Unknown ECG tracings and their interpretation in the EP lab: 

basic principles of EP for non specialists.

Jo DeGiovanni
Priory Hospital
Birmingham
No Conflicts of Interest
Principles

- Always obtain 12 lead ECG with each presentation
- There may be more than one substrate
- There may be aberrancy
- Most mechanisms and types of tachycardia can be worked out without invasive investigations
Approach

• Look at the details of the ECG
• Consider Vagal manoeuvres/Adenosine/Verapamil
• Atrial ECG in the post-operative period or oesophageal lead
3x4 Simultaneous Report

Name: Rachel Spireon
Number: 18684
Sex: Female
Date of Birth: 01/05/2000 (7 years)
Height/Weight: 

Recorded: 09/09/2007 9:35:26 AM
Device: BIOLOG 037729

Measurements
Heart Rate: 74 bpm
P Duration: 
PR Interval: -
QRS Duration: 60 ms
QT Interval: 442 ms
QTc Interval: 491 ms
P, QRS, T Axis: 99°, 65°, 46°

Interpretation (Unconfirmed)
Pacemaker rhythm
Atrial fibrillation

BP 84/52
Dr. Kung.
Occasionally DC Shock
Reasons for EP

- Mainly for therapeutic reasons
- Should not be necessary purely to explain palpitations or interpret ECG
- Proactively if access to substrate will be compromised by surgery
Reasons for EP

• Mainly for therapeutic reasons

• Incessant/Persistent tachycardia

• Should not be necessary purely to explain palpitations or interpret ECG

• Proactively if access to substrate compromised by surgery
Female Years
HR : 188 bpm
P : 0 ms
PR : 0 ms
QRS : 75 ms
QT/QTc : 248/439 ms
P/QRS/T : 0/83°/87°
RV5/SV1 : 1.813/1.171 mV

Diagnosis Information:
Supraventricular Atria
Middle ST Depression(V2)
Slight ST Elevation(II, III,)

Report Confirmed by:
Pre-adrenaline

0.67–100Hz AC50 25mm/s 10mm/mV 4*2.5s 188 SE-12Express V2.01 SEMIP V1.7
OVERDRIVE ATRIAL PACING

ARRHYTHMIA CAPTURED
<table>
<thead>
<tr>
<th>ID</th>
<th>SNAPSHOT INFO</th>
<th>CHANNEL</th>
<th>ECG WAVEFORM (150 mm/sec)</th>
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<td>R II</td>
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Vent. rate (BPM) 188
PR interval (ms) ?
QRS duration (ms) 155
Rate 103. Tachycardia with unusual P axis, rate 103
PR 114. Multiple ventricular premature complexes
QRS 172. Left bundle branch block
QT 385
QTc 504

---Axis---
P 176
QRS -38
T 167

- ABNORMAL ECG -

Unconfirmed. MD must review.

25 mm/s 10 mm/mV F ~ 0.5 Hz - 40 Hz W HP708 13/59
RVOT PATHWAY REACHED FROM LEFT
Conclusion

• EP studies are rarely required for diagnosis of arrhythmias

• There are specific conditions to resort to EP, mainly therapeutic

• Interpretation is often straightforward but surprises do turn up and with multiple substrates interpretation can be difficult to work out even in experienced hands

• Access issues are particularly relevant in children after some forms of heart surgery
Atrial fibrillation with rapid ventricular response
Right bundle branch block
T wave abnormality, consider inferolateral ischemia or digitalis effect
Abnormal ECG

Test ind:

Referred by:

Unconfirmed

Lindsey Butler