

EMERGENCY MEDICINE CASES



EPISODE 32: HIGHLIGHTS FROM THE ANNUAL UPDATE IN EM WHISTLER CONFERENCE

Highlights from key papers from 2012 with Dr. Joel Yaphe

Head bleeds and anticoagulants:

- *Ann Emerg Med* (2012) 59:451–55. 16% of Warfarin patients with minor head injury had a bleed on the initial CT. After a negative CT, 6% had a delayed bleed on 24hr CT, and one patient required surgery.
- *Ann Emerg Med* (2012) 59:460–8. In patients with head injuries, 5% of patients on Warfarin, and 12% of patients on clopidogrel had a bleed on initial CT. No clopidogrel patients had a delayed bleed in this study.

Dr. Yaphe concludes: we should strongly consider a head CT for clopidogrel patients with minor head injury, given the high bleeding rate observed. While patients on Warfarin may not need 24h observation, if you are worried about bleed risk for whatever reason, consider a repeat CT in 24hrs, with observation at home or in hospital.

Can patients remove their own sutures? *CJEM* (2012) 14:219–23.

Given proper instructions and basic equipment, many patients are willing and able to remove their own sutures. (>90% success in intervention group)

Identifying and treating Acute Bacterial Rhinosinusitis

Clin Infect Disease (2012) 54:e72–112. IDSA guideline recommendations for identifying acute bacterial vs. viral rhinosinusitis. Recommendations are to treat with antibiotics if 1. symptoms (purulent discharge and pain/tenderness on face or teeth) are present for **>10d** without improvement, *or* 2. if symptoms are severe **or** fever **>39** + symptoms **>3d**, *or* 3. if symptoms occur at the end of a URTI that lasted 5-6 days that was initially improving (“double sickening”)

1st line treatment: Amox/Clav 500/125 tid or 875/125 bid for 5–7 days in adults, and 10–14 days in children.

2nd line treatment: Amox/Clav 2000/125 bid or Doxycycline 100 bid (or 200 od).

Ultrasound-guided management of peritonsillar abscess

Acad Emerg Med (2012) 19:626–31. This prospective RCT suggested that diagnostic accuracy and aspiration success was greatly improved by using intracavitary ultrasound, and U/S use reduced ENT consults and CT use.

Patient controlled analgesia (PCA) for acute abdominal pain

Acad Emerg Med (2012) 19(4):370-7 Patients with abdominal pain <7 days requiring IV analgesia were studied. More patients in the PCA arms reported satisfaction and did **not** require further analgesics at 2hrs compared to non-PCA patients. Although these were small doses and carefully-selected patients, PCA may have a role in the ED.

Azithromycin and risk of cardiovascular death

NEJM (2012) 366:1881–90 Large retrospective study observed a small absolute increase in CV death with azithromycin versus other antibiotics, which was more pronounced in patients with a high baseline risk for CV disease.

Gonorrhea is cefixime resistant

JAMA. (2013) Jan 9;309(2):163-70 Prospective study in Toronto testing gonorrhea cefixime sensitivity and cure rate. They showed 7% treatment failure with cefixime suggesting sufficient antibiotic resistance exists. Ceftriaxone (IV/IM) may be a better choice for treating uncomplicated gonorrhea.

Neonatal resus guidelines update with Dr. Nicole Kester-Greene



FEVER OF UNKNOWN ORIGIN - Dr. Shirley Lee

Fever of Unknown Origin Def'n: recurrent fever ≥ 38.3 , with symptoms ≥ 3 weeks, & no diagnosis.

4 main etiology categories:

- 1) Infection (25–30%)
- 2) Neoplasm (20%)
- 3) Collagen vascular disease (20%)
- 4) Misc (10–20%) i.e. DVT/PE

Most commonly missed causes are abscesses (i.e. abdominal), endocarditis, osteomyelitis, secondary rheumatic fever and TB in immigrant populations. **Take a careful history!**

Minimal workup*: CBC, lytes, blood films, lactate, LFT/enzymes, urine, ANA, Rh factor, HIV, hepatitis, CMV, and a chest x-ray.

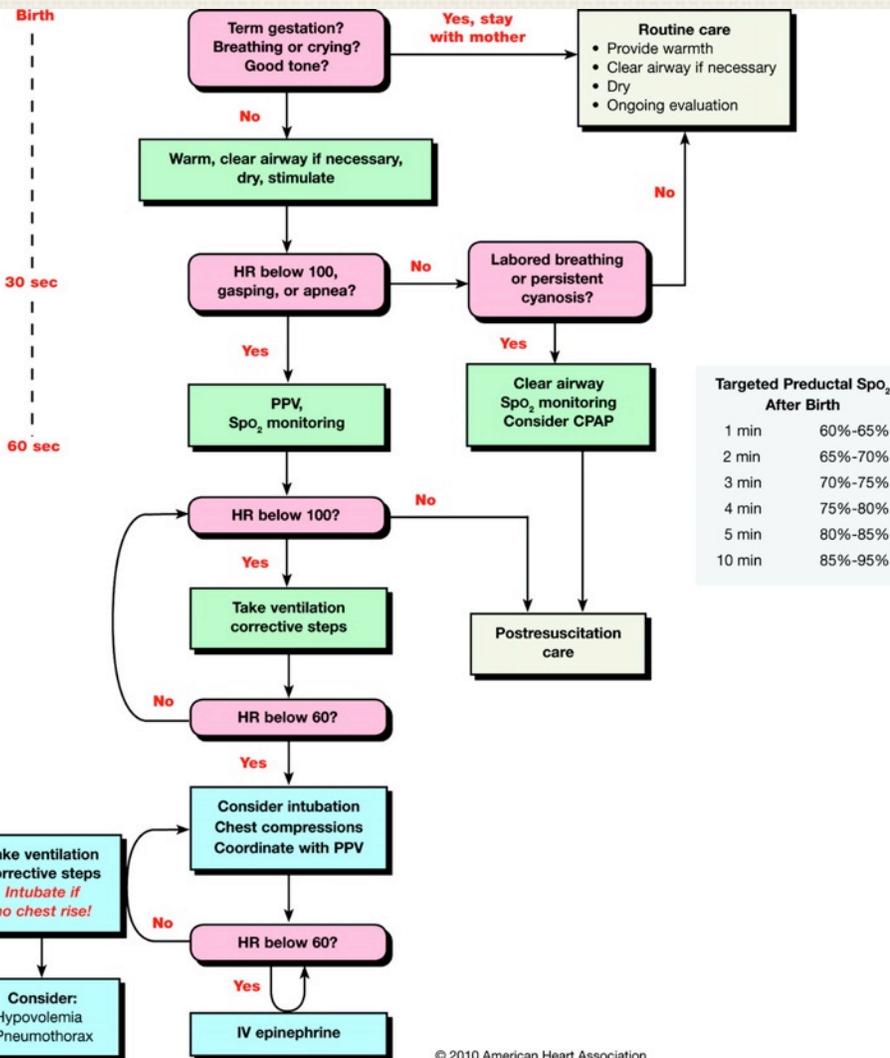
Consider a **CT abdomen**, which has been shown to have as high as a 20% yield for abscesses and tumors in F.U.O, leg doppler or TEE depending on the patient. Remember to look for temporal arteritis (GCA) in elderly patients.

SIRS Criteria:

- Temp $>38^\circ\text{C}$ or $<36^\circ\text{C}$
- Heart Rate >90
- RR >20 or $\text{PCO}_2 <32$,
- WBC <4 or >12 or $>10\%$ Bands

Start fluid and Abx if patients meet SIRS criteria, & admit!

*Arch Intern Med (2003) 163:545–51



Targeted Preductal SpO ₂ After Birth	
1 min	60%-65%
2 min	65%-70%
3 min	70%-75%
4 min	75%-80%
5 min	80%-85%
10 min	85%-95%

Circulation 2010;122:S909–19.

- 1) Simplified algorithm (see above)
- 2) **Avoid hyperoxygenating**
 - Heart rate is most important assessment, (rather than colour), and preductal SaO₂ should be used in assessment
 - Resuscitate on room air rather than 100% oxygen
 - Normal preductal SpO₂ takes 10 minutes to reach 95% (see above)
- 3) Routine intrapartum suctioning is **not recommended** - only suction if baby is *not vigorous* and *meconium* is present. In that case, suction prior to stimulating
- 4) Delay cord clamping (>60 sec) in babies not requiring resuscitation
- 5) Achieve *adequate* ventilation. Deliver gentle inflation pressures, ensure the mask and airway are well positioned, and use suction, positive pressure, or intubation if necessary before starting chest compressions
- 6) Therapeutic hypothermia has a role for newborns with hypoxic ischemic encephalopathy.

Wound management pearls - with Dr. Maria Ivankovic

Retained foreign bodies: Glass is the most common foreign body retained in a wound. **Get an X-ray! 99% of retained glass is radioluscent if >2mm in size.**



Glue vs. Sutures?

Glue is 6 minutes faster than suturing, and has comparable

cosmesis in the right wounds. It is an appropriate option for linear, low-tension and clean wounds away from moist areas or mucosa.

To apply: after irrigation and hemostasis, apply 3-5 layers of glue, with 30 seconds between coats. Avoid getting glue between wound edges. Protect eye area with a petrolatum-based ointment border.

Absorbable sutures: Available evidence suggests absorbable sutures may have comparable cosmesis to non-absorbable. Consider this option for kids, and patients with poor follow-up.

Tongue lacerations: Always examine for other injuries & missing teeth. Indications to suture are:

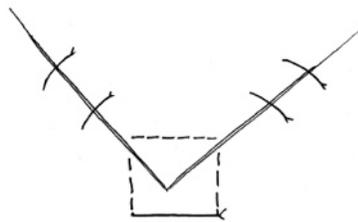
- 1) >1-2 cm laceration,
- 2) large flaps or gaps that trap food,

- 3) significant bleeding, and
- 4) anterior split tongues.

Use sedation for children, and consider an inferior alveolar block. Tie suture knots 4-5x but tie loosely to allow for swelling. Use chromic gut or vicryl (not fast absorbing) in 1 or even 2 layers.

Laceration cosmetic pearls:

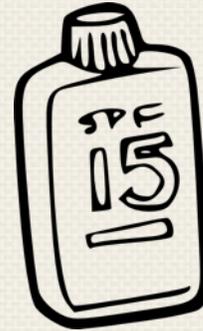
- 1) Evert edges—enter the skin at 90° and making suture depth > width, and consider a mattress suture
- 2) Minimize trauma to tissue—be gentle with instruments and use minimal suture size and tension
- 3) **Relieve wound tension** at edges—tension increases scarring, so undermine wound edges at dermal-adipose juncture, and use a layered closure if necessary
- 4) use a corner stitch to preserve flap blood supply (see [video on Youtube](#))



- 5) use **edge excision** for rough edges of jagged wounds

Post-Suture Care:

Polysporin or antibiotic ointment for 2-3 days only, and use a petrolatum based ointment after this time. Protect the scar from sun (hat, sunscreen) to prevent hyperpigmentation for several months.



Aloe has **not** been proven to show any benefit, and vitamin E may worsen scars.

Delayed Primary Closure:

Highly contaminated, devitalized, or crush wounds, and immunodeficient patients may benefit from **delayed primary closure**, which is underutilized.

Copiously irrigate, debride visibly-devitalized tissue, and remove as much dirt as possible.

Start prophylactic antibiotics, ideally within 6h, and have the wound re-evaluated in 3-5 days (ideally in a plastics clinic), for potential delayed primary closure.



Biliary and Liver Dz —

with Dr. Sarah Gray

CHOLYCYSTITIS

Ultrasound Diagnosis: A positive sonographic Murphy sign has >95% PPV for cholecystitis. Gallbladder wall thickness >3mm, and pericholecystic fluid also suggest cholecystitis.

Antibiotics for Cholecystitis:

Evidence from Cochrane review suggests patients with mild cholecystitis do **not** benefit from antibiotics.

Early vs Delayed Surgery: early cholecystectomy (within 24hrs of Dx) may reduce hospital length of stay and rate of conversion to open cholecystectomy compared to delayed surgery (weeks after Dx)

CHOLANGITIS has high mortality rate—needs expeditious abx and decompression by ERCP. Charcot's triad (jaundice, fever, RUQ pain) is only present in 1/3 of patients. Normal CBD diameter is <6 mm on ultrasound, but CBD diameter may increase with age and in patients with previous cholecystectomy.

Hepatic encephalopathy (HE)

A diagnosis of exclusion in patient with altered mental status and a history of liver cirrhosis. Asterixis have poor specificity and sensitivity for the Dx of HE. Serum Ammonia also has poor sensitivity and specificity, has limited value in the ED and can be misleading. Look for signs of raised ICP as many patients will have cerebral edema requiring mannitol. Treat severe cases aggressively with fluid, Abx, and lactulose 45cc q1h until patient has BM, then 30cc tid.

Spontaneous bacterial peritonitis (SBP)

Suspect SBP in liver disease patients ascites and abdominal pain. Absolute contra-indications to paracentesis (acute abdomen, DIC, thrombolysis) and relative contraindications (local cellulitis, distended bowel, adhesions) must be considered. Treat for SBP if paracentesis fluid neutrophils >250k, or pH <7.34, and send for culture.

Hepatorenal syndrome

Rare but has high mortality. Suspect it in any cirrhotic patient with a high creatinine, and consider a consult for admission.

Pediatric Pearls — with Dr. Donna Goldenberg

History for chest pain: Chest pain in kids is usually MSK, so ask about trauma, sports activity etc. Ask about recent viral illness (myocarditis), sickle cell history (acute chest syndrome) and previous chest pain.

About Myocarditis: usually viral etiology. The prodrome includes fever, myalgia, and then chest pain and eventually CHF +/- arrhythmia. Trop will usually be elevated. **CXR and ECG may be normal.** Do an echo and consult cardiology.

What about chest pain in sickle cell patients? Acute chest syndrome is a common cause of chest pain in sickle cell disease and the most common cause of death. Clinical picture of pneumonia with infiltrate on CXR. Infiltrates usually appear after 2-3 days, and CXR findings underestimate lung involvement. Treat with pain meds, oxygen, Abx and transfusions as indicated. ****NSAIDs may worsen sickle crisis**.**

Secondary non-traumatic pneumothorax:

In pediatrics is associated with parenchymal lung disruption, such as asthma, CF, connective tissue disease, malignancy, and FB aspiration. For pediatrics, there is no accepted criteria for who needs drainage, and many patients do well with observation alone, without drainage.

Intubating kids with severe asthma:

When possible, intubation should be avoided. Tracheal intubation aggregates bronchospasm, induces laryngospasm, increases barotrauma, and drops BP.

When to intubate?? intubate for impending respiratory arrest, profound hypoxemia unresponsive to therapy, or rapid deterioration of mental status and metabolic parameters. Once intubated, avoid rapid normalization of CO₂. Instead, tolerate mild hypercapnea by using slower minute ventilation rates (to avoid air trapping, which decreases venous return).

For further pearls about intubating severe asthmatics, see [EM Cases episode 8](#).



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