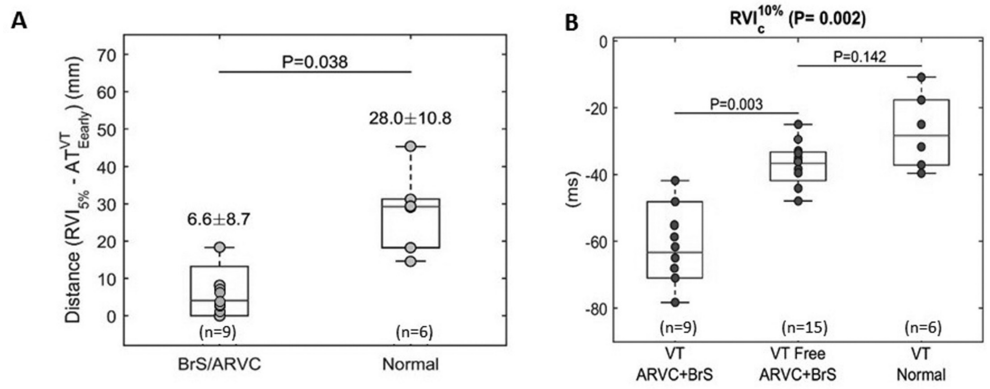

Abstract 32 Figure 2

was significantly lower in BrS and ARVC than in normal heart VT (Fig 2A). In both ARVC patients $D_{min}=0$, indicating region of lowest RVI overlapped with region of earliest VT activation.

Of the patients with ARVC/BrS, those with inducible VT or clinical VT at follow-up had significantly lower minimum values of RVI_c than those without (-61.0 ± 13.8 ms vs -37.1 ± 7.1 ms) (Fig 2B). Patients with normal heart VT had highest values of RVI_c (-27.0 ± 11.3 ms).

Conclusion An algorithm based on relative local ATs and RTs identifies localised regions of high susceptibility to conduction block and re-entry, with lowest RVI values localising VT origin of reentrant but not focal arrhythmias.

This index could be applied to:

1. Risk stratify ARVC/BrS patients to target ICD prophylaxis.

2. Target ablation for reentrant arrhythmias which are difficult to induce or are haemodynamically unstable, without need for arrhythmia initiation.

REFERENCE

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33 USE OF NOVEL GLOBAL ULTRASOUND IMAGING AND CONTINUOUS DIPOLE DENSITY MAPPING TO GUIDE ABLATION IN MACRO-REENTRANT TACHYCARDIAS

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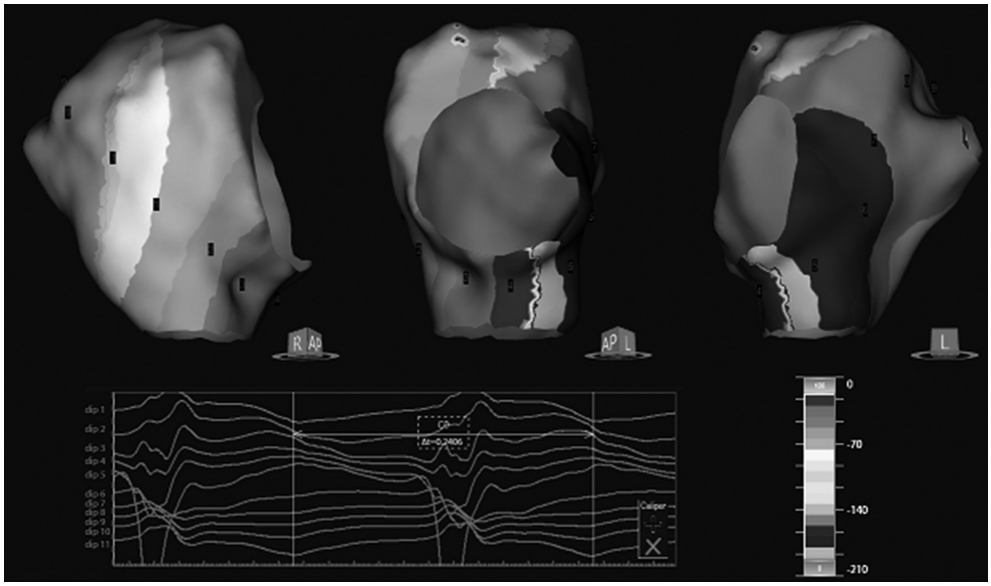
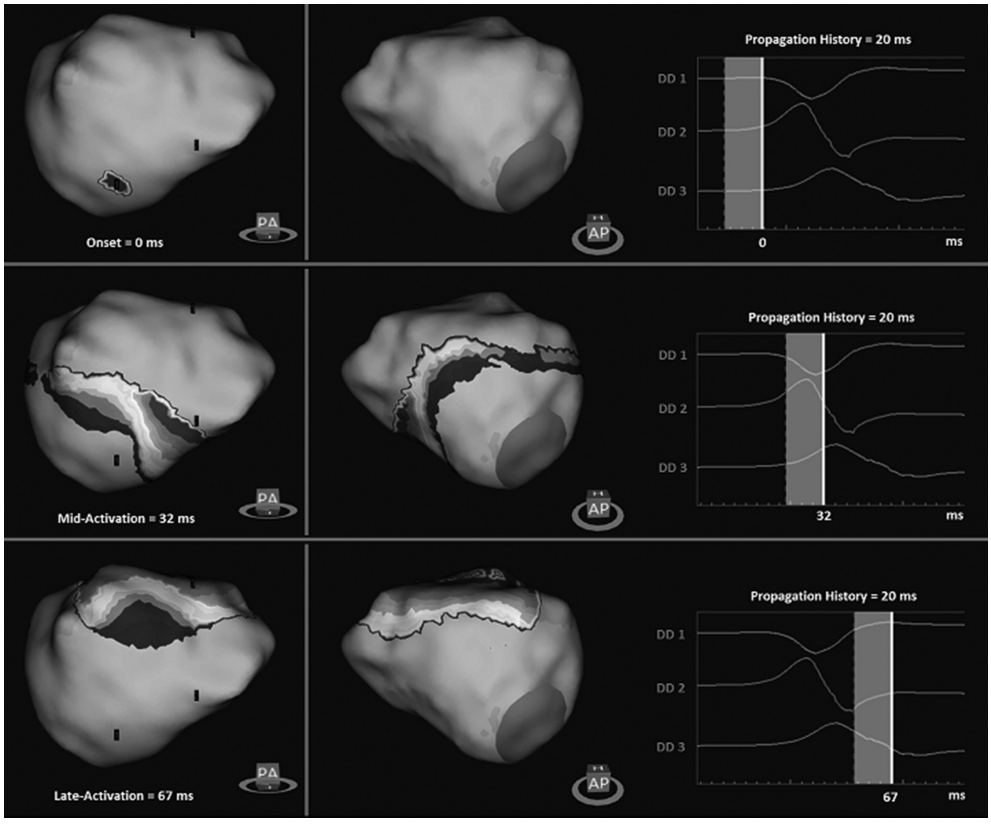
Introduction Persistent AF (PeAF) ablation continues to be a challenge, primarily because the mechanism of AF is not clearly defined and even when successfully ablated may evolve into multiple atrial tachycardias or flutters (AT/AFl) during the course of a procedure. Sequential mapping with existing 3D mapping systems can make procedures long and complex. We report the use of a novel simultaneous non-contact ultrasound (US) imaging and mapping system (AcQMap) to characterise of AT/AFl during PeAF ablation.

Methods The AcQMap system consists of a basket catheter (48 US transducers, 48 electrodes) which simultaneously acquires 100,000+ US points/min to reconstruct chamber anatomy and 1 50 000 intracardiac unipolar voltage points/s



Abstract 33 Figure 1



Abstract 33 Figure 2

to map cardiac activity. The 3D surface is algorithmically reconstructed from the US point-set with mesh-density comparable to a segmented CT.[1] Inverse and forward algorithms are applied on intracardiac voltage to derive and display electrical activation as dipole density™ (DD) and unipolar voltage maps respectively, upon the US-constructed 3D anatomy.

Results Data were collected from three patients booked for a first PeAF ablation (2 male, age 48±13 years, time in PerAF 1.7±1.2 years) who also demonstrated AT/AFl either before or during the procedure. All patients had previously failed DCCV and were receiving amiodarone. The AcQMap system was used to measure cardiac voltage, apply its DD algorithm and display electrical activation on the US constructed 3D anatomy to demonstrate the AFl/AT circuit. The circuit was validated using contact mapping and response to ablation. Left atrial (LA) and (right atrial) RA surface acquisition times were 296±20 s and 209±88 s respectively.

The maps demonstrated a macro-reentrant circuit in all patients and were used to guide ablation at the isthmus of the circuit. Procedural end point was bidirectional block. Patient 1 presented in typical right AFl (figure 1); Patient 2 presented in SR but with an easily inducible AT around the right upper PV; Patient 3 presented in AF which organised to an AT around the LA posterior wall, and after ablation and termination of this, subsequently to a typical right AFl. Figure 2 shows a Dd-based isochronal plot of the initial AT activation sequence from Patient 3, with breakout at the inferior aspect of the LA posterior wall. All AT/AFl terminated during formation of the ablation line. Maps were then created in SR, and during pacing to demonstrate bidirectional block.

Conclusions Real-time US and DD based LA and RA reconstructions using the AcQMap system provide high resolution electro-anatomical maps, allowing rapid and accurate targeting of critical isthmuses for ablation of macro-reentrant AT/AFl. This technique also raises the possibility of mapping AF with more precision to identify areas of interest as potential ablation targets.

REFERENCE

1. Heck PM *et al*. *Europace* 2015;17(s5):6–9.

34 USE OF GENERAL ANAESTHESIA IN CATHETER ABLATION OF PERSISTENT AF: IMPROVED OUTCOME AND COST EFFECTIVENESS

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Introduction The outcome of persistent atrial fibrillation (PeAF) ablation remains suboptimal and procedures may be long and painful. Little evidence is available on outcome for procedures under general anaesthetic (GA) compared to conscious sedation (CS). We performed a single-centre observational study to assess whether use of GA in PeAF ablation improved outcome and was cost-effective.

Methods 292 patients undergoing first ablation procedures for PeAF by radio-frequency point-by-point technique under CS (n=220) or GA (n=72) were followed. End points were