

A Holiday Shocker!

Viki Carpenter – Cardiac Physiologist

Addenbrookes Hospital



Background

- 57 Year old female
- Known HCM
- 2006 - NSVT with palpitations but NO syncope
- VT ablation performed
- Uncontrolled atrial flutter



Background

- Pace and ablate procedure in 2008
- Vitatron DDD PPM implanted
- Now permanent AF
- Unremarkable follow up until.....



August 2011

- Out of hospital cardiac arrest in car
- 20 minutes down time
- Found to be in VF by paramedics
- Spontaneous circulation after 2 shocks
- Admitted to ICU at Addenbrookes Hospital

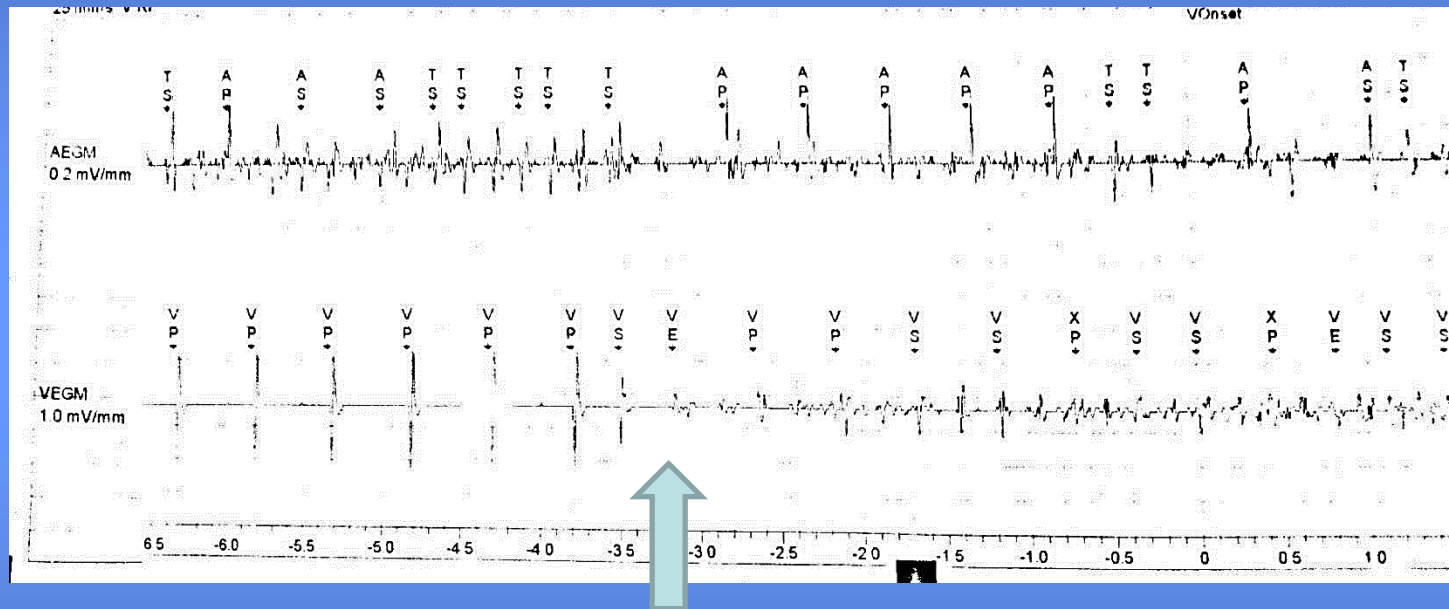


On admission

- Respiratory failure 2° pulmonary contusions
- Left sided pneumothorax
- Multiple rib #
- Normal CT head
- Intubated and admitted to ICU



Interrogation of device



- VF initiated by PVC

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2 weeks later....

- Inflammatory markers stabilised
- Echo showed HCM with no LV impairment
- 2° prevention Medtronic Protecta DDD ICD inserted
- VF zone > 188bpm 30/40
- ATP during charging 6 x 35J
- VT monitor zone 133bpm



- Patient was discharged home
- No further complications
- Until.....



A phone call from holiday



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- Staying in a hotel
- Received shock whilst climbing out of swimming pool
- Felt well before and after



Visit ED

- Patient felt well
- No Carelink monitor at present time
- Patient assessed and discharged the same day
- Advised to visit us on return to UK

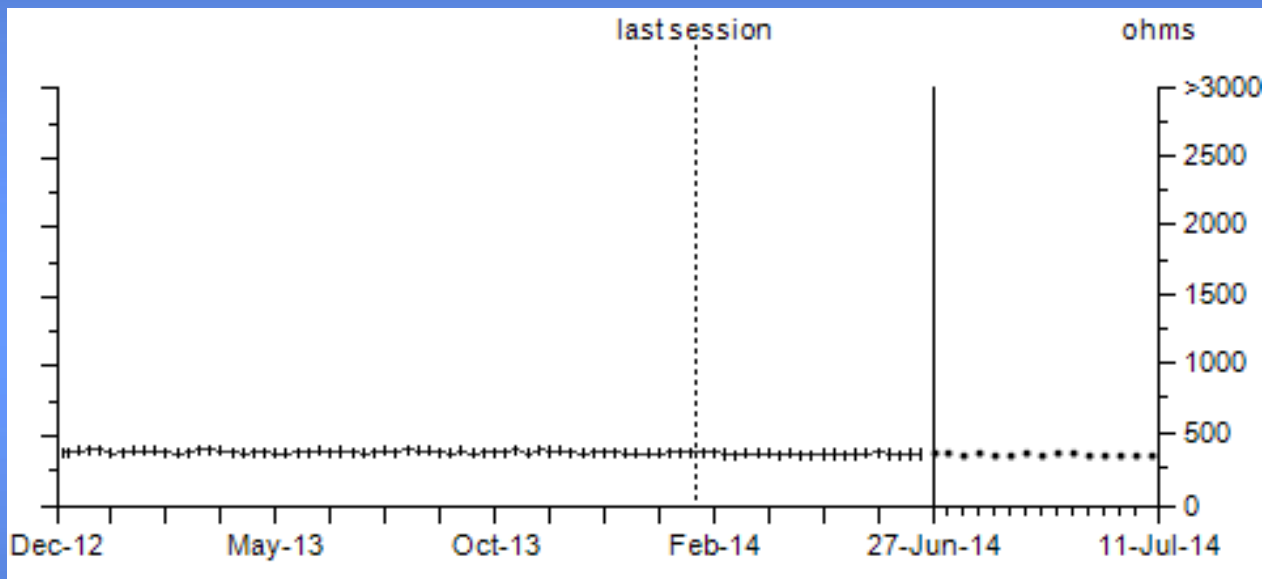


History on arrival

- Patient had been climbing out of swimming pool
- Felt well
- Received a shock
- Felt fine afterwards
- Had used swimming pool over next 4 days with no problem!



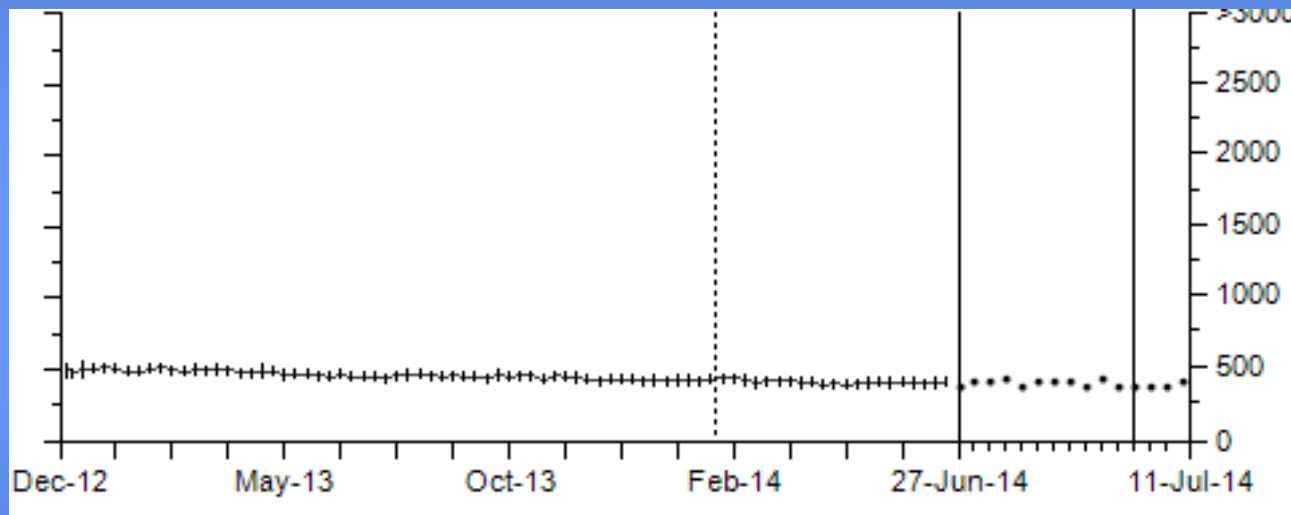
Atrial Lead Impedance Trend



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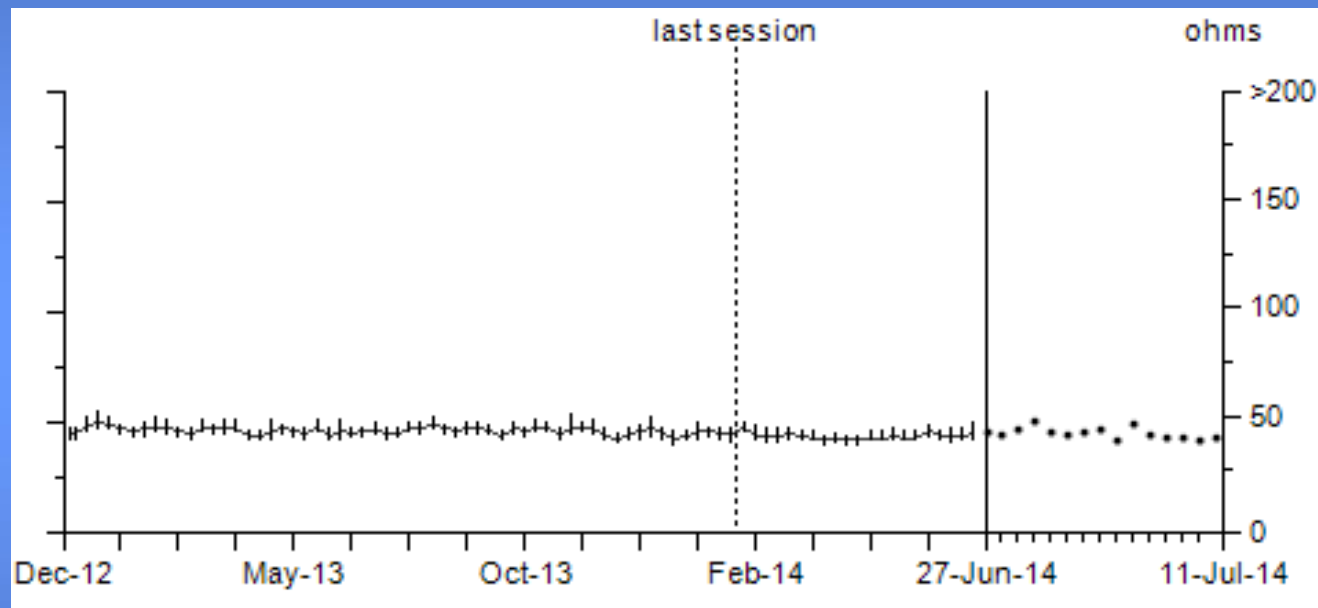
RV Lead Impedance Trend



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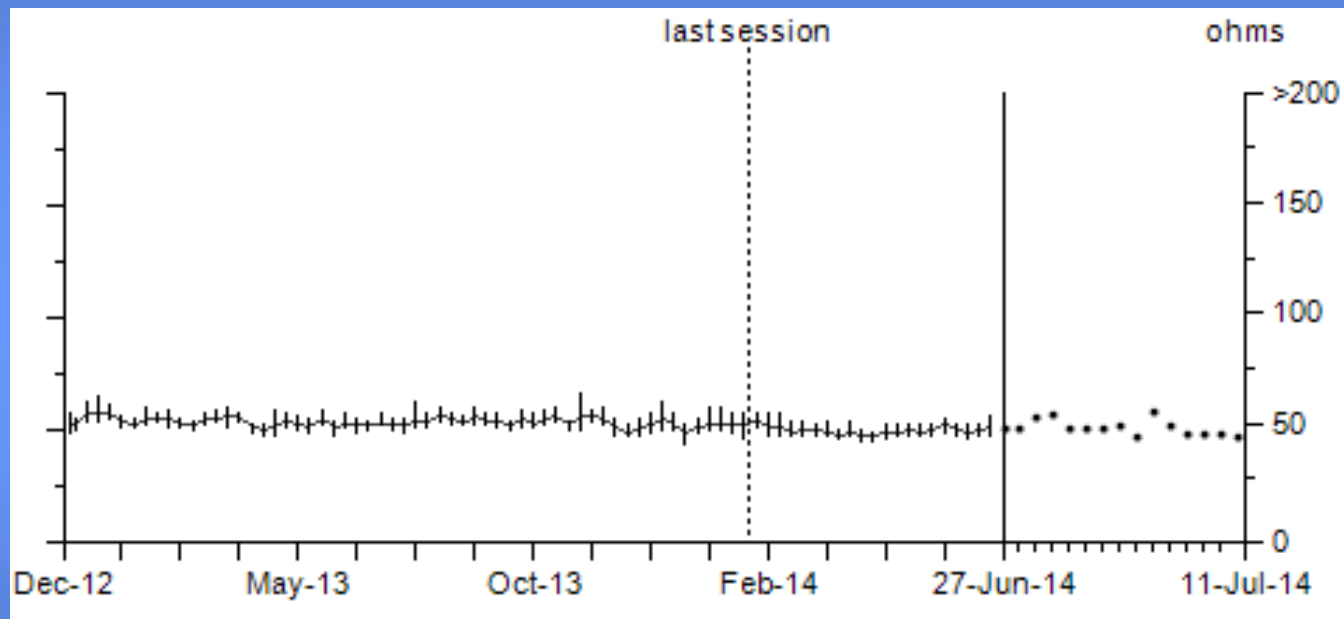
RV Coil Impedance Trend



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SVC Coil Impedance Trend



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- All other lead tests satisfactory
- 44 short V-V episodes
- 1 episode of treated VF
- 5 High rate NS episodes
- 100% AF



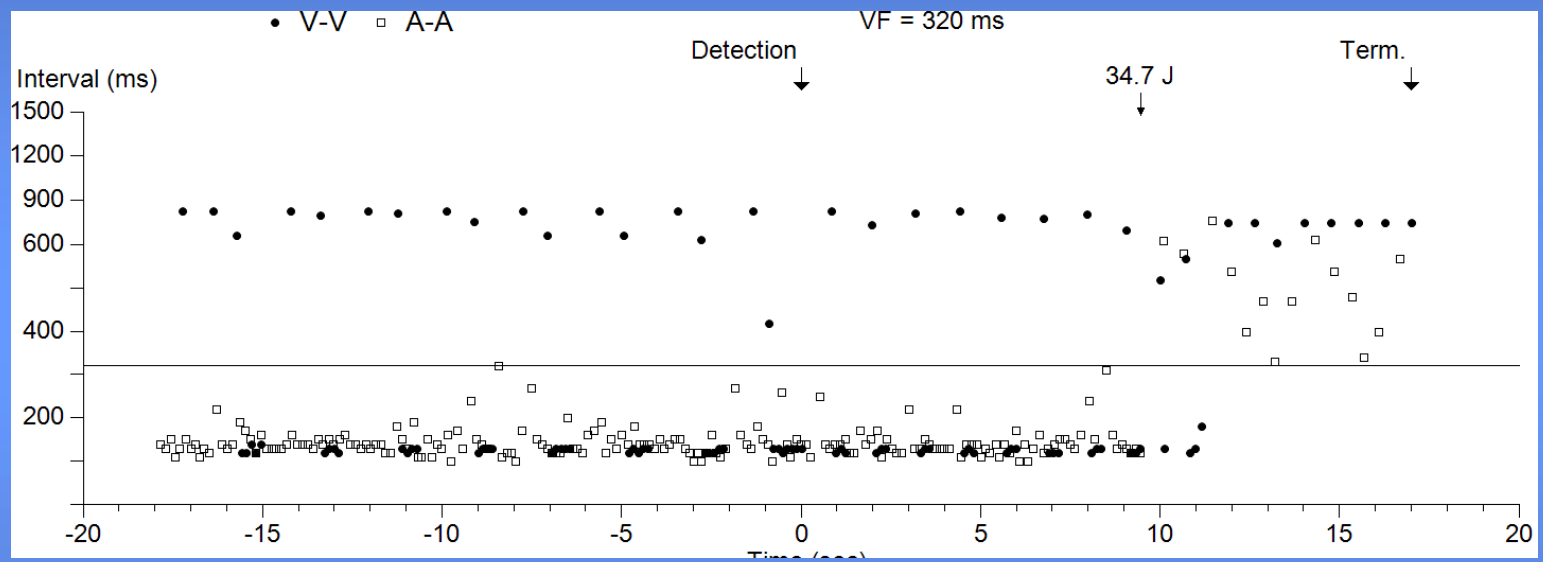
Episode list

Select							Time	Duration			
<input type="checkbox"/> (all)	Type	ATP Seq	Shocks	Success	ID#	Date	hh:mm	hh:mm:ss	Avg bpm A/V	Max bpm A/V	EGM
<input checked="" type="checkbox"/>	VF	0	35J	Yes	72	08-Jul-2014	09:46	:28	462/462	---/462	EGM
<input checked="" type="checkbox"/>	High Rate-NS				71	08-Jul-2014	09:46	:01	429/480		EGM
<input checked="" type="checkbox"/>	High Rate-NS				70	08-Jul-2014	09:46	:01	397/472		EGM
<input checked="" type="checkbox"/>	High Rate-NS				69	08-Jul-2014	09:46	:01	441/480		EGM
<input checked="" type="checkbox"/>	High Rate-NS				68	08-Jul-2014	09:29	:01	441/364		EGM
<input checked="" type="checkbox"/>	High Rate-NS				67	08-Jul-2014	09:29	:01	451/492		EGM

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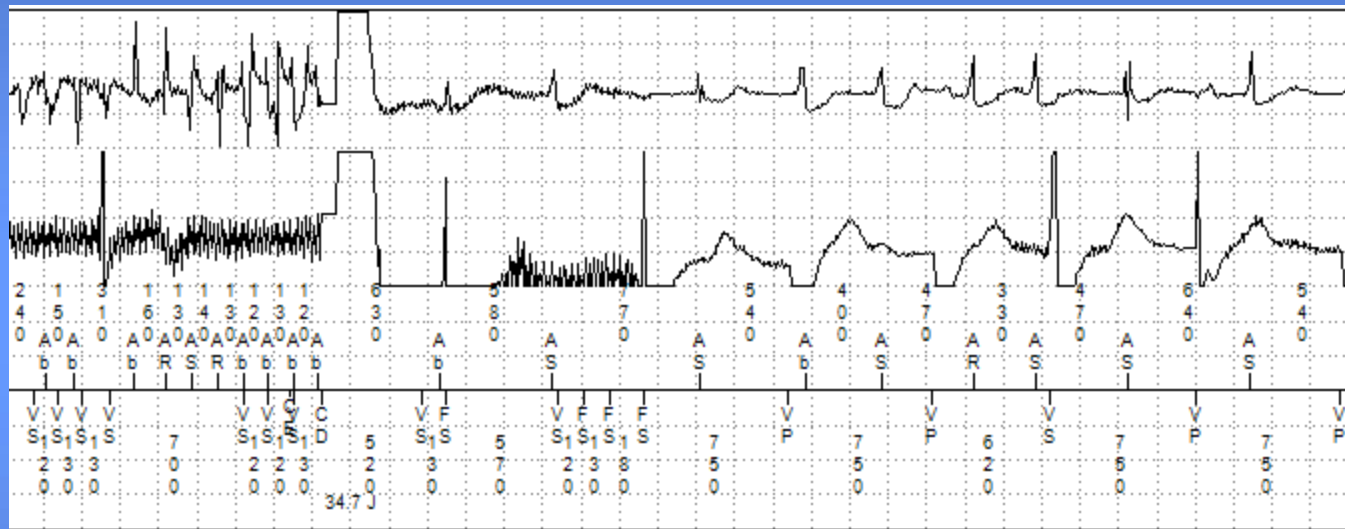


VF episode



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What do you think has happened?

- A Dodgy wiring in swimming pool
- B VF
- C Lead fracture
- D I would like to ask more questions!



What question did I ask next?

- A Did you climb out with the ladder each time?
- B Was there anything else electrical near by?
- C Do you know the owner of the hotel?
- D All of the above





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- Suspected electrical fault with Jacuzzi
- Hotel owner was patients son
- Suggested a phone call may be in order
- He closed pool and Jacuzzi for electrical testing
- Asked patient to let me know if no problem with electrics



After 5 days.....

- Contacted patient
- Reported earth leakage from Jacuzzi
- All mended
- Everyone happy!



Sources of current leakage

- Swimming pool -
- Pond cleaning equipment
- Power showers



Learning points

- Check device and confirm lead integrity before looking at events
- Ensure thorough questioning of patients
- Awareness of potential sources of current leak
- Highlight importance of correctly earthed electrical equipment



Acknowledgments

- Kate Sanders – Cardiac Physiologist
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- Dr Peter Pugh – Consultant Cardiologist



If you found this in your swimming pool.....



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