



Focal Atrial Tachycardia in pregnancy: An Enigmatic challenge for the Obstetrician

Dr Akanksha Mohanty, Dr Rekha Bharti, Department of Obstetrics and Gynaecology, VMMC and Safdarjung Hospital, New Delhi, India

Introduction

- Arises from a **single site** within either atrium
- Atrial activation starts rhythmically from a single area (focus), spreading **centrifugally**
- Arrhythmia arises from a **smaller area**; in contrast to classical macro-re-entry which involves multiple sites or forms circuit >2cm in diameter
- Incidence in pregnancy: **0.02-0.5%**

Case Report

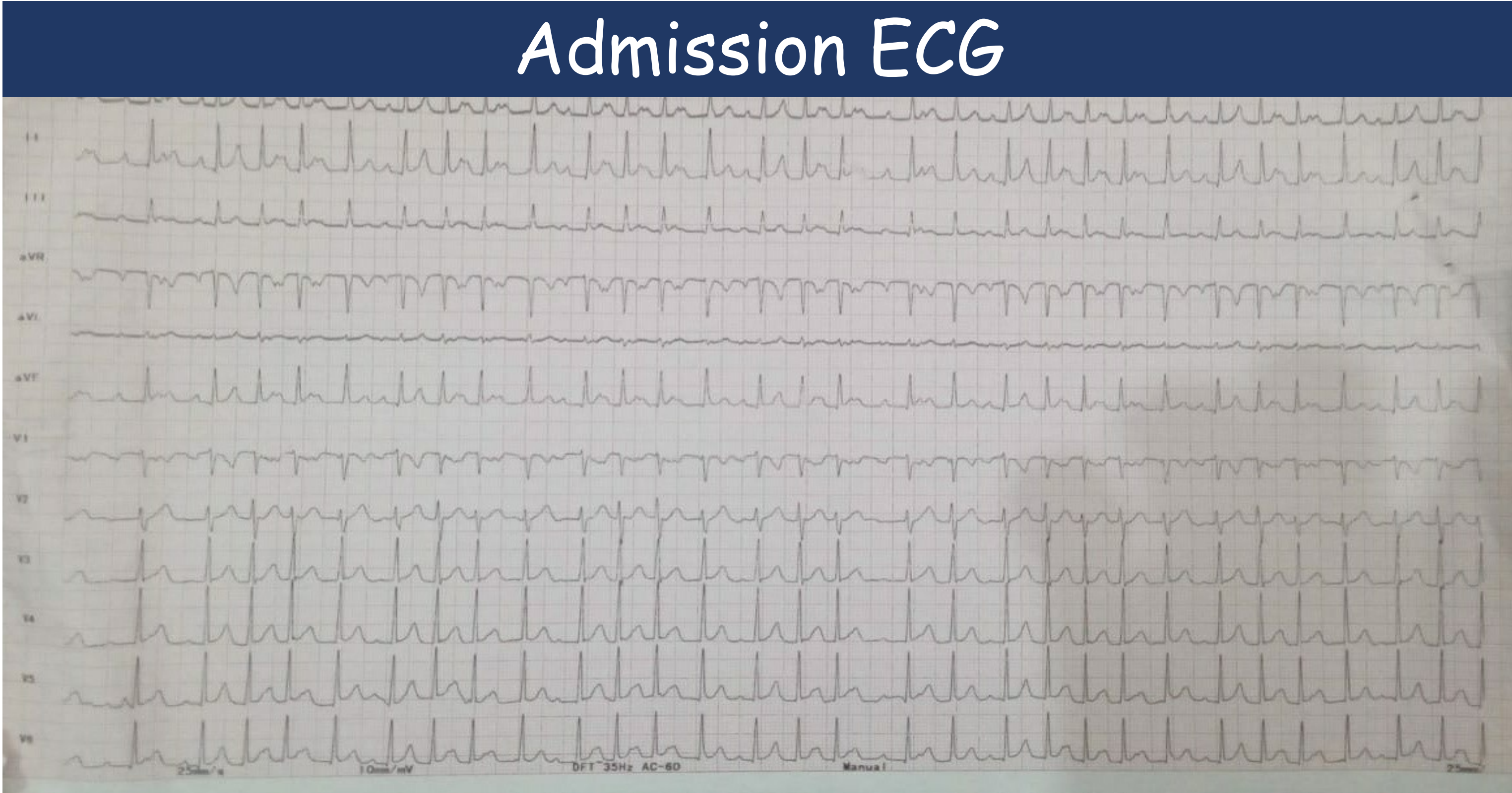
- 23year, G_4A_3 , 30 weeks gestation referred with chief complaint of **Palpitations and shortness of breath** on mild exertion since 4-5days (NYHA 3)
- ECG was suggestive of **Ectopic Atrial Tachycardia**.
- **Screening 2D Echo-** Moderate TR, mild MR, mild PAH with normal Left ventricular systolic function

General condition- Fair	RR-24/min, regular in rhythm
Temperature- Afebrile	CVS: S1,S2 normal, No murmur
Hydration- Adequate	B/L Chest- Clear, no added sounds
BP- 110/82mmHg	Pallor- absent
PR-116/min, irregularly irregular	No icterus, clubbing, cyanosis

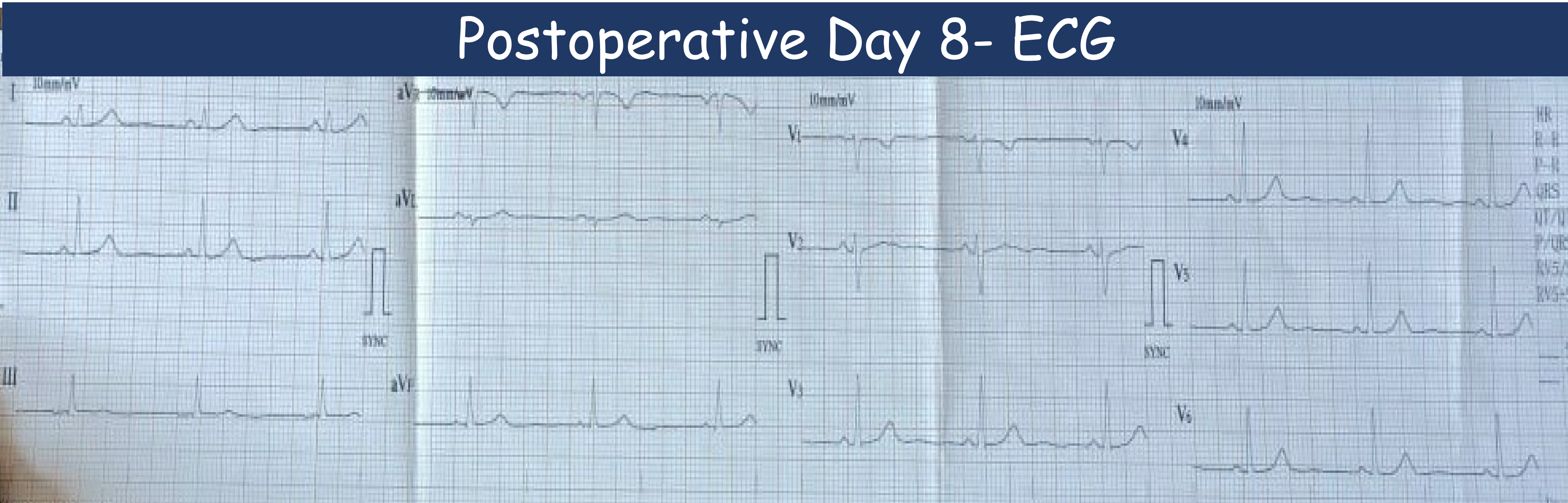
Discussion: Tachyarrhythmias in pregnancy are hypothesized to be due to **increased sympathetic activity**. The increase in plasma volume and heart rate leads to stretching of atrial and ventricular myocytes leading to activation of ion channels, resulting in **arrhythmogenesis**. It is often persistent and **refractive to medical therapy**. Usually it resolves after delivery. For acute treatment, adenosine should be used , as it is also diagnostic. Otherwise, **beta-blockers, Calcium channel blockers or digoxin** can be used for rate control. If these agents fail, **sotalol or flecainide may be considered**. Focal Atrial Tachycardia can be associated with tachycardia induced cardiomyopathy. Use of **flecainide is a reasonable therapeutic option** for the treatment of malignant pre-excited tachycardia. It should be preferred over ablation in low-volume centres.

Conclusion: Management of tachyarrhythmia depends on the presence of underlying structural heart disease and includes specific anti-arrhythmic drugs with safety data during pregnancy. Treatment of choice is catheter ablation of ectopic focus under minimal/zero fluoroscopy. Therefore a multidisciplinary and stepwise approach is of paramount importance.

Admission ECG



Postoperative Day 8- ECG



Medical Management

- Patient was prepared for emergency pharmacological cardioversion. She responded to **Diltiazem 90mg thrice daily along with Metoprolol 100mg twice daily dosing** but only transiently.
- She was given the **option of starting Flecainide (class IIIc anti-arrhythmic) Vs catheter ablation** of ectopic focus under minimal fluoroscopy.
- The patient **opted for Tab. Flecainide** , which was started at 50mg twice daily dosing.
- Despite being on 3 anti-arrhythmic drugs, she had no relief. After thorough counselling with the patient, she was taken up for **LSCS at 33weeks after steroid cover** and delivered a **healthy baby boy of 2kg**.

Postoperative Period

- Her heart rate continued to remain ≥ 140 /min, irregularly irregular, despite 3 anti-arrhythmics.
- However, **after 72hours, her heart rate settled down to 86-92/min** following which **Flecainide was stopped**.
- Both mother and baby were discharged in good condition on postoperative day8.
- Follow-up ECG done after a week showed **resolution of Focal Atrial Tachycardia**.
- Dose of **metoprolol and diltiazem** was titrated down and **eventually stopped**.

References:

- 1.Enriquez AD, Economy KE, Tedrow UB. Contemporary management of arrhythmias during pregnancy. *Circ Arrhythm Electrophysiol*. 2014;7(5):961-7
- 2.Chauveau S, Le Vavasseur O, Morel E, Dulac A, Chevalier P. Flecainide is a safe and effective treatment for pre-excited atrial fibrillation rapidly conducted to the ventricle in pregnant women: a case series. *Eur Heart J Case Rep*. 2019;3(2)
- 3.Wang NC, Shen C, McLaughlin TJ, et al. Maternal focal atrial tachycardia during pregnancy: A systematic review. *J Cardiovasc Electrophysiol*. 2020;1-16
- 4.Santos JG, Briosa A, Sebaiti D, Almeida S, et al. One ominous case of focal atrial tachycardia in pregnancy, two victims and a successful outcome: a case report. *Int J Arrhythm*. 2022;23(1)