Doncaster and Bassetlaw Paediatric Department
The PEN Issue No.7 November 2020

NHS
Doncaster and Bassetlaw Teaching Hospitals

Welcome to the seventh issue, a cardiology-themed edition of '**The PEN'**. The Paediatric Education Newsletter is our monthly educational bulletin of cases, clinical questions and learning points from recent teaching.

Today, you are the oncall SHO/Reg when these 3 patients present (simultaneously!).

Case 1- Prepared by Louise ST3

You are asked to review the 8-month-old girl who attended for repeat ECG. She initially presented with vacant episodes and abnormal movements thought to be possible seizures. During an EEG, significant cardiac arrhythmias were noted on the ECG recording and a 24hr tape was arranged.

- How would you interpret a paediatric ECG?

Case 2 – Prepared by T.J. ST1

A 3 week old baby is referred by the midwife for possible jaundice. Born 37+0, SVD, NRFS and formula fed. The SBR is 144 and below treatment line.
Baby is noted to have a 3 day history of persistent tachypnea. When settled the respiratory rate was 65-70 with saturations of 95% and significant recessions.

- What differentials can you think of so far?

Case 3- Prepared by Gavish GPST2

A 10 year old boy BIBA in Bassetlaw ED: Lethargic + Fever + Rash + GI upset. He had reduced appetite for 1 week, followed by nausea, vomiting and diarrhoea after 4 days + "whole body ache". He has recently been back to school after the COVID-19 lockdown.
O/E: tachycardic, tachypnoeic, with delayed peripheral perfusion. Cardiorespiratory and abdominal examinations were normal. Some neck stiffness was noted. A palpable, tender, non-blanching rash was found on his left leg and right heel.

- What is the important differential at this stage? What would you do next?

Learning Points from some of this month's departmental teaching

Primary Immune Deficiency (Rik, Danny & Ihsan)

1. SPUR screening questions: ***S***erious, ***P***ersistent, ***U***nusual, ***R***ecurrent infections.
2. Clinical judgement: SPUR questions, Family history, Failure to thrive, Frequent IV antibiotics, Deep-seated infections. Basic test: FBC, Immunoglobulins, Vaccine responses.

Faecal Calprotectin (Nazia & Emad)

1. Quantitative measure of intestinal inflammation (of any cause) and not a disease-specific marker.
2. Used in children above the age of 4.
3. Higher specificity and sensitivity than any other inflammatory marker in IBD diagnosis.

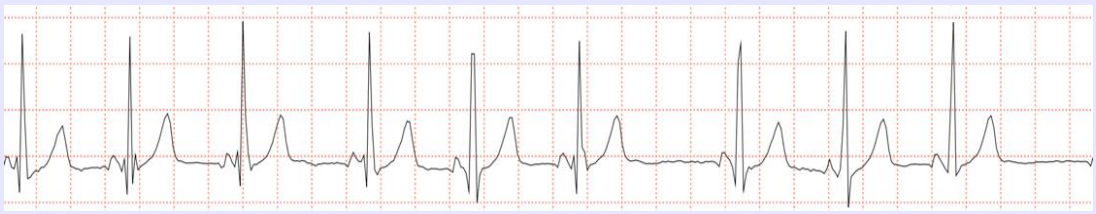
Pyloric Stenosis (Deji & Amir)

1. Classically presents at 3-6 weeks with non-bilious, projectile vomiting immediately after feeds.
2. Historically, examination reveals a dehydrated, emaciated baby with hypochloremic, hypokalemic metabolic alkalosis on investigation.
3. Pathognomonic sign: olive-like mass palpated during test feed. Important to identify this to institute early electrolyte management if USS diagnosis is not available out-of-hours.

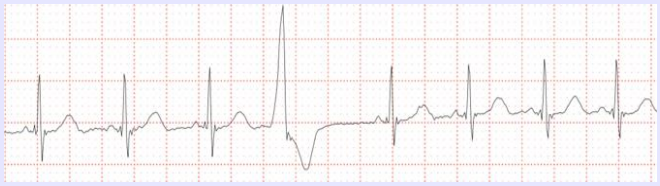
Case 1 (Cont'd)

In each of the following ECGs, what is the abnormality?

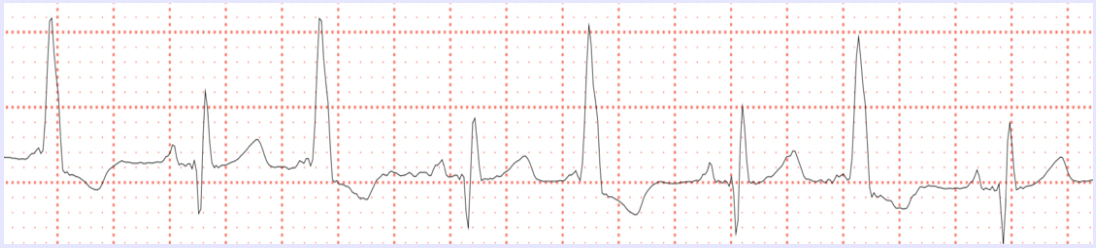
A.



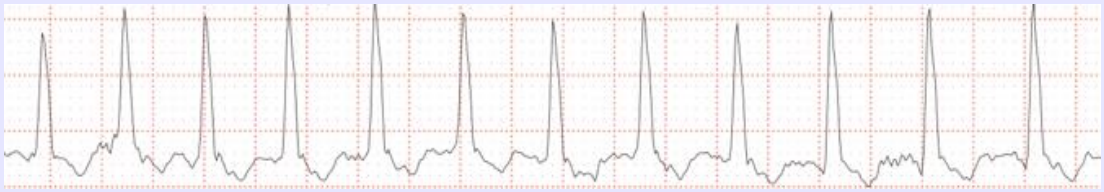
B.



C.



D.

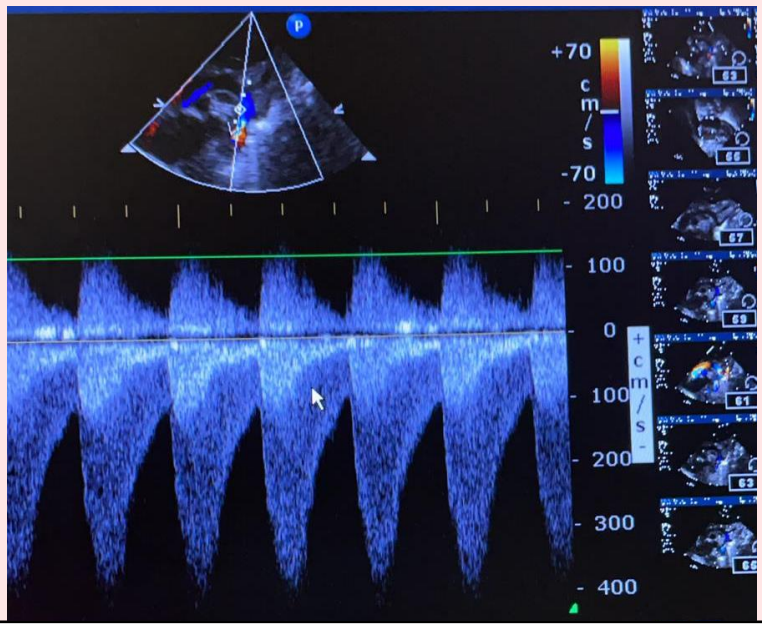


Case 2 (Cont'd)

On re-examination, a soft systolic murmur at LLSE (2/6) was auscultated with absent femoral pulses.

Bloods: NAD. Gas: pH 7.4, CO_2 6, O_2 6.4, Lac 1.1, HCO3 26.4, BE 2.5. CXR: NAD

Bedside Echo:



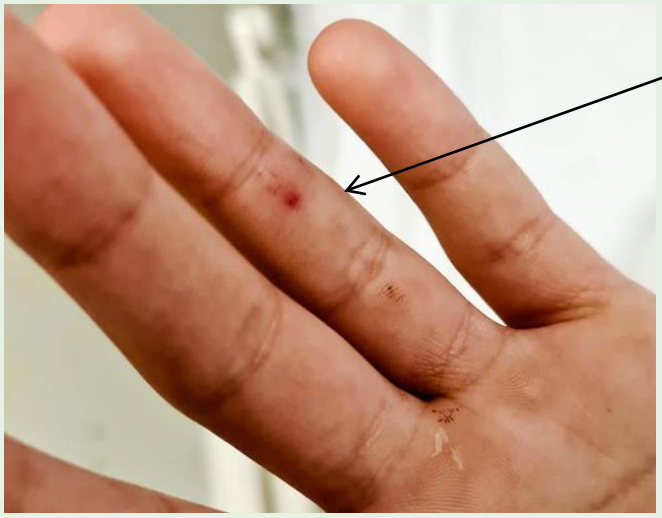
What abnormality has been found?

What is the important next step?

Case 3 (Cont'd)

VBG: **NAD**; Urine dip: **KET** 2+, **Prot** 2+, **Bld** 3+; **WBC** 5.2, **Plt** 87, **CRP** 108, **PT** 15.5, **Na** 127.

He was started on empirical Ceftriaxone for meningoccocaemia and fluid resuscitated. Emergency transfer to DRI HDU was arranged. He remained haemodynamically labile, requiring further boluses.



How is infective endocarditis diagnosed?

- Day 1 – Leg rash was found to be spreading distally.
  What is this finding noted on his finger?
  COVID: **NEG**; **CRP** 95; **D-Dimer** 5.8
  Blood Cultures: *S.aureus*.
  He was started on Clindamycin.
  Echocardiogram: Mild-mod MR, no veg
- Day 2 – Repeat Blood Cultures: *S.aureus*.
  Flucloxacillin added to regime.
  What are the common bacteria involved in cardiac infections?
- Day 3- Transfer to LGI.
  Repeat echocardiogram showed new vegetations (started on Tinzaparin). These had resolved by day 10 and he was discharged with a 4 week course of IV flucloxacillin and 12 weeks of Tinzaparin.

Answers

1. A - Sinus arrhythmia; B - Ventricular ectopic; C - Bigeminy; D - Ventricular tachycardia (broad complex tachycardia)
   Thanks to Ihsan (ST8) for his useful roadmap to Paediatric ECG interpretation.
2. Coarctation of the Aorta.
   Alprostadil infusion to maintain ductal patency.
   See dosing regimen on the SCH guideline: Online or Downloaded (30.11.20)

   New guideline coming soon!
3. Janeway Lesion.
   Viridans streptococcus, Staphylococcus aureus, Enterococcus spp, Coagulase-Negative Staphylococci.
   Modified DUKE Criteria for diagnosis of infective endocarditis (See Table 3 in the link)

Library Links (best opened in Chrome web browser)

1. Paediatric VT
   a. Expert Consensus
   b. Recognition & Treatment
2. Coarctation of the Aorta
   a. Evidence review (Dynamed, BMJ Best Practice)
   b. Presentation, Management & Infusion rates
3. Paediatric Endocarditis
   a. Causative agents
   b. Predictors of mortality

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