**QUIZ 16th May 2018 (answers below)**

1. **Describe SIMV PS mode on the Oxylog 3000.**

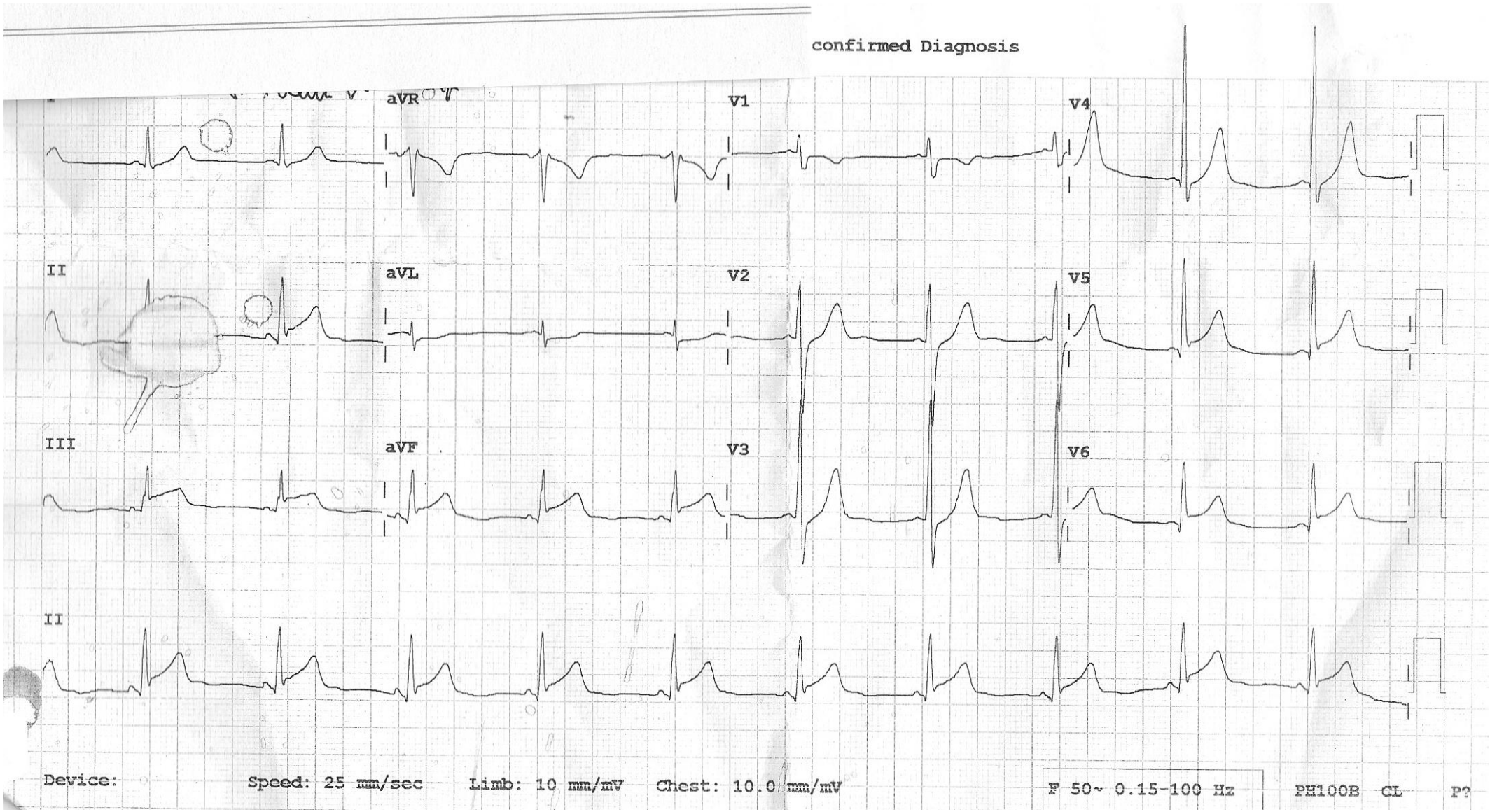
2. **What does a subdural haemorrhage look like on non contrast CT brain?**

3. **What do "communicating" and "obstructive" mean in hydrocephalus?**

4. **How do you insert a Sengstaken Blakemore tube?**

5. **Describe and interpret the following ECG.**

confirmed Diagnosis



**QUIZ answers 16th May 2018**

1. **Describe SIMV PS mode on the Oxylog 3000.**

*SIMV PS (Synchronised Intermittent Mandatory Ventilation with Pressure Support) is the preferred mode of ventilation at SVH ED and should be the default mode. It is also a volume controlled mode of ventilation but differs from CMV in that it coordinates with the patient's own breathing efforts; i.e. it is synchronised. There is still a mandated minute ventilation (Vt x freq), but there is a small window around the timing of the breath where it can be delivered "in time" with the patient's effort. There is a selected maximal airway pressure that the volume delivery can't go above. This is on a background of selected PEEP.*

*In SIMV ASB/PS there is also the opportunity for the patient to take spontaneous breaths in addition to the synchronised mandated volume-controlled breaths. These spontaneous breaths are supported with a selected pressure, i.e. pressure support. Pressure support is only applied to spontaneous breaths. These spontaneous breaths are in addition to the volume selected mandated breaths.*

*The synchronisation of mandatory ventilation and support of spontaneous respiratory effort enhances the patient's comfort in "breathing with" the ventilator.*

2. **What does a subdural haemorrhage look like on non contrast CT brain?**

*Acute phase (0 – 3 days)*
- *Hyperdense extraaxial collection (hyperdensity is due to fresh clot)*
- *Crescent shaped*
- *Spreads diffusely, can cross suture lines, does not cross midline because of meningeal reflections*
- *If large enough, causes effacement of adjacent sulci and midline shift*
- *Can be isodense or hypodense if blood is not clotted (patients on anticoagulants) or very anaemic*
- *Anticoagulated patients can show a red cells level as the blood doesn't clot and the red cells settle with gravity*
- *Can have hypodense areas if there is a CSF leak into collection*
- *If scanned in hyperacute phase (first hour), may be hypodense as clot still forming*

*Subacute phase (3 – 21 days, but typically 10 – 14 days)*
- *Protein degradation of the clot has occurred and it become isodense*
- *Can be difficult to pick, especially if bilateral*
- *Need to look for sulci going right out to skull and mass effects*

*Chronic phase (>3 weeks old)*
- *Now hypodense*
- *Can mimic a subdural hygroma*
- *Periphery can calcify*
- *May take on a more biconvex shape*
- *High density area can indicate rebleed*

**3. What do "communicating" and "obstructive" mean in hydrocephalus?**

*Hydrocephalus denotes an increase in volume of CSF and thus ventriculomegaly.*
*"Communicating" - the CSF can exit the ventricular system*
*"Obstructive" - there is obstruction to CSF absorption*

*<u>Communicating Obstructive Hydrocephalus</u>*
*Eg. Sub arachnoid blood can fill basal cisterns and obstruct the arachnoid granulations. CSF can exit the ventricular system but there is obstruction to CSF absorption. Other causes include bacterial meningitis, leptomeningeal carcinomatosis.*

*<u>Communicating Non-obstructive hydrocephalus</u>*
*Normal pressure hydrocephalus – we don't really understand the pathology here*
*Brain volume loss – generalised degeneration or focal loss*

*<u>Non-Communicating Obstructive Hydrocephalus</u>*
*By definition, if CSF can't exit the ventricles, it can't be absorbed, so non-communicating hydrocephalus is obstructive. Often just called "obstructive hydrocephalus". There are many causes that include:*

*Colloid cyst obstructing the foramen of Munro*
*Aqueduct stenosis*
*Posterior fossa tumour obstructing the fourth ventricle*

**4. How do you insert a Sengstaken Blakemore tube?**

*The following instructions can be found on EDIS under management guidelines*

*<u>Sengstaken-Blakemore Tube Quick Insertion Guide</u>*
*For balloon tamponade of oesophageal varices*
*Complication rate very high*
*Urgent endoscopy is management of choice*
*Patient must be intubated prior to insertion*
*Procedure:*

- *Insert through mouth well into the stomach*
- *Inflate the GASTRIC balloon with 50mL AIR*
- *CXR to confirm that GASTRIC balloon is in stomach*
- *Further inflate GASTRIC balloon to 250mL total with AIR*
- *Pull tube out to where balloon stops at the gastro-oesophageal junction*
- *Apply traction by tying tube to 500mL fluid bag draped over an IV pole*
- *Stomach contents can be aspirated through the gastric port*
- *Oesophageal contents can be aspirated through the oesophageal port*
- *Ongoing oesophageal bleeding (~10%)*
    - *Inflate oesophageal balloon with AIR to max. 40mmHg*
    - *Use cuff pressure manometer to measure pressure*
    - *High risk of oesophageal injury so this not routinely done*

**5. Describe and interpret the following ECG.**

| | |
|---|---|
| *Rate* | *65/min Regular* |
| *P waves* | *All conducted, upright in II, normal morphology, uniform* |
| *PR interval* | *Short, 100ms (normal for adult is 120 – 200msec)* |
| | *No obvious elevation or depression* |
| | *No delta wave* |
| *QRS* | *Narrow* |
| | *Normal axis ~60 degrees* |
| | *Early R wave transition – counter clockwise rotation* |
| | *No pathological q waves* |
| *ST segments* | *2mm elevation II, III, aVF – concave in II and aVF, but flat in III* |
| | *1-2mm elevation V5 and V6 – concave* |
| | *1mm depression aVL* |
| *T wave* | *Flat in aVL* |
| *TP* | *Slight downsloping in V5 and V6 (or am I trying too hard?)* |
| *QT interval* | *Normal* |

➔ *Sinus rhythm*
*Consider preexcitation syndrome (Lown-Ganong-Levine syndrome)*
*Inferior and lateral concave ST elevation*
*ST depression and flat T wave in aVL only*
*Spodick's sign in V5 and V6 (with eye of faith)*
*?Pericarditis ?STEMI*

➔ *ECG is from 19 year old male patient of Dr Joe Marwood at Mona Vale ED*
*Presents with 3day history of central chest heaviness*
*Following 2 weeks viral illness*
*1st Troponin 10,000 (discussed with interventional cardiologist RNSH)*
*ECHO LVEF 45 – 50%*
*CTCA normal*
*Cardiac MRI showed extensive oedema consistent with myocarditis*

➔ *Drop of hand gel on the ECG is proof of Dr Marwood's excellent hand hygiene*