Royal Brompton and Harefield hospitals

NHS

ARM access in EP procedures:
can robotics revolutionize our approach?

2026 update

Prof. Sabine Ernst
Royal Brompton Hospital, NHLI Imperial College
London, UK

Royal Brompton and Harefield hospitals

NHS

ARM access in EP procedures:
can robotics revolutionize our approach?

2026 update

Disclosures

Consultant for Stereotaxis Inc, Biosense Webster, MicroPort

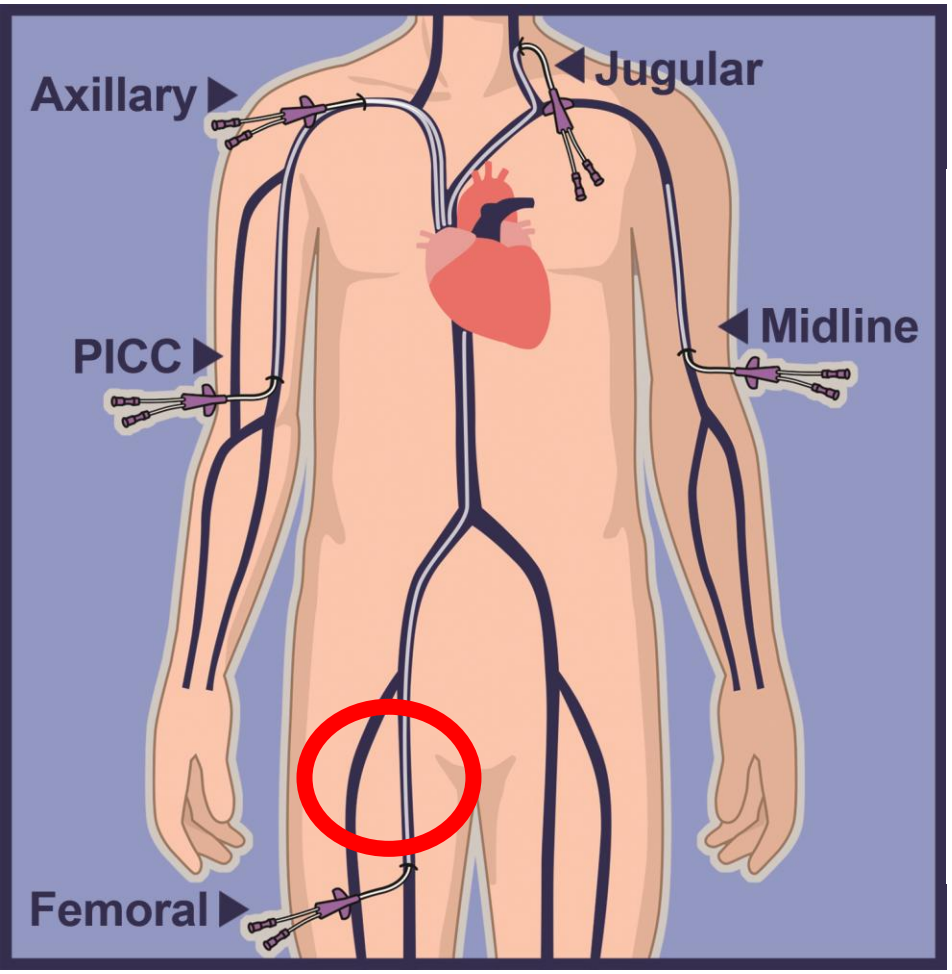
Magnetic navigation allows for novel access routes

Alternative access for **R**obotic **M**apping & ablation (ARM)

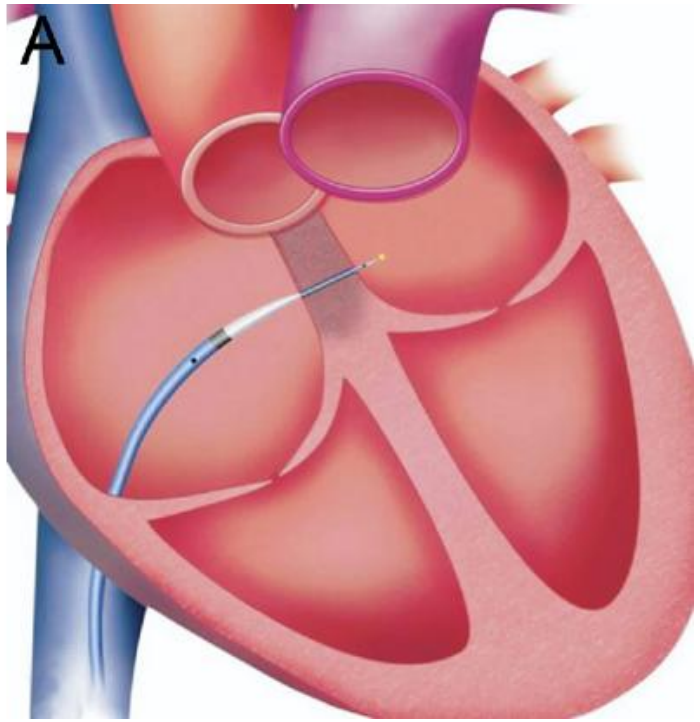
Innovation corner

- **When you know where to go, why not going smarter?**

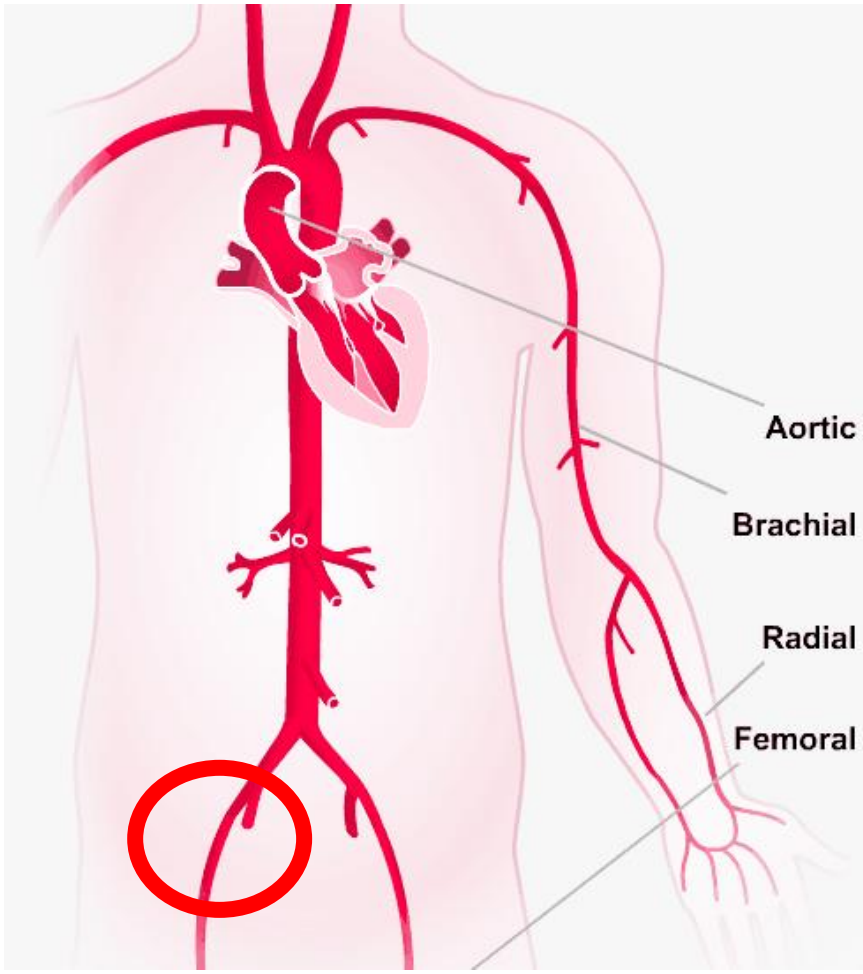
Vascular access so far in EP (femoral only)



Venous access towards Right atrium (RA) and ventricle (RV)



Transseptal access from RA into the left atrium (LA)



Arterial (retrograde) access towards Left Ventricle (LV) and LA

Clinical Research of Digital Biomarkers | ATCOR (atcormedical.com)

Value proposition

- The solution:
  - Invasive EP procedures using upper lim vascular access **(ARM = Alternative access Robotic Mapping & Ablation procedure)**
  - Conventional diagnostic catheter(s)
  - Ablation catheter using the magnetic navigation platform (GENESIS, STXS) which allows to navigate the tip of the ablation catheter
- Benefits:
  - No need for bedrest, short recovery, less complication
  - Less consumables
  - Higher patient convenience
  - Day case procedures even for complex AF procedures
  - Elimination of transseptal puncture for left-sided procedures

Ernst et al, HRJ CR 2021

ARM concept
Vascular sizes in volunteers

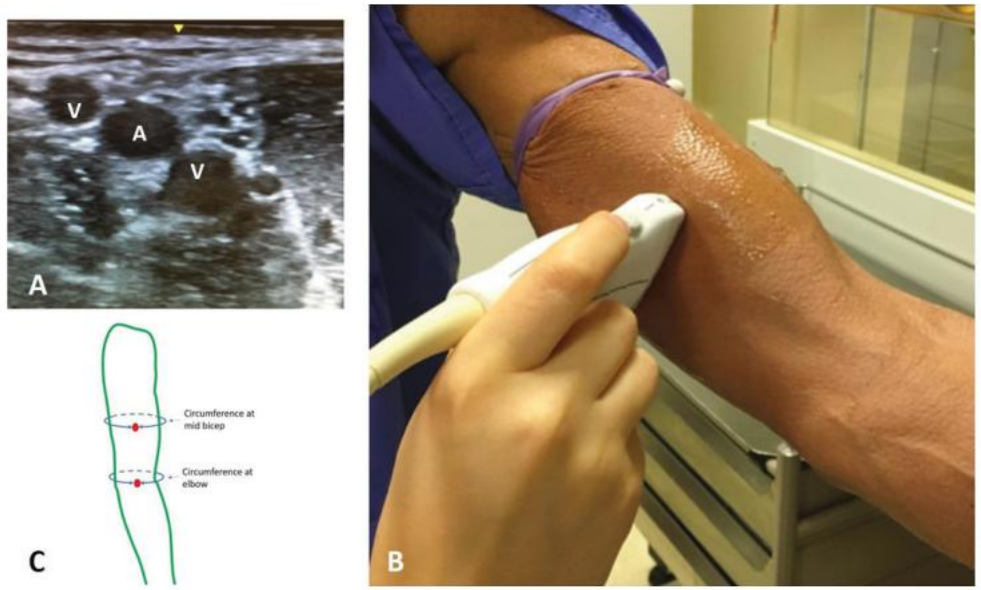


Figure 2. measurements

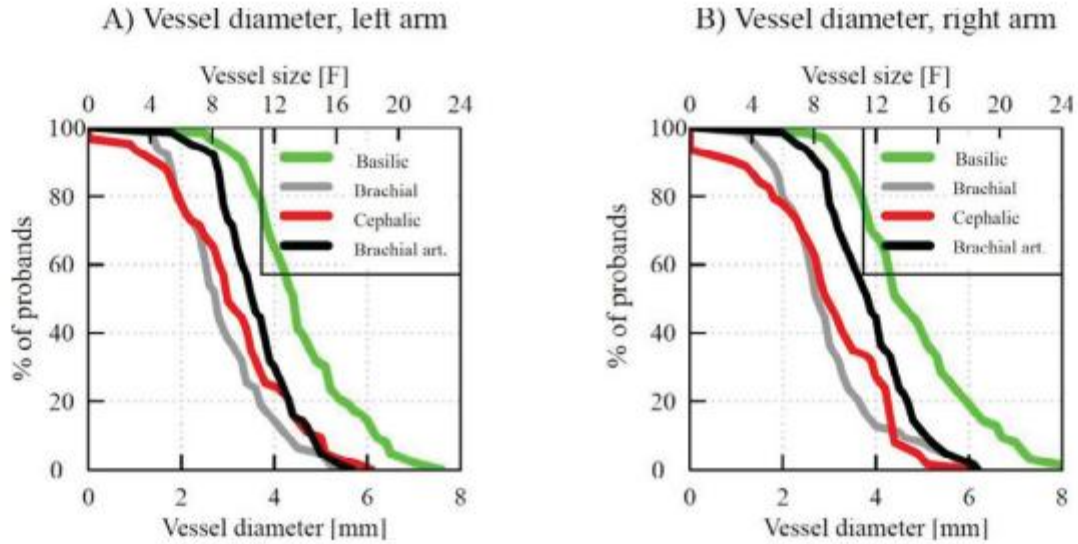
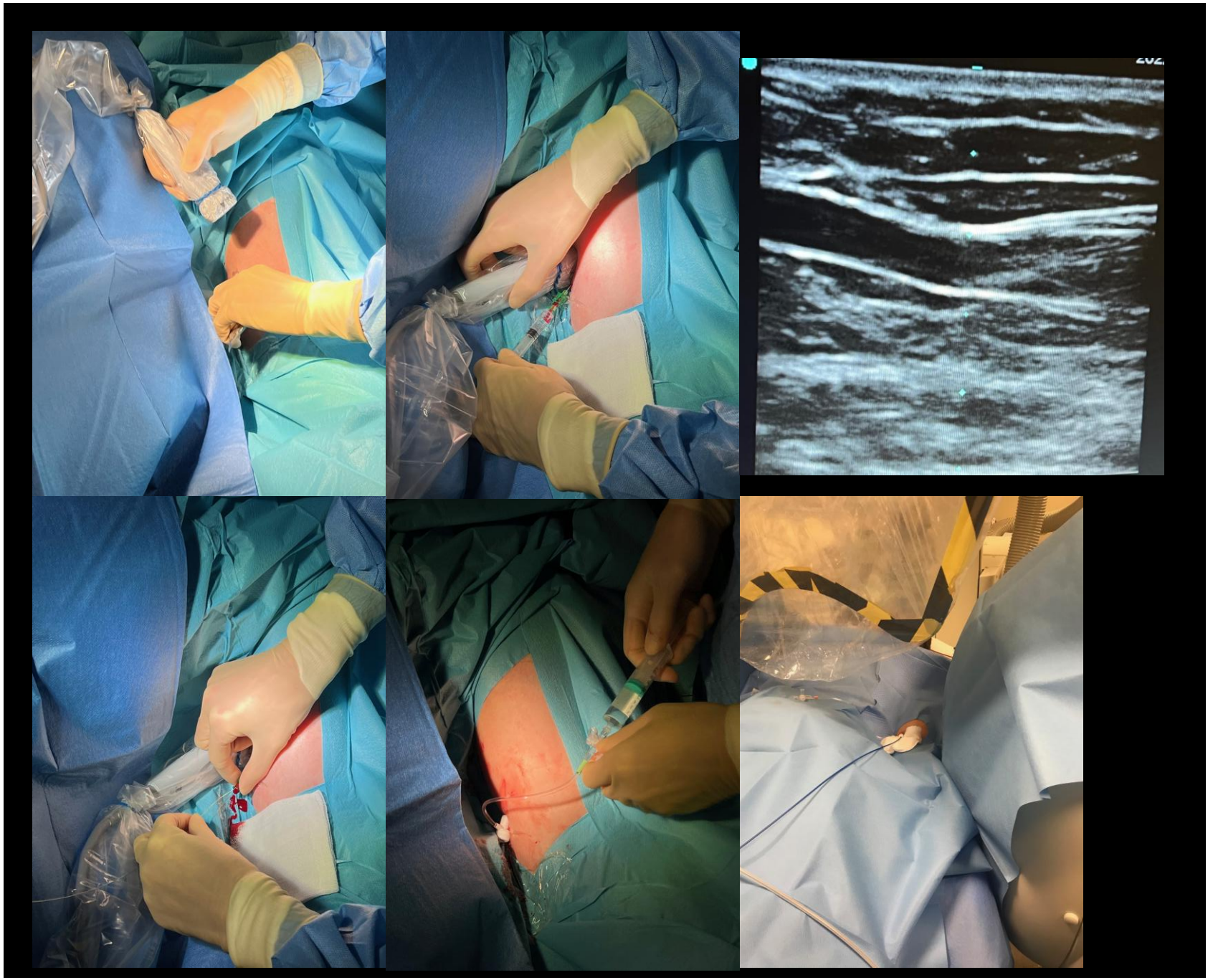


Figure 3. Vessel diameters

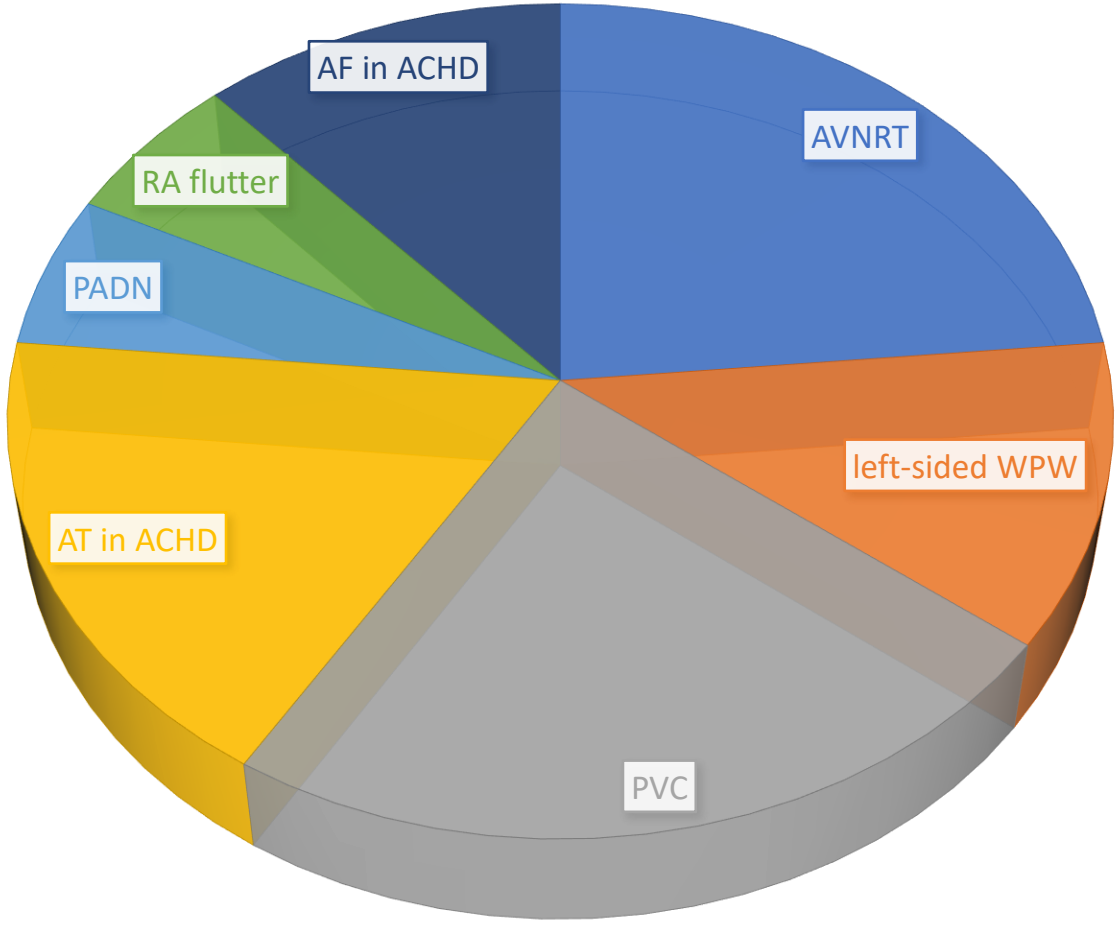
Royal Brompton and Harefield hospitals

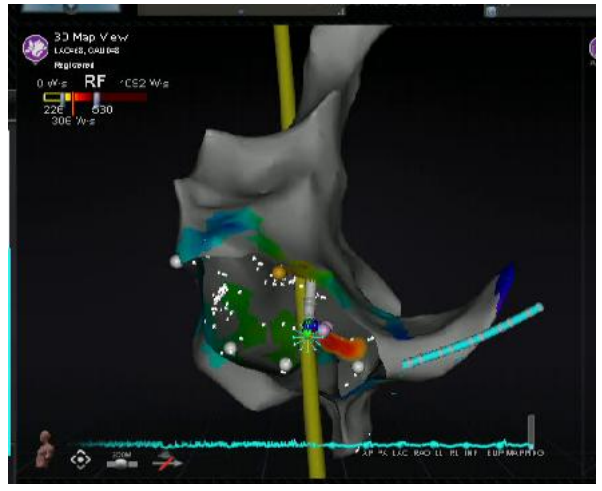
Kaldiwar et al, EHJ. 2021

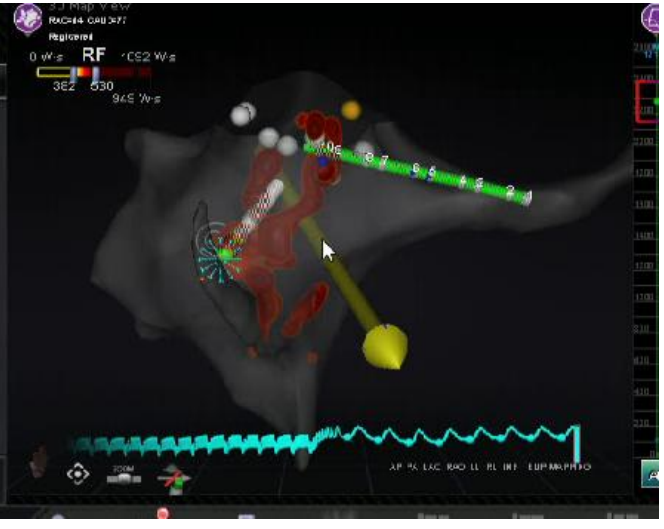


Feasibility for all types of procedures?

ARM EXPERIENCE ROYAL BROMPTOM HOSPITAL







Royal Bromp

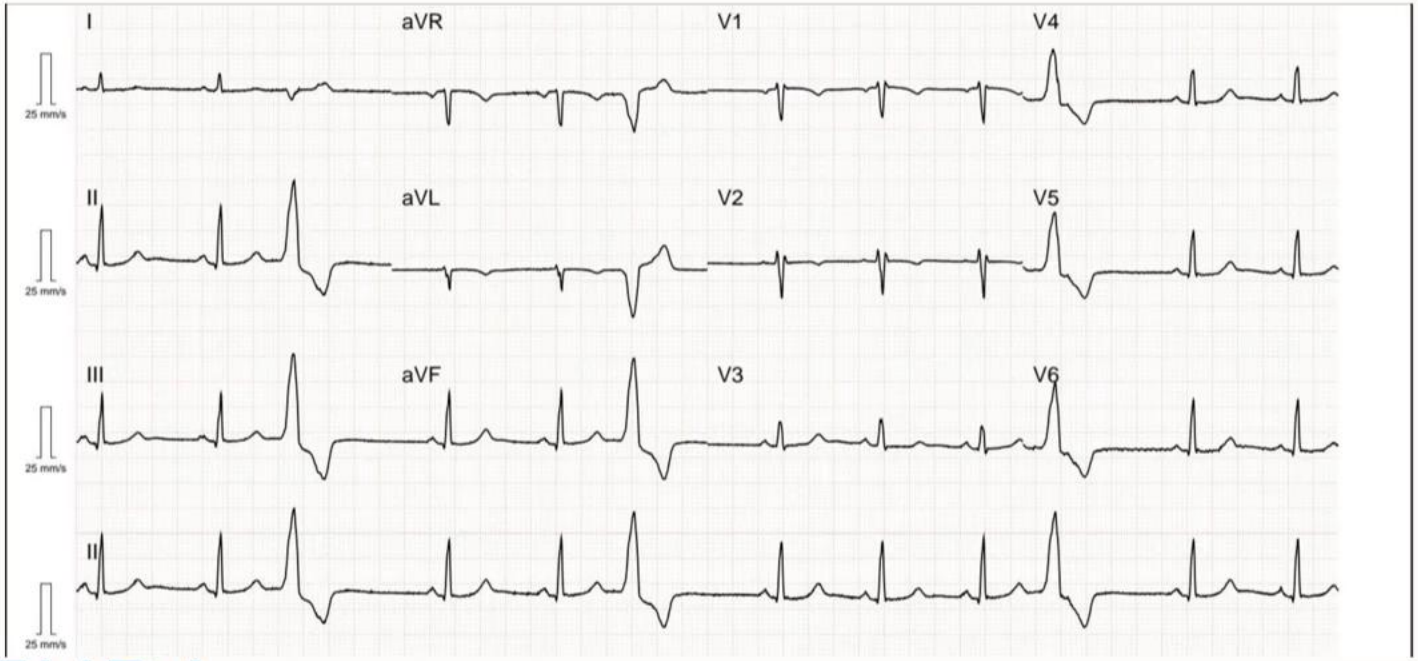
Case example PVC ablation

Patient CDG

42 yrs old female

Busy professional

Active runner & trialist, left-handed



Case example SVT ablation

Patient

- 59 yrs old male patient with documented narrow QRS complex tachycardias
- Invasive cardiologist, member of staff
- Previous conventional EP procedure diagnosed AV nodal reentrant tachycardia common type
  - Femoral vascular access
  - Slow pathway modulation using RF energy
  - 2nd arrhythmia was inducible at the end of the procedure

Summary

- Alternative access using Remote Magnetic (ARM) navigation is very feasible beyond CHD patients
- Especially SVT and PVC ablations can be carried out fast and successful without the need of overnight hospital stays
- Efficient strategy for Same Day Discharge (SSD)
- 6F catheter would make retrograde access much more feasible and allow ARM for more patients (e.g. AF procedures)