Successful radiofrequency catheter ablation of atrial trigeminy in a young patient

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Abstract
A case is reported of a 35 year old man with atrial parasystolic trigeminy. The patient presented with a 10 year history of sustained supraventricular extrasystole causing symptoms leading to several hospitalisations and continuous unemployment. He had been treated ineffectively with several drug combinations. Radiofrequency catheter ablation of a right atrial focus completely suppressed the ectopic activity. This is the first report to demonstrate the efficacy and safety of radiofrequency catheter ablation in atrial ectopic trigeminy.

Keywords: atrial trigeminy; ectopic atrial tachycardia; radiofrequency catheter ablation

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Figure 1  Surface ECG, paper speed 50 mm/s showing permanent atrial parasystolic trigeminy. The intervals between extrasystoles and coupling intervals are shown under the baseline in milliseconds.
applications were performed with an average energy of 34 W, an average temperature of 55 °C (43–79 °C), and an impedance of 103 Ω (78–112 Ω). The ectopic atrial activity did not recur during the following three days (continuous Holter monitoring) and the patient was symptom free after seven months of follow up.

Discussion
Atrial trigeminy is a fairly rare type of arrhythmia that may afflict both children and adults. Ectopic atrial tachycardia is conventionally treated pharmacologically. Reports of positive responses to a variety of antiarrhythmic agents such as flecainide, sotalol, verapamil, and adenosine have been reported.1–3 The limited overall response to drugs in current use suggests that other therapeutic possibilities may gain an important role—for example, surgical treatment.4 Nevertheless, problems have occurred during and after surgical management. Garson et al noted frequent recurrences of arrhythmia in patients operated on for ectopic atrial tachycardia.5

Radiofrequency catheter ablation as a nonsurgical technique for the cure of atrial tachycardia is successful and has low complication rates.6–7 Van Hare et al reported the results of 100 patients with atrial tachycardia, three of whom had ectopic atrial tachycardia.6 Different arrhythmia mechanisms probably exist among the arrhythmias classified as ectopic atrial tachycardia, but the similarity to sinus rhythm among some may have practical significance. Like sinus rhythm, the rate of ectopic atrial tachycardia may increase or decrease in response to alterations in autonomic activity. Those two rhythms may also have a common origin.8 Although ectopic atrial tachycardia is an uncommon form of supraventricular arrhythmia, most patients who develop this arrhythmia are young, symptomatic, and may be prone to the development of tachycardia induced cardiomyopathy.9 In our case of a young patient, focal atrial arrhythmia caused many symptoms. Because of the successful ablation of that ectopic focus, application of radiofrequency catheter ablation is recommended in similar patients with drug refractory ectopic atrial tachycardia presenting with clinical symptoms.


Figure 2  Surface and intracardiac ECG, paper speed 75 mm/s. Note the earliest atrial activation (59 ms) registered on the ablation catheter (user 1) compared to the reference catheter in the high right atrium (HRA). The earliest atrial activation was used to localize the site of origin of the ectopic focus.