



“From the Trough”

Perioperative Interest Group Notes

The imperfect opinions in these reports are only meant to stimulate discussion: - they should not be considered a definitive statement of appropriate standards of care.

Date 21/10/21

TOPIC 1: Kartagener’s Syndrome

66yo male for colonoscopy for polypectomy.

Background

- Kartagener’s Syndrome
 - Bronchiectasis
 - Chronic SOB, ok on flat
 - FEV1 1.65 (50%), FVC 2.71 (63%) ratio 61% TLCO 54%
 - Situs inversus totalis
- IHD
- HTN & Dyslipidaemia

Issues

- 2019 critical illness
 - Life-threatening pulmonary haemorrhage
 - Failed intubation due to bleeding -> surgical cricothyroidotomy
 - 2/12 ICU stay, 17 days ECMO, DVT, IVC filter.
 - Multiple tracheal/bronchial clot retrievals and bronchial artery embolization.
- Recent Colonoscopy/ICU stay
 - Failed colonoscopy in private hospital due to difficulty passing scope.
 - Patient reported anaesthesia complication and ICU stay post-procedure
 - Anaesthetic chart – THRIVE and sedation, nil concerns
 - ICU d/c summary – precautionary admission, nil adverse events.

Discussion

- **What is Kartagener’s Syndrome?**
 - Autosomal recessive, multiple possible genetic pathways known, some unidentified.
 - Primary ciliary dyskinesia leads to:
 - Neonatal distress syndrome
 - Frequent sinus and middle ear infections, hearing loss
 - Frequent resp infections, leading to bronchiectasis
 - Infertility
 - Situs inversus totalis (but organs unaffected in other ways)

Plan

- Proceed to colonoscopy
- Suggest right lateral position to aid scope passage.
- If more major surgery required consider pulmonary rehab, nutrition optimization and respiratory review for bronchiectasis.

TOPIC 2: Myasthenia Gravis and multi-level spinal surgery

63yo male for removal of L3/4 hardware, L1/2 and L2/3 extreme lateral interbody fusion, posterior fixation T10 – pelvis. Multiple previous surgeries. Severe pain and dysfunction.

Background

- Myasthenia gravis
 - Bulbar symptoms, swallowing difficulty, fatigues with mobilization
 - Relapse in 2019 when steroids weaned below 30mg/d pred.
 - No spirometry available
- IHD
 - Angiogram 2019 - 40% mid-LAD stenosis (performed for atypical chest pain)
 - TTE – nil major abnormalities
- HTN & Dyslipidaemia

Issues and discussion:

- **Should surgery proceed?**
 - Reason for OT unclear during meeting.
 - High dose steroids -> concerns about bone quality and wound healing
- **Further myocardial perfusion imaging?**
 - 40% mid LAD lesion previously.
 - Low exercise tolerance due to MG and spinal issues, unable to quantify
 - Will need to cease aspirin perioperatively
 - Unlikely to change management.
- **Cell salvage?**
 - Nil obvious contraindications
 - With multi-level, long duration spinal surgery patient seems at high risk of significant bleeding.
- **Level of postop care?**
 - Preoperative lung function studies required
 - Factors predictive of postop MG crisis and requirement for postop vent (UpToDate)
 - Vital capacity <2
 - Duration of MG greater than 6yrs
 - Pyridostigmine dose > 750mg/d
 - History of chronic pulmonary disease
 - Preoperative bulbar symptoms
 - History of myasthenic crisis
 - Intraoperative blood loss > 1000ml
 - Serum anti-acetylcholine receptor antibody >100nmol/ml

- More pronounced decremental response (18-20%) on low frequency repetitive nerve stimulation.

Plan

- ICU level pending lung function studies
- Discussed with surgeons.
 - If cell salvage is feasible/required - awaiting response
 - Indication for surgery and high-risk nature of patient – extensive discussions about this patient at spinal MDT. Two surgeons involved in case. Aware of the risks. Surgery felt to be necessary.
- For discussion with cardiologist - requirement for stress imaging, and if postoperative ECG or troponin screening indicated.

TOPIC 3: Polymorbid patient for patella hardware removal

78yo male with patella ORIF in 2020 after MVA. Hardware now painful, for removal.

Background:

- Significant respiratory disease
 - FEV1 30%, FVC 70%
 - Recent respiratory physician review – ‘as good as he gets’
- IHD – further details unclear. ECG normal
- Upper airway cancer – treated with radiotherapy.
- Bladder tumour – local radiotherapy, quiescent
- Post-traumatic epilepsy after fall from horse decades ago.
- Distant PE
- METS 3
- Iron deficiency anaemia
- Frail

Issues and discussion

- **Should surgery proceed**
 - Reasonable indication for surgery
 - Uneventful surgical episode last year, reassuring
- **Optimisation of lungs possible?**
 - ARISCAT score = low risk (0.9%) for postoperative pulmonary complications
 - Given he has been reviewed by the respiratory physician recently, nil further optimisation felt possible.
- **Anaesthetic technique?**
 - Patient amenable to spinal anaesthetic. Good option.

Plan and Requested Actions:

- Proceed to OT.
- Normal ward-based care assuming nil complications intraop.

TOPIC 4: Skull base meningoencephalocele

Patient with unilateral hearing loss, rhinorrhoea, and eye discharge.
Diagnosed with CSF meningoencephalocele on CT. For craniotomy and resection.

Background

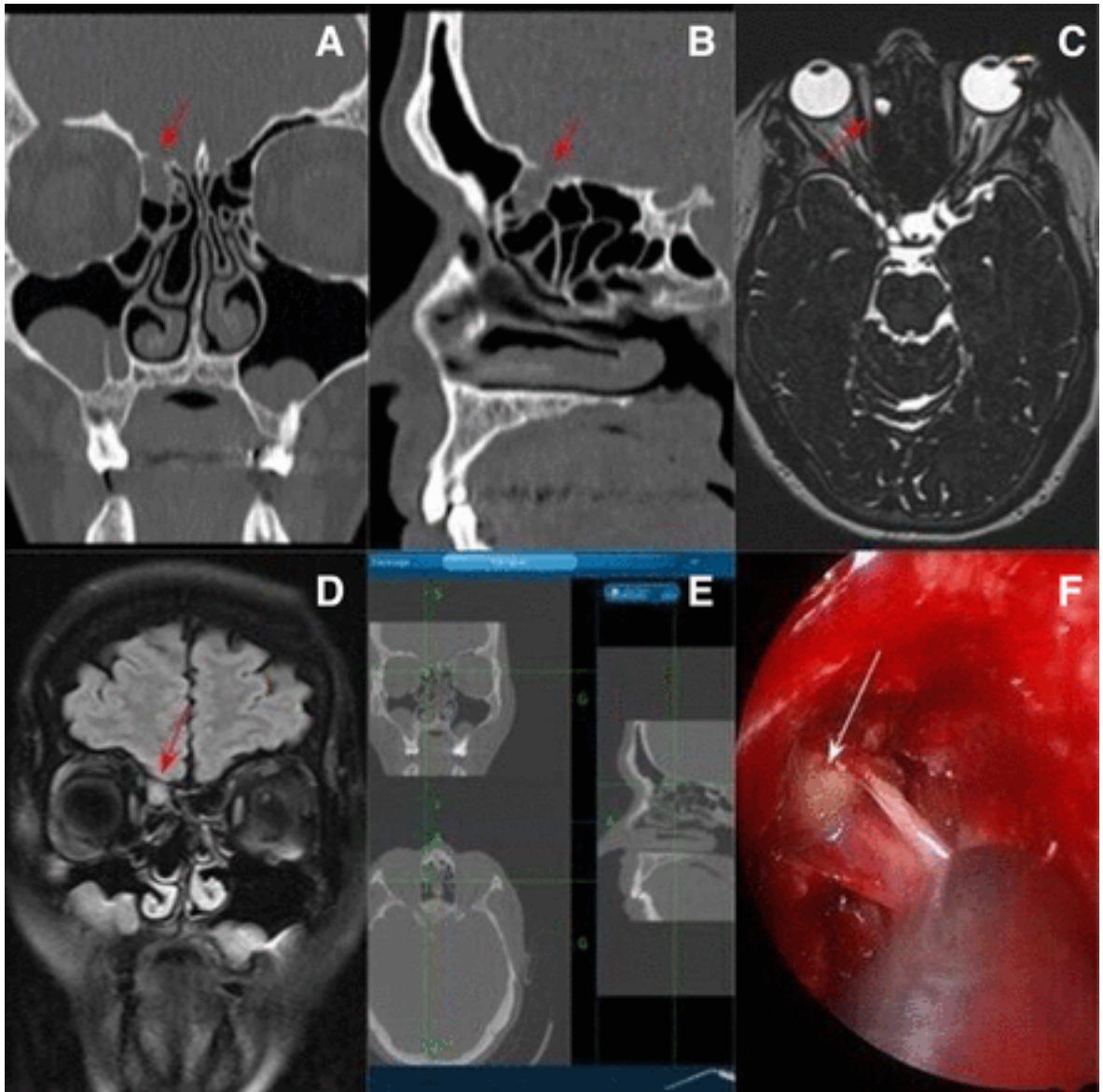
- Respiratory disease
 - Asbestosis and COPD
 - FEV1 <40%, FVC 70%, DLCO 40%
 - CAP 2021 -> prolonged ventilation in ICU
 - Recurrent pneumothoraces requiring talc pleurodesis 2017. Postoperative delirium/POCD and CO2 retention requiring re-intubation.
 - TTE '21 – nil cor pulmonale.
- HCV + but no viral load. Spontaneously cleared?
- 4WW, independent with ADLs

Issues

- **Severe respiratory disease**
 - Recent antibiotics and steroids
 - Hyperinflated in clinic, SpO2 92%. Chest clear and expiratory phase normal.
 - BODE 4 (60% mortality at 52mths)
 - Gold class 3B

Discussion

- **What is a skull base meningoencephalocele?**
 - Rare
 - Occur after head trauma (relevant for this man), can be congenital or rarely reported to develop secondary to benign intracranial hypertension.
 - Trans-sphenoidal, transethmoidal, sphenoid-orbital, sphenoid-ethmoidal or sphenomaxillary.
 - Commonly present with nasal obstruction, CSF rhinorrhoea, intranasal polyps, recurrent meningitis, and headaches.
 - Often combined approach, with neurosurgeons and ENT.
 - Treated with endoscopic trans-nasal approach (good access to skull base) or with open surgery.
 - Case report: <https://casereports.bmj.com/content/13/5/e234703>



Picture shows transethmoidal meningoencephalocele

- **Opportunities for optimisation?**
 - Recent abx and steroids were in preparation for this surgical episode. Further delay to OT unhelpful.
 - Patient at high risk of postop pulmonary complications and ventilation
 - Optimised.
- **Alternatives to surgery?**
 - No

Plan:

- ICU 3, assuming nil intraoperative complications
- Proceed to OT
- Lung protective ventilation strategies given likely severe bullous disease.
- Risk of tension pneumothorax intraoperatively.

TOPIC 5: New diagnosis of Interstitial Lung Disease

79-year-old man for consideration of open vs endovascular AAA repair.

Background:

- 5.1cm infra-renal AAA
- OA knee - awaiting TKR
- Previously discussed at PIG meeting

Issues

- Desaturated significantly during CPET test: 96-84%. Asymptomatic
- Limited by knee pain, no dyspnoea.
- Spirometry - restrictive ventilatory defect. FEV1=2.28 (75%), FVC= 2.72 (67%)
- CXR - bilateral pulmonary infiltrates
- CT chest showed fibrosing interstitial lung disease - new diagnosis

Discussion

Suitability for open procedure?

- Awaiting respiratory review but consensus that this patient is optimised
- Endovascular approach would be preferable
- Open AAA repair reasonable in with effective regional analgesia and postoperative care

Post-operative Disposition

- ICU 2 for open procedure

Plan

- As above, await respiratory consult and surgical plan.

TOPIC 6: Revision TKR

70-year-old lady for revision TKR.

Fall and periprosthetic distal femur fracture in 2020

Background:

- R Arm Amputation in 2015 - Necrotising Fasciitis. Long, complex ICU admission
- Recurrent falls - multifactorial aetiology; UL amputation, charcot foot, hypoglycaemia, and knee locking.
- BMI 44
- Chronic pain - Migraines, phantom limb pain, and CRPS, medical marijuana and PRN opioids.
- Subclinical hypothyroidism
- TIA 2019
- Chronic iron deficiency anaemia - managed by GP, regular Fe infusions

Issues:

- IHD
 - 2 previous AMI with minimal symptoms.
 - Sestamibi in 2019 showed a small area of fixed perfusion defect in LAD territory.
 - Ongoing stable angina.

- Lifelong DAPT
- Clinically bilateral pitting oedema to mid-shins
- 2-pillow orthopnoea.
- Last echo 2020 normal biventricular function.
- IDDM
 - HbA1c 7.9%.
 - Severe bilateral peripheral neuropathy.
 - Frequent hypoglycaemic episodes.
 - Regular endocrinologist review.
- Wheelchair-bound - since femur fracture last year.
 - NDIS care-package in place, requires assistance with all ADL's.
 - Physiotherapy included in package, engaging with physio recently.
 - Previously able to walk 50m on flat

Discussion:

Risk assessment

- High risk patient and complex operation
- RCRI = 4

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Revised Cardiac Risk Index

Variables	Pts	Total RCRI points	Risk of MI, cardiac arrest, or death 30 days after surgery	95% CI
Hx of IHD	1	0	3.9%	2.8%-5.4%
Hx of CHF	1	1	6.0%	4.9%-7.4%
Hx of CVD	1	2	10.1%	8.1%-12.6%
Insulin for diabetes	1	3	15.0%	11.1%-20.0%
Crt >177 µmol/L	1	4		
High-risk surgery	1	5		

* based on high-quality external validation studies

DOI: <http://dx.doi.org/10.1016/j.cjca.2016.09.008>
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- NSQUIP - above average for all variables, 70% discharge to nursing home/rehab facility.
- Risks conveyed to patient, wishes to proceed. States she would never want to be in a nursing home long-term.

Cardiac optimisation

- Discussed at cardiology MDT - high-risk, on optimal therapy
- Echocardiogram - IHD, orthopnoea and peripheral oedema.
- Symptoms could be attributed to BMI, deconditioning, and immobility.

Diabetes

- Reasonable HbA1c, unlikely to improve
- Hypoglycaemic episodes ongoing
- Preoperative endocrine consult - HbA1c above cut-off value for major joint surgery
- High-risk for perioperative joint infection

Medical Marijuana

- Prescribed by GP. Patient declining cessation in hospital
- Endocrinologist recommended cessation - falls and hallucinations
- Pharmacy contacted and IPU form completed

Decreased Exercise Tolerance

- Discussed with surgeon, requests that patient can mobilise preoperatively
- Rehabilitation will be difficult with current level of immobility/deconditioning

- Referred to Kaden centre for prehabilitation in conjunction with Dr Jen Mackney and patients own physiotherapist.

Plan

- Postpone for 6 weeks pending prehab and endocrine review

TOPIC 7:

70-year-old man for open AAA.

6cm supra-renal aneurysm. Asymptomatic

Background

- Carotid Disease – under surveillance. No CVA/TIA
- Non-hodgkins lymphoma

Issues

- IHD
 - Recent angiogram in Private hospital – chronic occlusion of RCA with collaterals. Mild to moderate LAD disease.
 - Works as a cleaner. DASII 7.6 MET's
 - Non-specific infero-lateral ST depression (1mm) on baseline ECG
- Peripheral vascular Disease – aorto-iliac stents. Not suitable for EVAR
- Complex surgery
- Current Smoker – 28 pack year history. Normal Spirometry
- Chronic Renal Impairment – Stage 2a

CPET

- Sub-maximal test – HRmax152 (80%pred). Limited by assessor due to ECG changes.
- Up-sloping infero-lateral ST depression during exercise
- 1mm ST depression during recovery
- No chest pain/dyspnoea
- Patient happy to continue exercising.
- Peak VO₂ = 1.5ml/kg/min
- AT 10.3ml/kg/min
- Nadir VE/VCO₂ 36.4
- HRR = 11bpm

Sestamibi

- Requested due to sub-maximal CPET and ECG changes
- Reversible ischaemic changes in mid basal-inferior wall
- Reduced ejection fraction (40%) post-stress

Urgent cardiology appointment via Rapid Access clinic

- Angiogram obtained from Private hospital (As Above)
- Sestamibi should be interpreted in the context of a chronically occluded RCA
- No angina despite good exercise tolerance
- Echocardiogram – normal LV systolic function and no regional wall motion abnormalities
- Nil further interventions required.

Discussion

Increased risk of cardiovascular and renal complications

- RCRI 3 - 15% risk of MI, cardiac arrest, or death within 30 days of surgery
- Vascular Quality Initiative index:

Vascular Quality Initiative (VQI) Postoperative Mortality Rate After Elective AAA si us

Calculator	References/About
<p>1. Age? <75 ></p> <p>2. Gender? Female ></p> <p>3. Prior Myocardial infarction? Yes ></p> <p>4. Prior Cerebrovascular disease? No ></p> <p>5. COPD? No ></p> <p>6. Lab value? Cr >=1.5 to <2.0 > mg/dl</p> <p>7. Type of procedure planned? Open with > suprarenal clamps</p> <p>8. Aneurysm Size? <6.5 cm ></p>	<p>Results</p> <p>Probability of in-hospital post-operative mortality after elective AAA</p> <p>6.75 %</p> <p>Created by QxMD</p>

- Existing renal impairment, supra-renal clamp, and predicted, complex surgery - increased risk of post-operative renal failure requiring long-term dialysis

Plan

- Discussed with surgeon and procedural anaesthetist - decision made to bring patient and family back to clinic for shared-decision making.
- Convey increased risks outlined above and allow for family discussion before proceeding.