



ThinkAskLearn
Health Professional Education

Chest Pain Management: More than you thought...

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Not all what is it seems

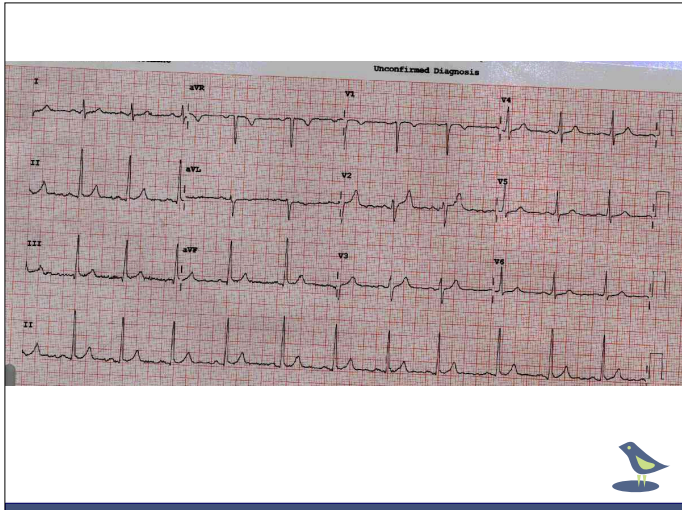
- 38 year old male
- Presents at 0300hrs with “Rt sided chest pain, non radiating, with associated L leg numbness, Nil SOB with same”
- Onset 2 hrs ago, Finished work at 2300hrs
- Nil previous Hx
- “dull ache in his chest and epigastrium and RUQ
- Also noticed that his left leg felt weak and tingling” med notes...



Triage Category

- P 80, BP 130/76, RR 18, T 36.4 Sats 98% RA, GCS 15,
- ATS 3
- Given Panadiene Forte, Ketoralac IM,
- ECG undertaken
- Placed in WR





Seen By ED Medic

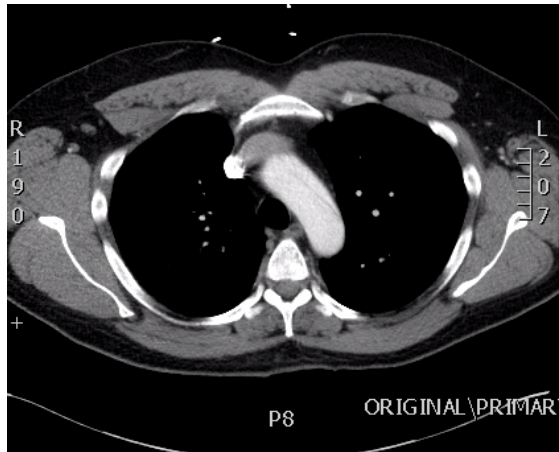
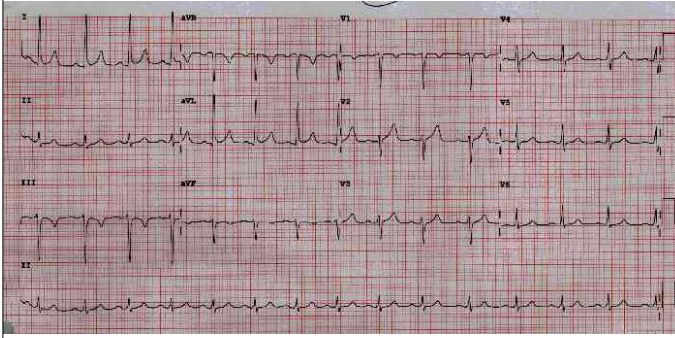
- Waited in WR for 6+ hrs SB DR 0900hrs,
- Social Hx
 - Non smoker
 - Denies Etoh
 - Denies illicit drugs
 - Works in fast food restaurant
 - Usually fit and well



Clinical Assessment

- Neuro:
 - Left leg 4/5 power
 - Right leg 5/5 power
 - Sensation of lower limb intact
- CVS:
 - Cap refill < 2 seconds
 - Dual heart tones - diastolic murmur
 - Poor right pulse radial compared to bounding left radial pulse
- BP right arm 80/50, left arm 133/80







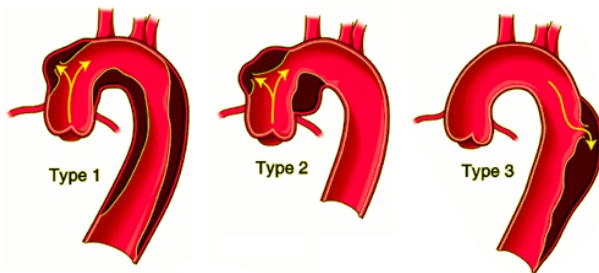
Aortic dissection

- Estimated 3 per 100 000 patients per year
- Many die before presentation
- About 40% are missed on initial presentation
- Tearing type pain suggestive
- Systemic Hypertension +age>70 yrs
- Tear in the inner layer of the aortic wall allowing blood to track between the intima (inner layer) and media (middle layer)





Rt Subclavian = BP difference



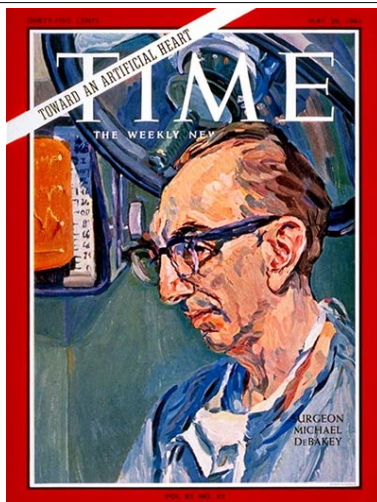
Aortic Dissection

Less than 50% of patients survive if aorta ruptures



How old are you to have a thoracic dissection repaired

- Technique developed by DeBakey in 1955.
- Death sentence to treatable disorder
- Dr. DeBakey developed aortic dissection at age 97,
- At age 98 became the oldest patient to survive the surgical procedure he pioneered

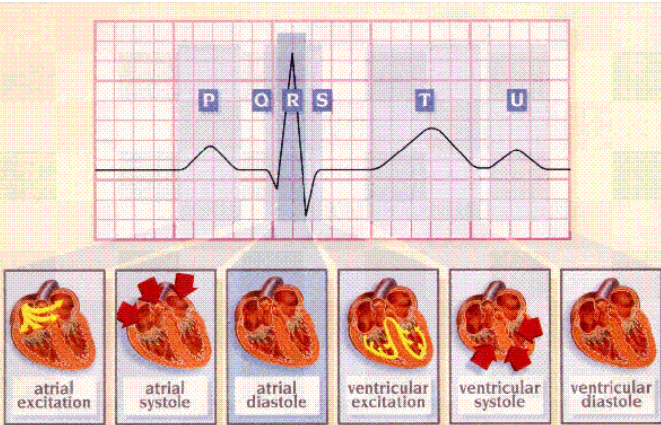


Risk factors for serious or life threatening conditions

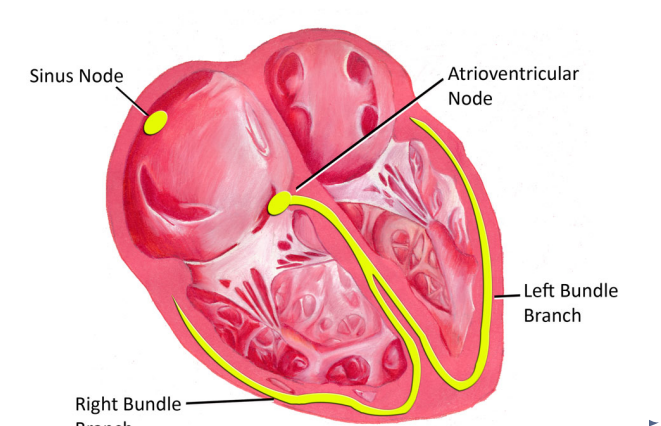
Risk factor	Condition to consider
Major chest trauma	Pneumothorax, haemothorax, cardiac or pulmonary contusion, mediastinal disruption.
Prior cardiac disease or surgery	Myocardial ischaemia, arrhythmia, pericarditis, pericardial effusion.
Hypercoagulable states (primary clotting disorders, neoplasms, pregnancy, contraceptive pill use, prolonged immobility or post surgery, central venous catheters, connective tissue disease, past history or strong family history of thromboembolic disease)	Pulmonary embolus
Sickle cell disease	Acute chest syndrome
Chronic respiratory disease	Pneumothorax
Kawasaki disease	Coronary aneurysm and myocardial ischaemia
Familial hyperlipidaemia syndromes	Myocardial ischaemia
Cocaine or stimulant use	Myocardial ischaemia
Connective tissue disease	Pericarditis and pericardial effusion, aortic dissection



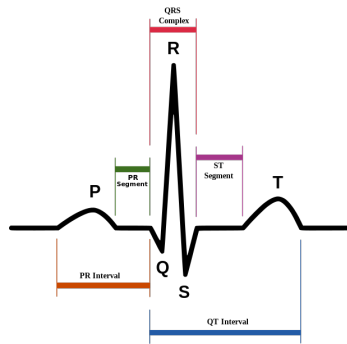
The Normal Cardiac Cycle



Normal Electrical Conduction



QT interval



A normal QT interval generally ranges between 340-460 milliseconds.



People with long QT syndrome (QT interval \geq 500 milliseconds) have potentially dangerous QT prolongation.



Long QT Syndrome

- Multiple variants
 - Rarely also includes deafness
 - Congenital and Acquired
- Triggers
 - Exercise, alarm, stress, anger
- Treatment
 - Medications, Implantable Defib, Surgery
- Death rate
 - 1% over 20 years with treatment, 50% over 15yrs without

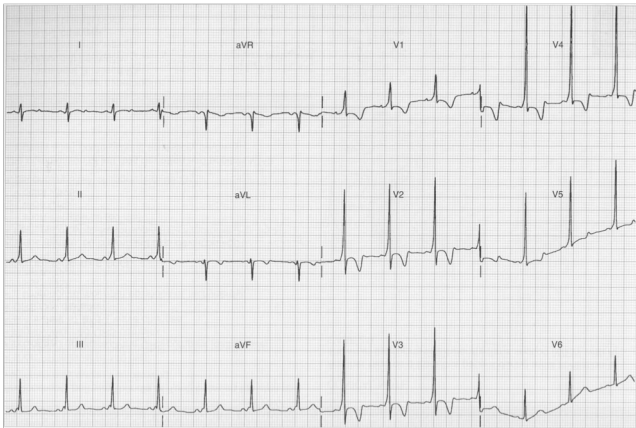


Problems with LQTS

- Fainting/Syncope
 - Not usually dizziness or light-headedness
 - No warning signs
- Arrhythmia
 - May present as seizure
 - Cardiac Death
- Unwell child with LQTS = Call 000 + Parents

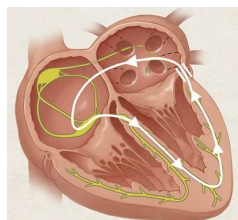


11 YEAR OLD MALE WITH BOUTS OF BREATHLESSNESS



ECG
Short PR interval
Delta Wave
Wide QRS

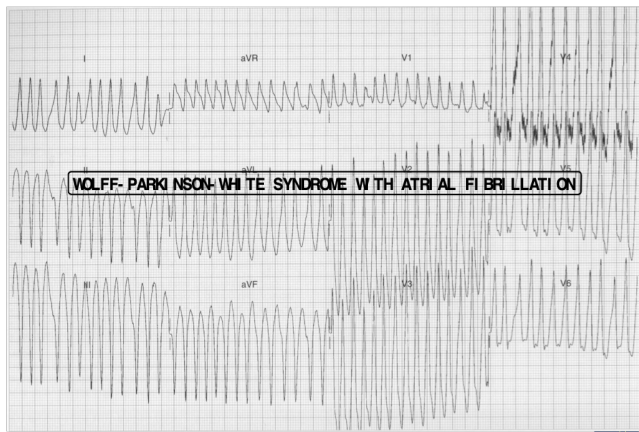
Bundle of Kent



Unusual conductive tissue
Allows bypass of AV node



16 YEAR OLD WITH RECURRENT FAINTS

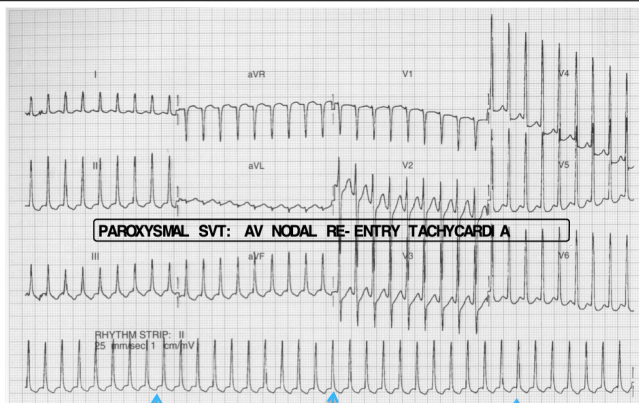


AF with WPW

- Atrial fibrillation can occur in up to 20% of patients with WPW.
- Atrial flutter can occur in up to 7% of patients with WPW.
- Rapid ventricular rates may result in degeneration to VT or VF
- Defibrillation is the key to unstable patients



26 YEAR OLD MAN WITH PALPITATIONS



Super Fast No P Wave Regular Narrow Complex



Signs and Symptoms

- Rapid heart rate 140 - 200 per minute
- Palpitations
- Dizziness, or 'feeling light headed'
- Breathless,
- Diaphoretic
- Nauseous
- Minimal Symptoms except fast heart rate
- Occasional Hypotension esp elderly, co-morbidities
- It is very rare for patients to have any serious consequences of SVT



Valsalva Manoeuvres

- Carotid Sinus Massage (not recommend outside hospital environment)
- Bearing Down
- Blowing in a straw
- Attempts to stimulate vagal response
- May have tried these prior to hospital



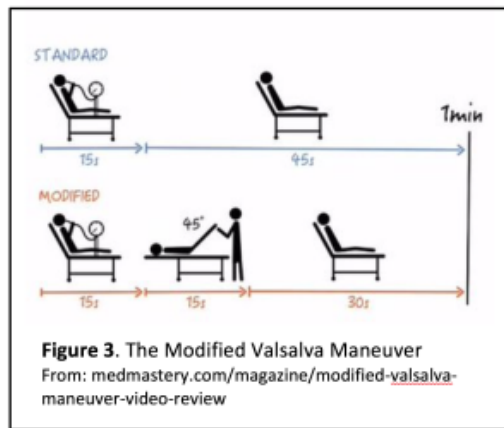
Postural modification to the standard Valsalva manoeuvre for emergency treatment of supraventricular tachycardias (REVERT): a randomised controlled trial

Andrew Appelboam, Adam Reuben, Clifford Mann, James Gagg, Paul Ewings, Andrew Barton, Trudie Lobban, Mark Dayer, Jane Vickery, Jonathan Benger, on behalf of the REVERT trial collaborators

Vol 386 October 31, 2015

 YouTube





What did they find?

- 17% reverted with standard valsalva
 - ?higher than in our dept
 - Most likely correct technique
- 43% reverted with modified valsalva
- Use of Adenosine:
 - Standard Valsalva Arm: 148/214 (69%)
 - Modified Valsalva Arm: 108/214 (50%)



Acute Coronary Syndromes

- High Risk Factors
 - Chest pain >10 mins
 - Age >65 yrs
 - Hypotension, Sweating, Cool peripheries
 - Previous MI, Diabetes, Kidney Disease
- No routine use of oxygen
 - SOB, Hypoxia <94%, Shocked



Acute Coronary Syndromes

- Aspirin may be given by dispatchers or bystanders provided true allergy or a bleeding disorder can be excluded (ARC)
- GTN is not a reliable indicator of ACS
 - Give patients own GTN
 - Advise attend ED
- Call ambulance for transport



Take Home Messages

- Most chest pain in kids does not signify significant underlying pathology
- However all cases should be investigated further
- In suspected cases of ACS – arrange transport to hospital via ambulance

