64 NON-CONCOMITANT HYBRID ABLATION USING THE NOVEL COBRA FUSION RF DEVICE PROVIDES PROMISING MEDIUM TERM OUTCOMES IN THE TREATMENT OF LONGSTANDING PERSISTENT ATRIAL FIBRILLATION

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Background Outcomes for catheter ablation of long-standing persistent atrial fibrillation (LsPAF) are inferior to those of paroxysmal atrial fibrillation and the optimal ablation strategy remains unclear. We describe our experience of non-concomitant hybrid ablation for LsPAF using a novel surgical RF ablation system.

Methods The first surgical stage is performed via a right-sided video assisted thoroscopic approach (VATS). The suction based Cobra Fusion RF system (Atricure Inc, West Chester, OH) is used to ablate a 'box lesion' and isolate the left atrial posterior wall (LAPW). Patients then return for a staged endocardial mapping procedure with catheter ablation to complete the 'box', treat atrial arrhythmia and create a cavo-tricuspid isthmus line.

Results Thirty-five patients underwent a VATS procedure with ablation performed in 33 (2 having dense pericardial adhesions). One patient had a fatal CVA post operatively and 5 patients developed transient phrenic nerve palsy. 32 patients (28M/4F) are therefore currently under follow-up: (all values median), age – 65, CHADS₂VASc – 2, BMI – 30, Left atrial diameter – 46.5mm, LVEF – 55%, total AF duration – 30 months. Following epicardial ablation acute LAPW isolation with entrance and exit block was demonstrated in 53%.

Twenty-one patients have undergone the 2nd catheter stage after a median of 142 days. The baseline rhythm was sinus rhythm (SR) in 24%, AF in 52% and A. Flutter in 24%. 33% had LAPW isolation at baseline (Figure 1) with further ablation isolating the LAPW (figure 2) in all except one patient, 1 patient required a mitral isthmus line, and 1 patient ablation for right atrial tachycardia. All patients were discharged in SR. Sixteen patients have greater than 3 month's follow-up (median – 13 months) post 2nd stage with ECG, clinical review and 7 day ambulatory monitoring at 4, 12 and 24 months. 15 (93%) remain in SR. Three patients required DCCV in the first 3 months and 3 remain on anti-arrhythmic drugs.

Abstract 64 Figure 1 Isolated LAPW post surgical stage

Abstract 64 Figure 2 Isolated LAPW following ablation at roof at 2nd stage

Conclusions Non-concomitant hybrid AF ablation provides excellent medium term outcomes in the treatment of long-standing persistent atrial fibrillation. Long-term outcomes of the technique and randomised study comparing with catheter ablation alone are needed.

Imaging

65 THE CHA₂DS₂VASC RISK SCORE APPROPRIATELY RISK STRATIFIES PATIENTS PRIOR TO ATRIAL FIBRILLATION ABLATION AND REDUCES THE REQUIREMENT FOR TRANS-OESOPHAGEAL ECHOCARDIOGRAPHY

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Background Prior to atrial fibrillation (AF) ablation, many centres advocate trans-oesophageal echocardiography (TOE) to exclude left atrial appendage (LAA) thrombus. Patients undergoing AF ablation are usually anticoagulated, thus making the presence of thrombus unlikely. This study aimed to determine whether the CHA₂DS₂VASc scoring system could be used for risk stratification to identify patients that do not require TOE prior to AF ablation.

Methods In this single centre retrospective study, primary and secondary care databases and electronic patient records were searched to identify patients that had undergone TOE prior to AF ablation and also correlated with catheter lab records. Patient demographics, CHA₂DS₂VASc score, TOE findings and anticoagulation status were collected.

Results Over a 7 year period (2008–2014), 346 patients underwent TOE prior to AF ablation – 14 patients were excluded due to incomplete data, leaving 332 patients (age 57 ± 10 years; 74% male). There were 227 (68%) patients with paroxysmal AF and the remainder had persistent AF. CHA₂DS₂VASc scores of 0, 1, 2 and >2 were found in 39%, 34%, 15% and 12% patients respectively. There were 31/113 (27%) patients whose score was 1 due to female gender. The prevalence of LAA thrombus was 0.6% (2 patients). One

patient with thrombus (score=4) had hypertrophic cardiomyopathy, mild LV dysfunction and sub-therapeutic INR (1.5) at time of TOE whilst the other patient (score=2) was female with hypertension and mild LV dysfunction. No patients with a score of 0 or 1 had LAA thrombus.

Conclusions Patients classed as low risk by the CHA₂DS₂VASc score (score of 0–1) do not require a pre-ablation TOE to screen for LAA thrombus provided they have been anticoagulated with a therapeutic INR. This would lead to a significant reduction in healthcare expenditures by reducing unnecessary TOE tests and improve patient experience by avoiding TOE.

Cardiac Rhythm Management

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SUDDEN DEATH IN WOLFF-PARKINSON-WHITE. DESCRIPTION OF POST-MORTEM PATHOLOGICAL FINDINGS AND CLINICAL CORRELATES IN 19 CASES

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Aims The prevalence of pre-excitation (Wolff-Parkinson-White (WPW) pattern) is estimated at 0.3%. The risk of malignant arrhythmias in asymptomatic individuals is low and ablation of the accessory pathway is considered to diminish the risk of sudden cardiac death (SCD). The aim of the study was to

describe clinical characteristics and pathological features of SCD victims with a pre-morbid diagnosis of WPW.

Methods Between 1994 and 2014, 3684 cases of SCD were referred to our cardiac pathology centre; 19 (0.5%) with known pre-excitation on their ECG. Clinical information were obtained from referring coroners. All subjects underwent detailed post-mortem evaluation including histological analysis by an expert cardiac pathologist.

Results The majority of patients were males (n = 16, 84%) of Caucasian descent (n = 17; 89%). The mean age was 31 ± 15 years (2 patients over the age of 50). Five cases (26%) were asymptomatic. Of the 14 symptomatic patients, 13 (68%) reported palpitations, 1 (5%) syncope. Five individuals (26%) had a previous ablation, 4 of which were judged to be successful with resolution of pre-excitation on the ECG. In the majority of cases (n = 15; 79%) SCD occurred at rest. The mean heart weight was 408 ± 105 g. In 10 patients (53%) the post-mortem exam revealed a normal heart, in 5 cases there was a definitive cardiac pathology (n = 4 with hypertrophic cardiomyopathy, n = 1 with cardiac sarcoid), and 4 cases demonstrated autopsy findings of uncertain significance (n = 2 with idiopathic left ventricular hypertrophy, n = 1 with idiopathic fibrosis, and n = 1 with enlarged left ventricle). Out of the 5 asymptomatic patients, the post-mortem revealed HCM in 3 and a normal heart in 2 cases. The patients that underwent previous ablation were characterized by a normal heart in 3 cases and by idiopathic left ventricular hypertrophy at the post-mortem.

Conclusions One out of four SCD victims was asymptomatic, raising concerns relating to the value of symptoms in risk

Abstract 66 Table 1

No.	Age	Sex	Ethnicity	Symptoms	Circumstances of death	Heart weight	MWT	LV fibrosis	RV fibrosis	Valvular abnormalities	Other diagnosis
1	7	Male	White	Known WPW, asymptomatic	Unknown	200		No	No	No	Normal heart
2	48	Male	White	Known WPW, asymptomatic	Died at rest	526	20	Yes	No	No	HCM
3	28	Male	White	Known WPW, palpitations, previous attempted ablation	Died at sleep	316	19	No	No	No	Mild LVH
4	20	Male	Indian	Known WPW, palpitations, planned ablation	Died at rest	237	9	No	No	No	Normal heart
5	26	Male	White	Recent diagnosis of WPW, palpitations	Died at rest	361	16	No	No	No	Normal heart
6	20	Male	White	Known WPW, palpitations, symptom free for 11 years, recent palpitations	Died at rest	444	14	No	No	No	Normal heart
7	20	Female	White	Known WPW, palpitations	Died at rest	311		No	No	No	Normal heart
8	27	Male	White	Known WPW, previous ablation	Died during exertion	426	21	No	No	No	Normal heart
9	24	Male	White	Known WPW, previous ablation	Died at rest	578		No	No	No	ILVH
10	46	Male	Black	Known WPW, currently under evaluation	Died at rest	474	16	No	No	No	Cardiac sarcoid
11	33	Male	White	Known WPW, palpitations	Died at rest	532	21	No	No	No	Enlarged left ventricle
12	50	Female	White	Known WPW, asymptomatic	Died during sleep	384	18	No	No	No	HCM
13	16	Male	White	Known WPW, palpitations	Died at rest	366	25	No	No	No	HCM
14	26	Male	White	Known WPW, athlete, asymptomatic	Died during exertion	510		Yes	No	No	HCM
15	36	Male	White	Known WPW, syncopal episode	Died at rest	498		Yes	No	No	Idiopathic fibrosis
16	18	Male	White	Known WPW, asymptomatic	Died at rest	390	19	No	No	No	Normal heart
17	55	Female	White	Known WPW, palpitations, on betablockers	Died at rest	385	13	No	No	No	Normal heart
18	65	Male	White	Known WPW, palpitations, previous ablation	Died at rest	516		No	No	No	Normal heart
19	28	male	White	Known WPW, palpitations, previous ablation	Died during sleep	302	12	No	No	No	Normal heart