Recurrent symptomatic atrial flutter treated successfully in an 81-year-old woman

Introduction

Atrial flutter is a common macro re-entrant tachyarrhythmia associated with the potential for significant morbidity, polypharmacy and recurrent hospital admissions. Current pharmacological treatment is not always effective either in achieving rhythm or rate control and can be associated with adverse side effects. Percutaneous cavotricuspid isthmus radiofrequency catheter ablation is now an established, safe and effective treatment option for atrial flutter.

This article reports the case of an 81-year-old woman with recurrent episodes of symptomatic paroxysmal atrial flutter requiring repeated hospital admissions despite medical therapy, who was successfully treated with radiofrequency catheter ablation. Following ablation, she remained asymptomatic with no further hospital admissions and no longer required rate or rhythm controlling medication, proving the benefits of such definitive treatment.

Discussion

Atrial flutter is common, estimated at 587/100 000 in over those over 80 years of age (Granada et al, 2000). Cavotricuspid isthmus-dependent counterclockwise atrial flutter is a macro re-entrant arrhythmia, the anatomical circuit of which is bordered anteriorly by the tricuspid annulus and posteriorly by the venae cavae orifices, the crista terminalis and the Eustachian ridge. The cavotricuspid isthmus serves as the zone of slowed conduction which facilitates perpetuation of the re-entrant circuit and is a target for permanent interruption by ablation.

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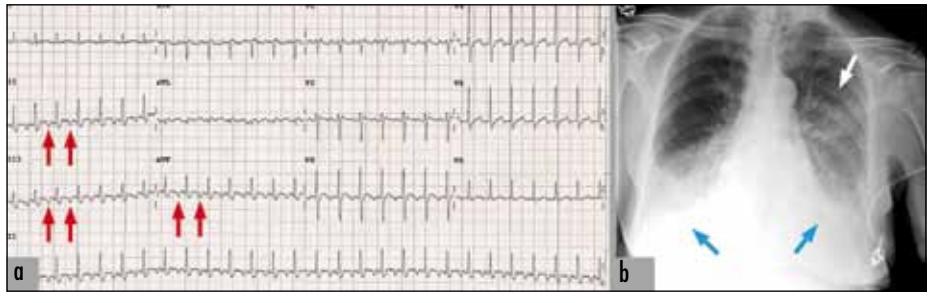
Atrial flutter may cause adverse effects including embolic stroke, myocardial ischaemia or infarction, and tachycardia-induced cardiomyopathy (Pizzale et al, 2009). Treatment options include pharmacological rhythm or rate control and anticoagulation. These therapies are associated with limited success and adverse side effects. Cavotricuspid isthmus radiofrequency catheter ablation is considered an established, safe and effective treatment option for paroxysmal atrial flutter (Roşu et al, 2010).

A meta-analysis of trials of ablation of atrial flutter suggested that the overall success rates were 88–93%, and recurrence rates were reduced and did not increase over time (Pérez et al, 2009). Patients who underwent radiofrequency catheter ablation experienced a signifi-

Figure 1. a. 12-lead electrocardiogram during an admission and pre-ablation showing typical atrial flutter (red arrows show negative P waves in leads II, III, aVF) with a fast ventricular rate (170 beats/minute). b. Chest X-ray posterior-anterior view on admission showing normal heart size, upper lobe diversion (white arrow) and bilateral pleural effusions (blue and green arrows) diagnostic of biventricular (congestive) heart failure.



Case Report

An 81-year-old woman was admitted as an emergency to the authors' hospital on four separate occasions over a 3-month period. On the first admission she presented with symptoms of biventricular failure with shortness of breath, palpitations and ankle swelling. She had an elevated jugular venous pressure, normal heart sounds, bibasilar lung crackles and ankle oedema. She was tachycardic at 170 bpm and her blood pressure was 171/80 mmHg. An electrocardiogram showed typical counterclockwise atrial flutter (*Figure 1a*). A chest X-ray confirmed the presence of biventricular failure (*Figure 1b*).

The patient was treated initially with intravenous diuretics, low molecular weight heparin and intravenous amiodarone and she reverted to sinus rhythm. While still hospitalized, she developed a recurrence of fast atrial flutter. A rate control strategy using bisoprolol was adopted. She was anticoagulated with warfarin and was discharged symptom free and in sinus rhythm.

However, she was readmitted 6 days later with a recurrence of palpitations and dizziness, and an electrocardiogram again showed atrial flutter at 160 bpm. Rate control strategy was intensified using a higher dose of bisoprolol and loading with digoxin. The patient required two further admissions over the following weeks despite the addition of amiodarone. An echocardiogram showed good left ventricular systolic function.

In view of this patient's recurrent episodes of paroxysmal atrial flutter, necessitating repeated admissions despite multiple antiarrhythmic drugs, she underwent cavotricuspid isthmus radiofrequency catheter ablation. This was performed (*Figure 2a*) without complications. Following this procedure, the patient was discharged well the following day, in sinus rhythm (*Figure 2b*) on warfarin and bisoprolol.

At 2 months follow up, the patient was asymptomatic with no further admissions. Ambulatory 24-hour electrocardiogram showed sinus rhythm throughout and the patient was able to discontinue all medications.

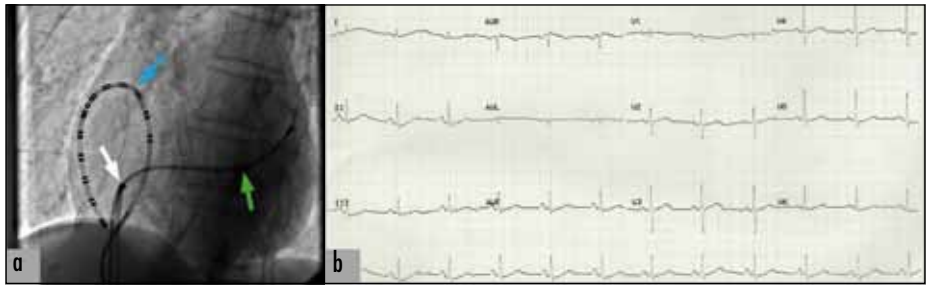


Figure 2. a. Fluoroscopic catheter positions during ablation (left anterior oblique view) – multipolar electrode catheter in the high right atrium (blue arrow), and coronary sinus (green arrow). Ablation catheter at the cavotricuspid isthmus (white arrow). b. 12-lead electrocardiogram post successful ablation showing normal sinus rhythm.

cant improvement in quality of life (García Seara et al, 2011).

Conclusions

This article highlights the impact of paroxysmal atrial flutter on an elderly individual and the benefits of radiofrequency catheter ablation with regard to reducing symptoms, polypharmacy, hospital admissions and improving quality of life. Hence elderly patients should always be considered for such definitive therapies. BJHM

García Seara J, Gude F, Cabanas P et al (2011) [Quality of life differences in patients with typical atrial flutter following cavotricuspid isthmus ablation.] *Rev Esp Cardiol* **64**(5): 401–8

Granada J, Uribe W, Chyou PH et al (2000) Incidence and predictors of atrial flutter in the general population. *J Am Coll Cardiol* **36**(7): 2242–6

Pérez FJ, Schubert CM, Parvez B, Pathak V, Ellenbogen KA, Wood MA (2009) Long-term outcomes after catheter ablation of cavotricuspid isthmus dependent atrial flutter: a meta-analysis. *Circ Arrhythm Electrophysiol* **2**(4): 393–401

Pizzale S, Lemery R, Green MS, Gollob MH, Tang AS, Birnie DH (2009) Frequency and predictors of tachycardia-induced cardiomyopathy in patients with persistent atrial flutter. *Can J Cardiol* **25**(8): 469–72

Roşu R, Mureşan L, Andronache M et al (2010) The role of radiofrequency ablation as a first line therapy in the treatment of atrial flutter. *Rom J Intern Med* **48**(3): 249–53

LEARNING POINTS

- Paroxysmal atrial flutter can potentially cause significant morbidity, polypharmacy and recurrent hospital admissions in elderly patients.
- Current pharmacological treatment for paroxysmal atrial flutter is not always effective, either in achieving rhythm or rate control, and can be associated with adverse side effects.
- Percutaneous cavotricuspid isthmus radiofrequency catheter ablation is now an established, safe and effective definitive treatment option for atrial flutter.

Rapid development of digital nerve neuroma incontinuity

A 63-year-old man presented to the authors' emergency department following a laceration to his non-dominant left middle finger from a tile scraper. Initial examination revealed no functional or neurovascular deficit in the finger. Under digital block, the wound was irrigated and primarily closed with interrupted sutures. At the removal of sutures 2 weeks later, there were signs of granuloma formation at the site of the wound and the patient complained of severe pain radiating distally along the affected finger. The patient was taken to theatre for exploration and intraoperatively a neuroma incontinuity of the radial digital nerve was observed (*Figure 1*). The neuroma was excised and a primary neurorraphy was performed. At follow up, the patient had fully recovered with no residual symptoms.

Painful neuroma of the finger is often a debilitating consequence of nerve injury about the hand (Watson et al, 2010). The authors present an interesting sequela of digital trauma that seemed to develop unusually rapidly and advise caution to those repairing wounds in the region of digital nerves. BJHM

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Watson J, Gonzalez M, Romero A, Kerns J (2010) Neuromas of the hand and upper extremity. *J Hand Surg Am* **35:** 499–510

Figure 1. A neuroma in-continuity of the radial digital nerve of the left middle finger demonstrated intraoperatively.