx**. Advised to the return to the ED to be checked.

Case: 18 y.o. Hand Injury Expert Analysis

- Thoroughness of Documentation: 8 out of 10
- Thoroughness of Patient Evaluation: 9 out of 10
- Risk of Serious Illness Being Missed: High Risk
- Risk Management Legal Rating: High Risk

- Pain with passive motion of digit: suspect tenosynovitis
- Documentation of the mechanism of injury is questionable
- Question diagnosis of cellulitis vs. tenosynovitis
- Follow-up for hand injury like this should be within 24 hours
- IV Ancef and then Keflex not appropriate for potential human bite wound

18 Year Old Hand Injury 5 Days Later

- Physical Exam
  - Temp (F) 100.3 Pulse 104 Resp 20 BP 132/78
  - General: Seems very uncomfortable, holding his left hand above his head, face in grimace from pain
  - Hand: 1.5 cm laceration over dorsal aspect of MCP of 3rd digit with 2 sutures in place
  - Small amount of purulent drainage from the wound
  - Extreme pain with motion at the MCP joint and also pain when the MCP joint is immobilized and PIP joint is moved
  - Pain with palpation along the tendon which overlies the metacarpal bone of the middle finger on the dorsal and plantar aspect
  - Skin: no red streaks

18 Year Old Hand Injury - 5 Days Later

- Progress Notes:
  - Unasyn 3 g IVPB, morphine 4 mg IV and ondansetron 8 mg IV
  - Wound culture obtained
  - Volar splint placed up to DIP joint
  - Plastic surgeon accepts patient to his service
  - Betadine and water soaks every 8 hours
- Hospital Course: Taken to the OR and wound opened and incision extended
  - pus within the joint
  - Irrigated and a small drain was left in the wound
  - Infectious Diseases - 2-4 weeks of IV antibiotic therapy
- Culture results: Eikinella species, *Streptococcus viridans*
- **Final Diagnosis: Hand laceration secondary to human bite wound**

Medical Legal Issues

- Summons and complaint served 18 months later
- Damages:
  - Pain and suffering: acute and chronic pain
  - Permanent flexor contractures 3rd digit left hand
  - Loss of function of dominant hand

Medical Legal Issues

- Deviations from Standard of Care:
  - Pain with passive motion of digit: suspect tenosynovitis
  - Missed mechanism of injury which was questionable
  - Wrong diagnosis of cellulitis vs. tenosynovitis
  - Lack of follow-up within 24 hours
  - IV Ancef and then Keflex not appropriate for potential human bite wound
- **Settled out of court: $350,000**

Best Practice Summary of Points

- **Best Practice #1:** Don't rush to closure. **All** open wounds require a thorough, focused examination for retained foreign material, as well as tendinous and neurovascular injuries.
  - **Document** your meticulous evaluation and examination.
- **Best Practice #2:** Explain to the patient your efforts to discover foreign material and the possibility of an occult **retained foreign body** despite these efforts.
- **Best Practice #3:** Create reasonable **outcome expectations**. All wounds heal with some degree of scarring, and the cosmetic outcome is influenced by many factors. Patients need to be educated on the process of wound healing and expected cosmetic outcome.
- **Best Practice #4:** Arrange rapid follow-up (i.e., 24 to 48 hours) for infected or high-risk wounds.

Best Practice Summary of Points

- **Best Practice #5:** Determine the neurovascular status first; and proceed with the application of topical, local, or regional anesthesia. Identify the involved nerve roots and document two-point nerve discrimination of sensation for all hand injuries.
- **Best Practice #6:** Antibiotics
  - Prescribe prophylactic antibiotics for all human bites.
  - Prescribe prophylactic antibiotics for non-human, mammalian bites to the hand.
  - Strongly consider prophylactic antibiotics for other high risk mammalian bites.

Best Practice Pitfalls

- Atypical presentations include the following:
  - A subcutaneous foreign body associated with shattered glass but not apparent by external palpation and inspection.
  - Finger flexor tendon lacerations that occur in flexion and only apparent (during inspection) with the finger in flexion.
  - Beware of the *partially lacerated tendon* that is initially missed and then fully ruptures weeks to months later.

History

- Determine tetanus immunization status and immunize when there is any doubt.
  - incidence of tetanus is rare (0.014 per 100,000), but few victims survive it.
    - e.g. 3 reported cases in the literature of rabies survivors.
- Consider this scripted "yes" or "no" question:
  - *"Are you sure beyond any doubt that you have had a tetanus immunization within 5 years?"*
    - If the patient responds, "maybe," proceed as if the patient is not immunized.
    - Some patients may confuse tetanus immunization with tuberculosis screening (i.e., purified protein derivative (PPD)).
- Inquire about the patient's tendency to form keloids.
- Smoking and hyperglycemia interfere with wound healing: setting expectations with the patient.

Back Pain Case #1

- 54 y.o. woman with chronic back pain c/o severe lower back pain and bilateral leg weakness
- Frequently visits the ED for pain management
- Past Med HX:
  - Recently hospitalized for cellulitis from picking skin-popping sites
  - Opioid use / dependence
- Social Hx: (+) ETOH (+) Smoking (+) Homeless
- Meds: Keflex, mupirocin, HCTZ, Ultram

Case #1

- Physical Exam: P: 120 RR: 20 Temp: 37.4º C BP 148/88
  - Disheveled but well-nourished; cooperative but in moderate painful distress
  - Skin: healing scabbed lesions on upper extremities and face
  - Legs: 1-2+ non-pitting edema with venous insufficiency and resultant color changes
  - Neuro: No motor weakness in upper extremities; 4-5/5 strength symmetrically; limited cooperation due to "severe pain"
- Diagnostics: none due to previous studies on other visits and no recent trauma

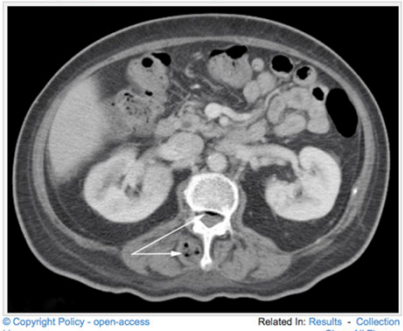
Case #1: ED Course

- Medicated with Toradol 15 mg IM
  - Poor response
  - "Dilaudid is only thing that works when I am like this"
- After 1 hour, Dilaudid 1 mg IM
  - Improved with pain "6 out of 10"
- Discharge orders
  - Patient has difficulty walking to bathroom prior to discharge due to pain
  - Eventually walks out of the ED with D/C papers

Case #1: 2 days later

- Arrives via EMS
- She is in severe pain and unable to walk; lower abdominal pain, difficulty urinating
- V.S. Temp 39º C; BP 120/72; HR: 140 RR: 30
- Phys. Exam: In moderate painful distress
  - No changes from previous visit except Neuro
  - Neuro: 3/5 strength lower extremities - quads , hamstrings, dorsal and plantar flexion; absent DTR's

Imaging of Spinal Epidural Abscess



Related In: Results - Collection
Show All Figures

f1-wjem-13-494: The air in the right paraspinous musculature and spinal column seen on the computed tomography are the first evidence of the lumbar spinal epidural abscess.

Case #1: Medical Legal Analysis

- MRI: Lumbar spinal epidural abscess
- Emergent surgery but permanent paraplegia

- Medical malpractice claim for paraplegia – unable to walk.
  - Claim: $2 to 4 million
  - Defendants
    - Emergency physician visit #1
    - Hospital
  - Standard of care met? Trial or settle?

Case #2

- December 3
- 55 y.o. male with 2 days severe neck pain and diffuse rash
- Physical exam: supple neck; muscle spasms / tenderness
  - Neuro: “normal”
  - Skin: diffuse erythroderma arms and trunk
- ED: IM Toradol
- Dx: Neck strain; non-specific skin eruption
- Rx: Baclofen; ketorolac
  - Discharged

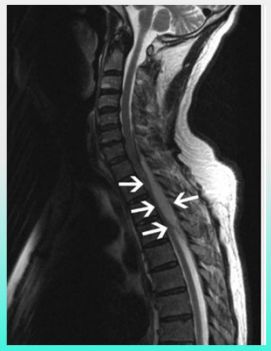
Case #2: Next Day

- Transported to another medical center via EMS at 9 AM. Upon awakening, persistent severe neck pain and paralysis
  - Chest pain radiating to his back
- Physical Exam: V.S. BP: 98/58 T: 98.7ºF RR: 18 HR 67
- Neuro: Unable to move all extremities
  - Able to wiggle distal fingers and toes
- ED Course:
  - ECG: normal
  - WBC 18.7; 96% segs
  - CT head: no CVA or masses
  - Vasopressors, fluids and antibiotics

Case #2: Later Day 2 and Day 3

- Admitted to ICU at 2 p.m. – Diagnosis sepsis with profound weakness
- 4 p.m. Nurses document flaccid upper and lower extremities, weakness attributed to sepsis
- 6:30 p.m.: Neurology consult
  - Stat MRI of C-spine and T-spine ordered
  - MRI done around midnight
  - Images not sent to Night Hawk and were read at 10:30 a.m.: cervical stenosis with fluid collection c/w abscess
- 1:30 p.m.: surgical decompression
- Remains quadriplegic

Imaging of Spinal Epidural Abscess



Case #2: Medical Legal Analysis

- Emergency Physician 1st visit
- Emergency physician / APP 2nd visit in 2nd ED
- Internist / Intensivist
- Neurologist
- Radiology

Case #2: Medical Legal Analysis

- Emergency Physician 1st visit:
  - Did not illicit history of fevers
  - Insufficient documentation of neuro exam in chart
- Emergency physician / APP 2nd visit in 2nd ED:
  - Inadequate neuro exam
  - MRI needed to be ordered STAT
- Internist / Intensivist
  - Inadequate neuro exam
  - Sepsis as etiology SOC deviation
- Neurologist:
  - Did not follow-up on Stat MRI he ordered
- Radiology
  - Delayed reading

Case #2: Trial or Settlement?

- Verdict value: $8 - 12 million
- Settlement Value: $4-6 million
- How would you apportion liability if you were a juror?
  - 1st ED visit
  - 2nd ED visit
  - Intensivist
  - Hospital #2
  - Neurology
  - Radiology

Case #3 Visit 1

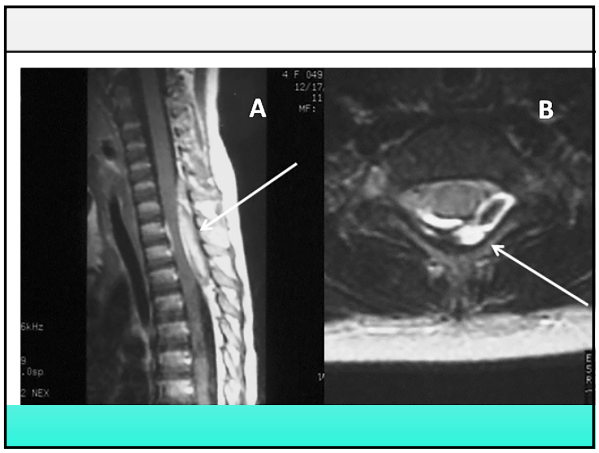
- 72 y.o. with moderate to severe right upper back pain
  - No history of trauma or previous back problems
  - Mild kyphosis but no musculoskeletal problems
  - No SOB, chest pain or fever
  - No arm or leg pains / paresthesias
  - Longest flight 4 hours 3 days earlier
- Past Med Hx: Htn
- Social Hx: Ph.D. successful businessman
- Initial ED visit - evaluated by very experienced emergency physician
  - Vital signs: normal
  - CXR ant thoracis spine series: normal
  - ECG: normal
- Motrin – moderate relief
- Discharge: musculoskeletal pain

Case #3 Visit 2

- Following day: wife calls physician friend – in a panic. Patient is in severe pain, unlike anything she has seen. Advised return to ED for re-evaluation. Again, seen by senior experienced emergency physician
- History: Worsening pain, localized to right upper back – right rhomboid area. No paresthesias, no rash. (+) pleuritic component
- Physical Exam: VS: BP: 155/78 P:98 RR: 24 T: 37.6ºF
  - Chest: clear; no rash – no Zoster;
  - Back: very tender right rhomboid area and mid thoracic area lateral to T-spine
  - Neuro exam: normal
- ED Course: Troponin: normal; D-Dimer: just above normal limit
  - CTA chest: no pulmonary embolism
  - Motrin, Percocet, morphine sulfate 6 mg IV
  - Patient more comfortable
- Discharged – Dx: musculoskeletal pain with Percocet, Valium

Case #3 Visit 3

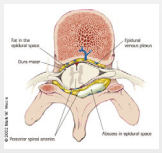
- Wife calls physician friend again in a panic on a weekend: “He is in severe pain. I don’t know what to do or where to go at this point. He doesn’t look well.”
  - Go back to ED
- Hx: no new symptoms except chills; no paresthesias; pain limited to back area as in previous visits
- Physical Exam: T: 37.8ºC; P: 120 BP: 145 / 78 P: 114 RR: 24
  - Back: tender right para-thoracic area and rhomboid area; (+) T4-6/7 tenderness
  - Neuro: normal
- ED Course: IV, labs, analgesia, MRI with contrast, consult to PM&R to arrange trigger point injection, nerve block, etc. if MRI negative for intractable pain localized to right upper back / rhomboid area

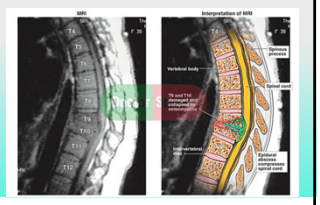


Spinal Epidural Abscess

Spinal Epidural Abscess

- Identified by the database, confirmed by surveillance of open malpractice cases
- Evidence based education
- Increased frequency may be due to MRSA
- We have had a few great saves as a result
- Continue to monitor database for spikes in frequency
- Within 6 months, 8 "victories" on SEA patients





93

Envision HEALTHCARE

Best Practice Summary of Points

Best Practice #1: Consider spinal epidural abscess (SEA) in patients with chronic pain, diabetes, HIV, and chronic skin infections. Don't anchor on simple mechanical back pain!

Best Practice #2: Document a thorough physical exam, including motor and sensory examinations of the upper and lower extremities.

Best Practice #3: If you're considering the diagnosis of SEA, perform an MRI. Do not order a CT scan.

Best Practice #4: When you order an MRI, consider imaging the cervical, thoracic, and lumbar spines. This may save time if the imaging of a specific region is negative.

Best Practice Summary of Points

Best Practice #5: If the patient is discharged for outpatient MRI, give specific return precautions and set reasonable clinical expectations.

Best Practice #6: Once SEA is diagnosed, administer antibiotics to cover S. aureus (MSSA and MRSA) and obtain emergent neurosurgical consultation. These patients can decompensate neurologically over a period of hours.

Best Practice #7: In patients with localized back pain and fever, who you ultimately discharge, write a medical decision making note explaining that you considered SEA and why you decided not to pursue it with an MRI.

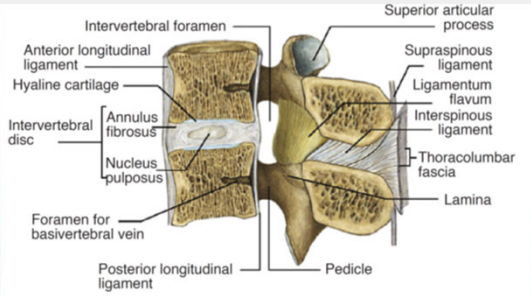
Red Flag HX and Physical Exam Findings

Historical Finding	Concern
Age > 50 y or < 20 y	Infection, cancer, vascular disease
History of cancer	Metastatic disease
History of unexplained weight loss	Cancer or smoldering infection
Persistent fevers and/or night sweats	Epidural abscess, osteomyelitis
• Immunocompromise, HIV • Prolonged steroid use • Intravenous drug use	Epidural abscess, metastatic spine lesion, osteomyelitis, discitis
Recent bacterial infection, bacteremia	Seeding spine or paravertebral structure
Known aortic aneurysm	Retroperitoneal rupture
Motor neurologic deficit	Cord or root compression
Urinary retention, bowel incontinence, saddle anesthesia	Cauda equina syndrome

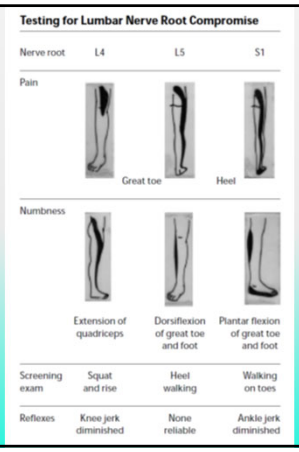
Affected Nerve Roots & Their Corresponding Neurologic Exam Findings

Affected Nerve Root	Reflex	Pain Distribution	Affected Motor Weakness	Affected Sensory Loss
L1	Cremasteric	Inguinal	Hip flexion	Inguinal
L2	Cremasteric, thigh adductor	Inguinal, anterior thigh	Hip flexion and adduction	Anterior thigh
L3	Patellar	Anterior thigh, knee	Quadriceps adductors	Anterior, medial thigh
L4	Patellar	Anterior thigh, medial leg	Knee extension, hip flexion	Anterior leg, first toe, medial malleolus
L5	None	Posterolateral thigh, lateral leg	Great toe dorsiflexion	Dorsal foot, middle 3 toes
S1	Achilles	Posterior thigh and leg, lateral foot	Plantar flexion	Lateral foot, heel

General Anatomy of the Lumbar Spine



Reprinted from: Putz R, Pabst R. *Sobotta Alas of Human Anatomy: Thorax, Abdomen, Pelvis, Lower Limb. 14th edition.* Vol. 2. © 2008 Elsevier GmbH, Munich. Used with permission.



Summary of Neurologic Exam at L4 – S1 Levels

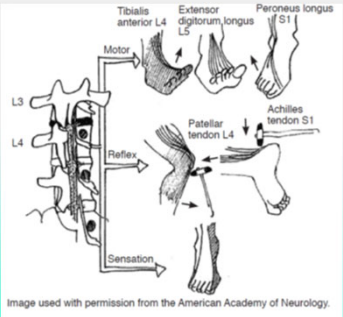
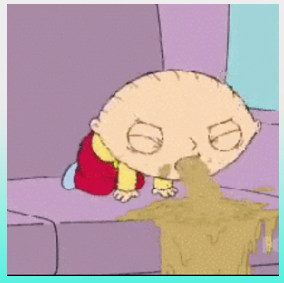


Image used with permission from the American Academy of Neurology.

Vomiting



Case 1: Vomiting

- Nov 10 - 6 day old infant in ED
  - Hx vomiting
  - Exam: Normal
  - Discharged
- Nov 24, 2 weeks later, seen by pediatrician (Dr. P)
  - **Bilious vomiting**
  - Exam: normal, good weight gain
  - Referred to Peds GI
- Dec 2, seen by Peds GI
  - Dx: Reflux
  - Changed to Nutramigen

Case 1: Vomiting

- Dec 9 – F/U visit with Peds GI
  - No longer spitting up or fussy
  - Difficulty with bowel movements
- Dec 16 – Final visit Peds GI, symptoms improved
- Dec 20 – ED visit – Our insured, “Dr. EPS”
  - Crying and vomiting
  - Exam: normal
  - Noted to be on Nutramigen
  - D/C

Diagnosis: Well Baby Exam

Presentation:
12/20
22:30 Presenting complaint: Mother states: states pt awoke crying. mother fed him a little , then pt started crying again and vomited up what he just ingested. pt has been crying for two hours. pt burped in triage and stopped crying. Transition of care: patient was not received from another setting of care. lbl
22:30 Acuity: ESI 4 lbl
22:30 Method Of Arrival: Walk-in lbl

Triage Assessment:
22:34 General: Appears in no apparent distress, Behavior is appropriate for age, cooperative. Pain: Denies pain. Ebola Screening: Has patient lived in or traveled to a country with widespread Ebola transmission or had contact with an individual with confirmed Ebola Virus Disease within the previous 21 days? No. Respiratory: Airway is patent Trachea midline. GI: Reports vomiting, since one time two hours ago. GU: Reports 7 wet diapers today. lbl

Case 1: Vomiting

- Dec 21 – ED @ 8am
  - Listless and distended abdomen
  - Dx: ?

Case 1: Vomiting

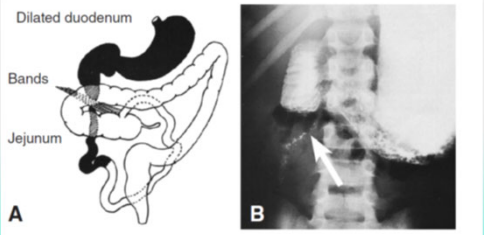
- Dec 21 – ED @ 8am
  - Listless and distended abdomen
  - Dx: Volvulus
  - Course: NG tube – "pus" drainage
  - Air lifted to Children's Hospital
  - Immediately to OR
  - Catastrophic malrotation with necrotic bowel
    - Residual 20 cm small intestine remain
    - TPN
    - Complications

Table 1. Differential Diagnosis Of Vomiting In The Neonate

Obstructive Pathologies
- Malrotation with midgut volvulus
- Intestinal atresias
- Hypertrophic pyloric stenosis
- Incarcerated inguinal hernia
- Hirschsprung disease
- Congenital anomalies (meconium ileus and meconium plug syndrome)
- Intussusception

Nonobstructive Pathologies
- Gastroesophageal reflux, gastroesophageal reflux disease
- Overfeeding
- Feeding intolerance (cow's milk protein allergy, formula intolerance)
- Necrotizing enterocolitis
- Sepsis/infection/gastroenteritis/gastritis
- Kernicterus
- Inborn errors of metabolism/congenital adrenal hyperplasia
- Increased intracranial pressure
- Toxin exposure
- Nonaccidental trauma

Figure 2. Malrotation On Upper Gastrointestinal Study



A. Graphic representation of anatomic abnormality encountered in malrotation. B. Appearance of A on upper gastrointestinal study.

Reprinted from *Journal of Pediatric Surgery,* Volume 7(2), Alan J.

A 12 month old presents with Lethargy

Differential diagnosis

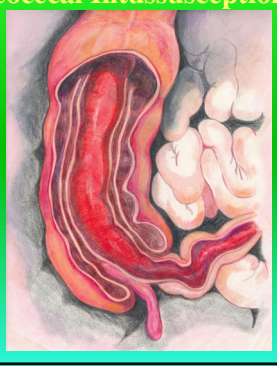
- Infection
- Trauma
- Ingestion
- Metabolic
- Shock
- Other

Labs

- Screening glucose--96 mg %
- H/H= 11.8/36; WBC= 13,600, 72% polys.
- CSF= WNL
- Toxic and drug of abuse screen=neg
- PE: No signs of trauma; fundi normal
- CT of head normal

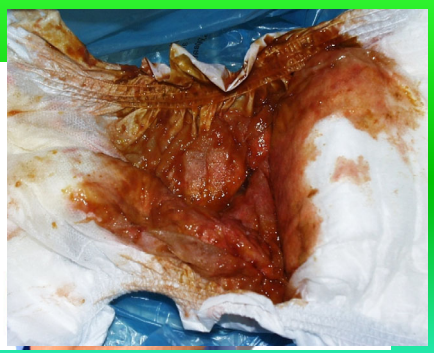
109

Ileocecal Intussusception



Courtesy of Dr. Dana Braner

110



111

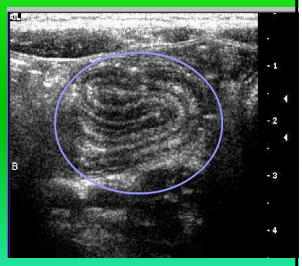
Intussusception's Presentation

- Vomiting with intermittent abdominal pain (Cyclic pattern as peristaltic waves hit the region of intussusception)
- Associated with pain – that is a prominent feature
- Lethargic Infant (uncertain etiology, may be 2nd to toxins released by ischemic bowel)

112

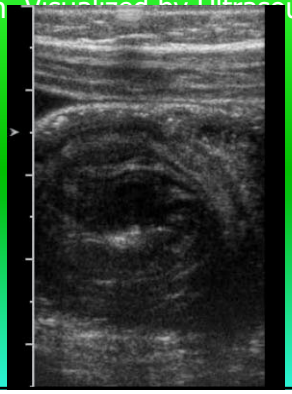
Ultrasound

- Very sensitive(98-100%) less specific (85-90%)
- Concentric layers of bowel" jelly roll"
- Also predicts which cases will be hard to reduce, by looking at blood flow or

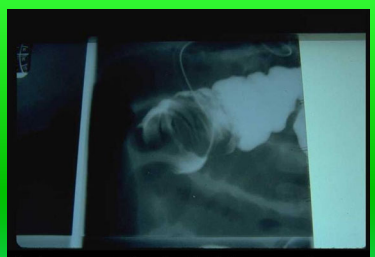


113

Intussusception Visualized by Ultrasound



114



Barium enema showing the intussusception. The barium (white), which was instilled into the rectum, is filling the large intestine to the portion which is by the liver. At that point a mass in noted inside the colon (black) which is the intussusception.

115

Post Reduction Risks

- Recurrence rate of 10%
- 30% occur in the first 48 hrs
- ? Admit for observation

116

ANTHONY VOYTOVITCH, MD

"IF YOU DON'T THINK OF IT YOU WILL NEVER MAKE THE DIAGNOSIS"

Case #1
23 yo Female with Back / Flank Pain

- Writhing on stretcher with flank pain
- ETOH consumption
- PE: Crying, no focal tenderness
- ED:
  - HCG (-)
  - Urine dip: trace blood
  - Labs normal
- CT for renal stones: no hydronephrosis, no stones
- Event occurs after CT

Case #2
72 y.o. Male with Back Pain

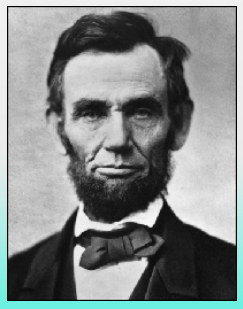
- Two days of back pain after raking leaves
- Radiates down his right leg
- Exacerbated by movement and coughing
- Past Med Hx
  - Hypertension
  - Hyperlipidemia
  - Left circumflex artery stent 5 years ago
- Vital Signs: BP: 155/95 P: 85 RR: 22

Case #3
25 YO Male with Back Pain

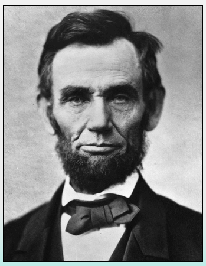
- Radiates down right leg
- History of slipping and wrenching back 2 days ago
- History of back pain
- Physical Exam
  - Tall and thin
  - No motor deficits

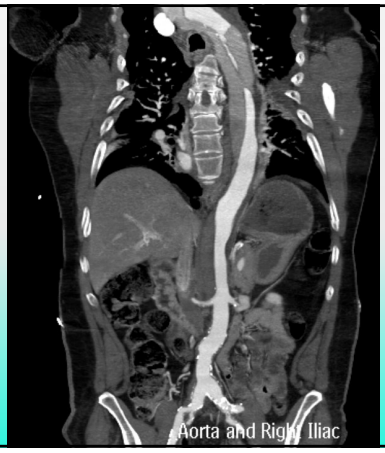
CASE
25 YO Male with Back Pain

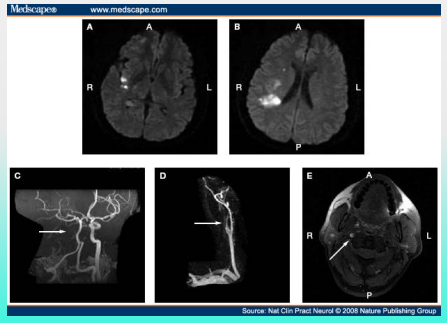
- Treated with Toradol 30 mg IM
  - Poor response
- Morphine sulfate 6 mg IM
  - Good response
- Discharged
- Follow-up 1 week later…..

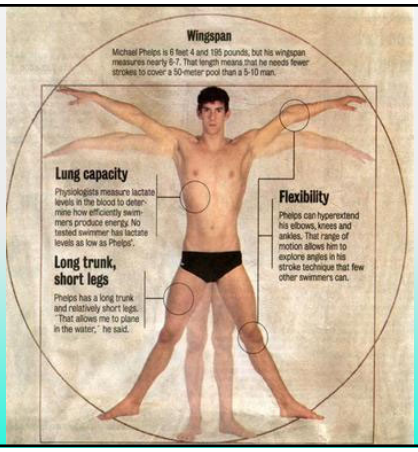


Medical Legal Analysis









American College of Emergency Physicians®
ADVANCING EMERGENCY CARE

Memorandum

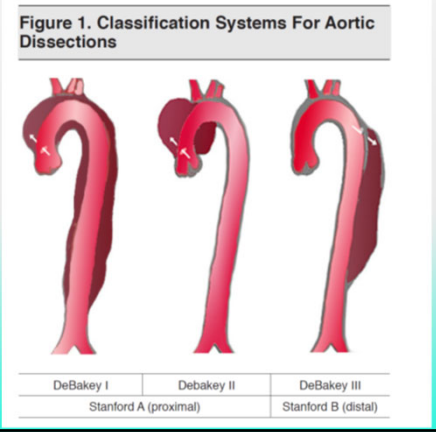
To: Board of Directors
Council Officers

From: Michael D. Brown, MD, MSc, FACEP
Chair, Clinical Policies Committee 2014-2015

Robert E. O'Connor, MD, MPH, FACEP
Board Liaison, Clinical Policies Committee

Date: October 9, 2014

Subj: Draft Clinical Policy on Thoracic Aortic Dissection



Acute Thoracic Aortic Dissection (AAD)

- Rare (3.5/100,000 pts/year)
- Mimics other very common conditions (3/1000 ED patients with chest or back pain)
- Once diagnosed, in-hospital mortality is reported to be up to 27%.
- The low incidence of the condition & lack of substantial research on ED diagnosis, are responsible for:
  - the lack of ED population-based clinical decision rules
  - low-risk stratification parameters.

2015 ACEP Clinical Policy on Suspected Non-traumatic AAD

- Diagnostic dilemma: in those patients with acute chest (or abdominal or back) pain.
- When should we suspect AAD as the cause?
- By highlighting key elements of the ACEP guidelines, it helps focus on the inherent strengths and limitations of current clinical information

CARDIOLOGY/CLINICAL POLICY

Clinical Policy: Critical Issues in the Evaluation and Management of Adult Patients With Suspected Acute Nontraumatic Thoracic Aortic Dissection

From the American College of Emergency Physicians Clinical Policies Subcommittee (Writing Committee) on Thoracic Aortic Dissection:
Deborah B. Diercks, MD, MSc (Subcommittee Chair)
Susan B. Promes, MD, MBA
Jeremiah D. Schuur, MD, MHS
Kaushal Shah, MD
Jonathan H. Valente, MD
Stephen V. Cantrill, MD (Committee Chair)

Members of the American College of Emergency Physicians Clinical Policies Committee (Oversight Committee):

Q3. In adults with suspected non-traumatic AAD, does CTA exclude the diagnosis of AAD?

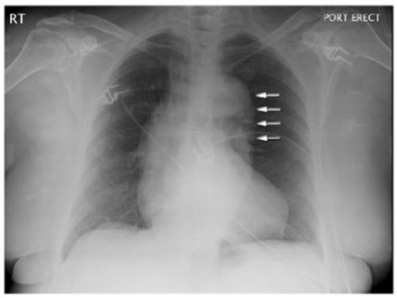
ANS: YES.

- **ACEP Level B recommendation:** CTA has accuracy similar to that of TEE and MRA.
- CTA is widely available and fast. The 2014 guidelines on the diagnosis and treatment of aortic diseases by the European Society of Cardiology recommends CTA as an initial imaging investigation for both stable and unstable patients in whom AAD is suspected.

Table 2. High-Risk Features For Aortic Dissection

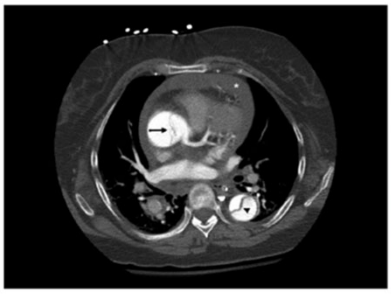
Conditions
• Known or suspected connective tissue disorder (eg, Marfan syndrome)
• Family history of aortic pathology
• Known aortic pathology
• Previous cardiac surgery or recent catheterization
• Aortic valve pathology (eg, bicuspid)
• Cocaine or amphetamine use
• Vasculitis
Pain and Examination Features
• Sudden onset/severe pain **AND**
◦ Ripping/tearing pain
◦ Pulse deficit
◦ Blood pressure differential
◦ New aortic insufficiency
◦ Hypotension/shock

Figure 2. Chest Radiograph In An Aortic Dissection



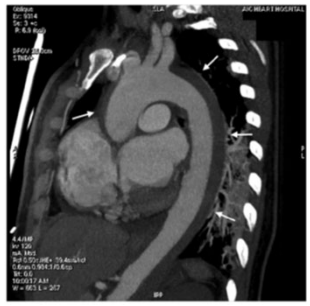
Note the widened mediastinum (arrows).

Figure 4. Contrast-Enhanced Computed Tomography With Type A Aortic Dissection



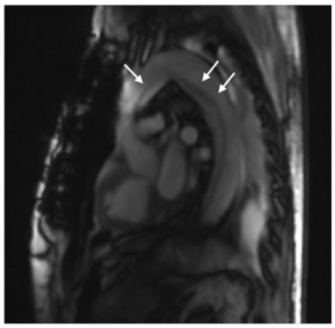
Computed tomography of the chest showing a dissection flap in both the ascending aorta (arrow) and descending thoracic aorta (arrowhead). Note also the pericardial effusion (asterisk) at the top right.

Figure 5. Contrast-Enhanced Computed Tomography With Type A Intramural Hematoma



Computed tomography of the chest showing intramural hematoma from the ascending to the descending thoracic aorta (arrows). Note that no dissection flap is seen along the aorta.

Figure 6. Noncontrast Magnetic Resonance Angiogram Of Type A Aortic Dissection

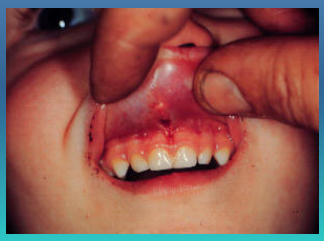


Magnetic resonance angiogram of the chest showing a dissection flap (arrows) along the ascending and descending aorta.

Table 5. Medication Therapies For Acute Aortic Syndromes[7,78,79]

Medication	Dosage	Comments
Beta blockers (recommended as first-line treatment; target heart rate < 60 beats/min		
Esmolol Beta 1-receptor blocker	Bolus 500 mcg/kg IV, then infusion at 50-200 mcg/kg/min	Preferable due to short half-life and easy titration; may be preferred in asthma/COPD
Labetalol Alpha 1-, beta 1-, and beta 2-receptor blocker	10-20 mg IV push q10min up to 300 mg maximum; infusion 0.5-2.0 mg/min	May be used as a single agent
Metoprolol Beta 1-receptor blocker	5 mg IV q5min up to 15 mg maximum	No IV infusion available
Propranolol Beta 1-, beta 2-receptor blocker	1 mg IV q5 min up to 0.15 mg/kg maximum	No IV infusion available
Calcium-channel blockers (target heart rate < 60 beats/min)		
Diltiazem	Bolus 0.2-0.25 mg/kg IV, then infusion 5-15 mg/hr	Second-line for heart rate control when beta blockers are contraindicated (eg, cocaine toxicity, COPD, or asthma exacerbation)
Verapamil	5-10 mg IV	NA

Any Big Deal?



141

Case
"Spell" or "Syncope?"

22-month-old male with brief loss of consciousness following crying episode

What history would do you need to know?

142

Pertinent Information

- Mother reports that she heard child crying in next room then heard a "thud" as he hit the floor
- Child was stiff with eyes rolled back for about 5 minutes, then pale and sleepy
- Now awake and alert
- Three prior episodes—two associated with "temper tantrums"

143

Pertinent Information

- No history of trauma, ingestions
- Development—language delay (hearing evaluation is scheduled)
- No family history of seizures/syncope/sudden death
- Patient carries diagnosis of breath-holding spells vs seizures from previous visits

144

Pertinent Information

- Rapid cardiopulmonary assessment normal
- Vital signs, mental status, and general appearance within normal limits
- Normal neuro exam

145

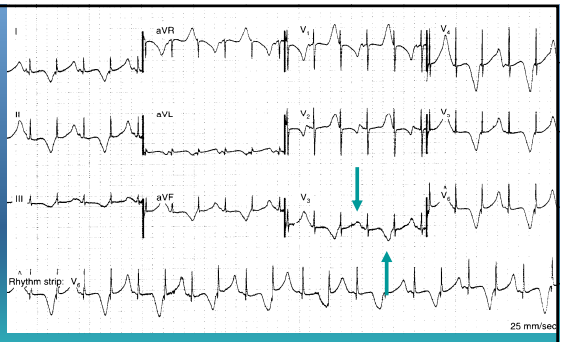
What diagnostic laboratory value/test would you like most to order?

146

Work-up?

- Laboratory
  - Chem, CBC
- CXR
- ECG
- Echocardiogram
- EEG
- CT of head
- Admit
- Consult and discharge

147



Markedly prolonged QT interval (Corrected QT interval = .75 sec) with T-wave alternans

Courtesy of Dr. Bob Hfĉkey

Diagnosis

- 30% of patients with prolonged QTc present with syncope
  - Likely from transient polymorphic VT (torsades de pointes)
- 10% present with seizures
- 15% of patients with prolonged QTc die during their first episode of arrhythmia

149

Critical Concepts

- Family history may reveal sudden, unexplained deaths prior to age 55, fainting episodes, or unexplained accidents
- "Spells" associated with exercise are particularly concerning

150

Critical Concepts

- Consider cardiac arrhythmias in all patients presenting with a brief, nonspecific change in LOC
  - "Spells"
  - "Blackouts"
  - Fainting
  - Syncope
  - Seizures
  - Breath-holding
  - BRUE / Apparent life-threatening events

151

Summary: Prolonged QT

- Prolonged QTc can present with syncope, "spells," seizures, ALTE, or death
  - Family history may reveal sudden death, drowning, syncope, etc
  - Have a low threshold for obtaining ECGs in patients with transient loss of consciousness

152

Additional Discussion: Prolonged QT

- Prolong QT and Submersion episodes
  - Several cases reports of drowning and near-drowning associated with prolonged QT
  - Important to rule out long QT in surviving patients and family members
  - (Ackerman MJ. *N Engl J Med*).

153

Additional Discussion: Prolonged QT

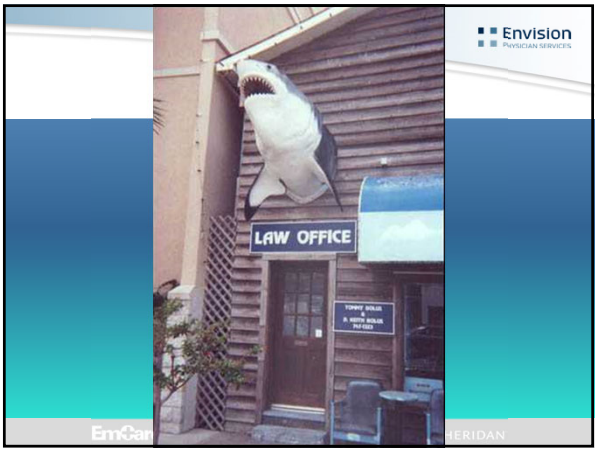
- Potential therapies include β-blockers, implanted internal defibrillator, and ready access to automated external defibrillators
- IV magnesium can be administered for torsades de pointes
- **Family members should be screened**

154

Cardiologic Assessment of First-degree Relatives in Sudden Arrhythmic Death Syndrome

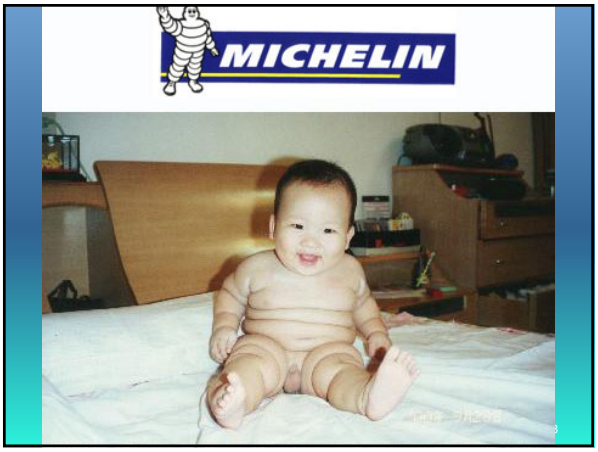
1. 20 yo died in bed; PMH of syncope; prolonged QT in father
2. 17 yo died in bed; prolonged QT in mother
3. 13 yo died swimming; prolonged QT in father
4. 13 yo died in bed; PMH of palpitations; prolonged QT in father
5. 17 yo died while walking; 20 yo sib subsequently died in bed (prior to w/u)
6. 28 yo died while cycling; mother died at 40 of SADS; brother with myotonic dystrophy
7. 17 yo died during soccer; 12 yo sib has hypertrophic cardiomyopathy

155



What Syndrome Does This Child Have?

157



Professional Charting

"She is numb from her toes down."

"Bleeding started in the rectal area and continued all the way to Los Angeles"

"When she fainted her eyes rolled around the room"

159

Professional Charting

"Both breasts were equal and reactive to light and accommodation"

160

Professional Charting

"The baby was delivered , the cord clamped and cut, and handed to the physician, who breathed and cried immediately"

161

Professional Charting

"The pelvic exam will be done later on the floor"

162

Professional Charting

Discharge status: Alive but without my permission.

The patient refused autopsy.

While in the ER, she was examined, x-rated, and sent home.

163

Professional Charting

"She has no rigors or shaking chills, but her husband states that she was very hot in bed last night."

164

Professional Charting

"Large brown stool ambulating in the hall"

165

Professional Charting

"Exam of the genitalia reveals that he is circus sized"

" She stated that she had been constipated for most of her life until 1989 when she got a divorce."

166

Hey…Be Careful out There!