



The Weekly Probe

3rd November 2016

Volume 13 Issue 36

Congratulations this week!!

- Congrats to Katrina and her hubby Ian on the arrival of their baby girl Clare Rachel born last Wednesday – weighing in at 3.3kg! Congrats and enjoy the time “off”!



Xmas Party – It’s that time of the year
Thursday 8th Dec 2016

Theme:

WILD WILD WESTIES

Elouera Surf Club

80 Mitchell Road, Cronulla

6.30pm till 11.30pm

\$35 (includes entertainment and food), buy drinks at Bar

Tickets from Jill, Michelle, Jodie, Gabby, Damo, and Nicole Vass

Will we see a “Baby Jesus” in a western shirt Michael or a T rex wearing a flanno Tom?

St George EPAS service- You may have seen the recent emails yet a reminder that the EPAS service is now on 1 West Gynaecology ward.

A number of points:

- The EPAS service runs for 1hr Monday-Friday
- If Anti D is required, please administer prior to sending to St George
- Please arrange O&G registrar review in ED especially for possible ectopic pregnancy to determine risk of rupture before discharge
- If confirmed Miscarriage, please advise the woman to fast
- Advise the woman to bring a copy of recent blood or ultrasound results if available
- Please give the attached miscarriage brochure as required
- Use the attached updated EPAS brochure for women that need referral to St George
 - The facts sheets are available in the fast track office. They will also be in the shared drive under Administration [X:\SUTED\ADMINISTRATION](#)
- The clinic time is still 8am only (please ensure you stress to the patients to be on time).

THIS WEEK

Subclavian Crush Syndrome
Laryngectomy and Tracheostomy patients

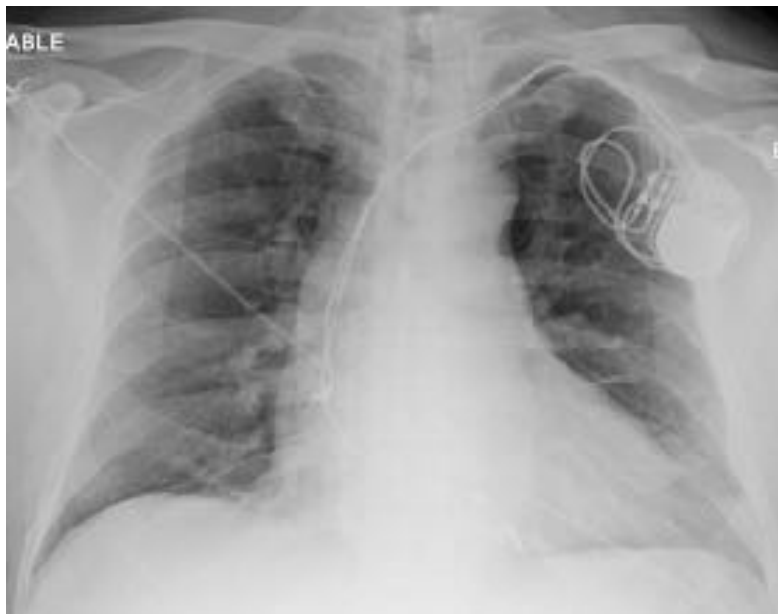
Next week's case

Joke / Quote of the Week

The Week Ahead

LAST WEEK'S CASE - SUBCLAVIAN CRUSH SYNDROME

60yo man with a Hx of PPM for complete heart block presented with a pre-syncope event. On exam and his blood investigation no abnormalities were noted. ECG – paced rhythm – CXR below



What's going on?

Whilst waiting he was noted to have some brief episodes of complete heart block – no ventricular pacing and his pacemaker was subsequently interrogated. Normally the each lead has a dual function of both sensing and pacing- for the ventricular lead it would try to sense a conducted beat - if absent, the PPM would send a signal down the ventricular pacing lead – if present it would assume that a beat had been conducted from the atrium to the ventricles & not fire. In the patient's case, there was artefact in the ventricular lead – it sensed it as normal beat conducted to the ventricle and therefore would not fire.

The cause is in the CXR- trace the lead from the ventricle back up to the pacemaker box (difficult with the overlap) and you will see the ventricular lead has fractured as it passes between the clavicle and the first rib. This was the cause for the artefact. The sensitivity of the sensing was increased in order to reduce the effect of the artefact with a plan to revise his pacing wire at a later stage.



What is subclavian crush syndrome? Subclavian crush is a cause for lead failure in pacemaker dysfunction. It occurs when a lead is compressed in the narrowly confined space between the first rib and clavicle; this common site of fracture requires careful examination if lead failure is suspected .

Radiography may also detect conductor defects, inadequate pin insertion into the header, abandoned or incompletely removed leads, or torsion due to Twiddler's syndrome (not something Matt W's mother told he'd get in his teenage years – associated with blindness) - infrequent but potentially dangerous complication resulting from manipulation of the implanted pulse generator by the patient, leading to traction and subsequent lead dislodgement.

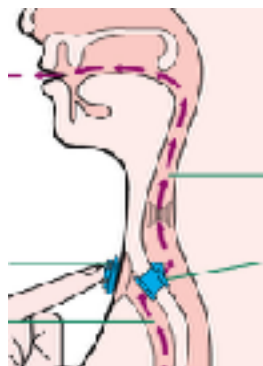
LARYNGECTOMY & TRACHEOSTOMY EMERGENCIES

(Thanks to Katherine Kelly & Candice Baxter , Speech pathologists, Liverpool hospital for this info)

65yo man with previous head injury requiring long term tracheostomy presents with respiratory distress after his trache fell out. Luckily a tube was able to be reinserted with some difficulty. What do we need to be aware of with such patients?

The person has a trache but is there a intact communication between the oral cavity and the airway, usually as a result of a surgical procedure. Is it a laryngectomy - ? total or partial
Does the pt have a stoma or any tubes- size ? cuffed or uncuffed? Inner catheter?
How does the pt communicate – do they have a voice prosthesis in situ

Total laryngectomy – involves resection of the entire larynx from the hyoid bone to the 2-4th tracheal rings usually due to cancer. The trachea is then surgically attached to the external neck, creating a permanent external opening (stoma) through which the pt now breathes. Thus the airway (via stoma) and digestive tract (via mouth) are now separate. Note that they they may be linked if a voice prosthesis is present.



Note with some patients with advanced head and neck cancers there may be occlusion of their upper airway via cancer or post radiotherapy oedema and thus they may be functionally similar to a patient with a surgical tracheostomy (often have PEG + trache).

Implications (with total laryngectomy)

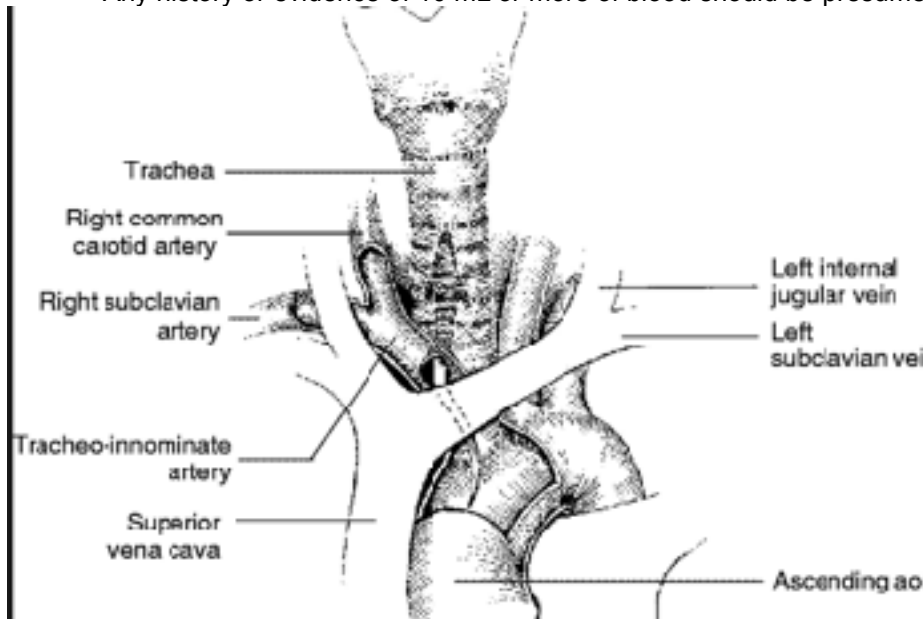
- respiration –100% via stoma ie no access to upper airway via mouth – occasionally see pt with nebuliser on mouth / crusting around the stoma or in the trachea requiring humidification (esp early on) via trache mask or nebuliser +/- gentle removal / inhalation of foreign bodies – may need bronchoscopy / need to maintain stoma size
- Communications – no vocal folds so no natural voicing possible - need other forms of communication – options include oesophageal speech, voice prosthesis, electrolarynx (neck or oral placement)
- Swallowing – separate airway and GIT so no risk of aspiration unless voice prosthesis puncture or unwanted fistula present. / may have difficulty with some foods- ? oesophageal stricture

What might go wrong- Tracheostomy & Laryngectomy?

- **Increased SOB / dyspnoea**
 - o Cause - ? chest infection ? difficulty in clearing secretions ? blockage of tube if present - ? granuloma at tip of trache tube
 - o Solutions – humidification / saline nebs , suctioning, investigation of lower airway , investigation of trache tube (remove inner catheter if one exists with inspection and suctioning or whole tube if not)
- **Change in Stoma**
 - o Is it larger or smaller ? / is there infection ? / does it need to be stented? / ? false lumen secondary to misplaced reinsertion – as evidenced by subcut emphysema, crepitus or distorted neck anatomy
 - o Solution- ENT or speech path assessment / treat potential infection / stent with laryngectomy tube if possible to maintain airway patency- try to use same diameter tube
- **Fistula or Wound breakdown**
 - o Is there an obvious sinus ? / how extensive is the infection? A tracheotomy is considered a clean contaminated wound. Infections can range from an indolent infection, mild cellulitis or granulation tissue to serious infections such as mediastinitis, fasciitis, abscess, and clavicular osteomyelitis (all rare). Pseudomonas and strep usually colonise
 - o When, where and who did the operation?
- **Difficulty swallowing**
 - o Solids or liquids ? / sudden onset ?
 - o Is there a stricture, recurrence or fistula
- **Voice prosthesis problems**
 - o What is a voice prosthesis? Small 1-2 cm silicone one-way valve placed through the tracheo-oesophageal wall (see picture above). This permits airflow from the trachea into the parapharyngeal-oesophageal segment , which vibrates providing a sound source – this is shaped into speech via normal upper airway articulators (tongue, lips etc). The puncture is a surgically created fistula which closes quickly when left unstented – Usually the prosthesis is 16Fr (occasionally 20Fr) stenting the fistula perfectly when in place with the outer flange sitting flush with the tracheal wall
 - o What can go wrong? – Difficulty with removal, blockage, dislodgement, poor voice quality, leakage , infection via incorrect placement, fistula closing, faulty valve, granulation tissue or secretions, candida
 - o What to do – NBM, Assess prosthesis, stent fistula if prosthesis removed, CXR if ? aspiration , contact ENT or speech path
 - o Stenting procedure – sit pt upright / good light source eg head lamp / clean away mucous / locate puncture site (dark dot or indentation) / add lubricant to catheter end / gentle but firm pressure on catheter (16 Fr to 8fr salem sump (usual NGT) but fine bore NGT OK) / if undue resistance use smaller catheter / once passed , feed 20cm through puncture and tie knot in tail / generously tape catheter tail to chest wall / allow 30 min , then give pt drink of milk. Shine light into stoma on swallowing and watch for seeping around catheter. If present NBM and retest in 30 min. if no seepage or leaking recommence normal diet.
- **Bleeding** - Minor bleeding occurs in up to 30-40% of patients and 0.2-10% having massive,

or life-threatening bleeding complications.

- Sources of bleeding include small, superficial blood vessels at the tracheostomy site, granulation tissue, thyroid vessels, anterior jugular veins, and the brachiocephalic (innominate) artery, or via from oesophageal or gastric sources if a fistula is present. Erosion of a major vessel from the cuff or tip of the tube is responsible for 10% of all tracheostomy haemorrhage, and for most tracheostomy-related deaths. The brachiocephalic artery is the most commonly involved vessel
- Early bleeding, within the first 4 weeks postoperatively, is most commonly incisional. However, 85% of trachea - innominate artery fistula bleeds are reported within the first postoperative month, with this type of bleeding having a 50-75% mortality rate. The innominate artery or what we call the brachiocephalic artery, crosses from left to right as it moves superiorly, and lies immediately anterior to the trachea at the level of the superior thoracic inlet (see picture below). Pressure exerted by the distal tracheostomy tube or cuff causes erosion of the anterior tracheal wall into the vessel, and subsequent bleeding. Brisk bleeding from the tracheostomy, haemoptysis, or a history of either complaint should alert you to the possibility of a life-threatening bleed. Many patients experience a "sentinel" bleed hours or days before a catastrophic bleed. Some patients may report only a new cough or retrosternal pain. Any history or evidence of 10 mL or more of blood should be presumed arterial.



- Visualization of the bleeding site can be attempted in stable patients. A bleeding brachiocephalic artery will be located at or below the sternal notch, in the anterior tracheal wall. If significant tracheal bleeding is present, hyperinflation of the tracheostomy tube cuff should be attempted to compress the artery against the sternal wall. If this is unsuccessful, the patient should have an endotracheal tube inserted through the oropharynx, with the cuff positioned at the level of the upper sternum, and hyperinflated. Digital pressure applied through the tracheal stoma, compressing the anterior tracheal wall against the sternum, should be done for continued bleeding. Digital pressure is considered the most reliable technique to stop haemorrhage and may provide control of bleeding during transport to OT.
- If any doubt contact ENT & vascular ASAP
- **Displacement of tube** - attempt recannulation utilising the same size tube if possible (the larger the better up to the size of the previously inserted tube) – consider using co-phenylcaine for both anaesthesia and vasoconstriction if time permits. Remember for the non-larygectomy pts use the upper airway if required (ie bag, tube). Check the position post reinsertion and be particularly suspicious of misplacement of the tracheostomy tube into a false passage, usually in the pretracheal space, if there is difficulty with ventilation or the passage of a suction catheter or if subcutaneous air or pneumothorax develops.
- **Tracheoesophageal fistula:** manifests as aspiration and subsequent chemical pneumonitis and should be evaluated with a plain film (which may show an air-filled oesophagus) or barium swallow, followed by bronchoscopy.

NEXT WEEK'S CASE

A 65yo lady with diabetes and eGFR 35ml/min presents with abdominal pain. Ischaemic gut is one diagnostic possibility and you are considering a CT with contrast yet you are concerned about contrast nephropathy. What can we do to minimise these risks?

JOKE / QUOTE OF THE WEEK



Please forward any funny and litigious quotes you may hear on the floor (happy to publish names if you want)

THE WEEK AHEAD

Tuesdays - 14:30 – 15:30 Intern & JMO teaching -Thomas & Rachel Moore

Wednesday- 0800-0900 Critical Care Journal Club. ICU Conf Room / 14:30 – 15:30 Intern & JMO teaching -Thomas & Rachel Moore

Thursday 0730-0800 Trauma Audit. Education Centre / 0800-0830 MET Review Education centre / 1300-1400 Medical Grand Rounds. Auditorium.