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INCESSANT ATRIAL TACHYCARDIA IN PREGNANCY

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Abstract :
PSVT occurring for the time during pregnancy is not uncommon, however sustained tachycardias are a rare complication of pregnancy especially in the absence of heart disease. We present a 22 year old pregnant female who presented with palpitations and was diagnosed to have atrial tachycardia. Since her condition was stable, she was treated medically for controlling the heart rate and was on careful follow up. The rhythm reverted spontaneously to sinus rhythm one day one of her delivery

Keyword : Atrial Tachycardia, arrhythmias, ante- natal, pregnancy

Introduction:

Arrhythmias are the most common cardiac complication encountered during pregnancy in patients with and without structural heart disease. Pregnancy is usually associated with sinus tachycardia and ectopics of atrial and ventricular in origin which was noted in about 50% of pregnancies[1]. Paroxysmal supraventricular tachycardias are common in patients with history of arrhythmias and in patients with pre existing structural heart disease. There is consensus that 20 – 30% of cases with pre existing episodes have increase in symptoms during pregnancy [2]. The true incidence of first episode of SVT occurring in pregnancy is not clear. The occurrence of persistent atrial tachycardia had also been reported rarely in pregnancy. Here we report one such case.

Case report:

A 22 year old female pregnant with second gravida, presented to us with history of palpitations for duration of 20 days. The palpitations were persistent and had no aggravating or relieving factors. She also had mild exertional breathlessness during this period. She had no similar episodes in the past and her first pregnancy had been uneventful. She did not have any risk factors, history of rheumatic fever or any drug intake. There was no significant family history of heart disease. On admission her heart rate was 150 per minute, regular and her blood pressure was 110/80mmHg. Her examination was normal except for the high heart rate. ECG (**Fig1**) revealed narrow complex tachycardia with p waves found inscribed on the latter part of T wave in leads II, III and avF.

The P wave axis was +120 degrees. The RP interval of 200 ms and PR interval of 180ms. There were no significant ST or T wave changes. These findings were diagnostic of a long RP tachycardia.

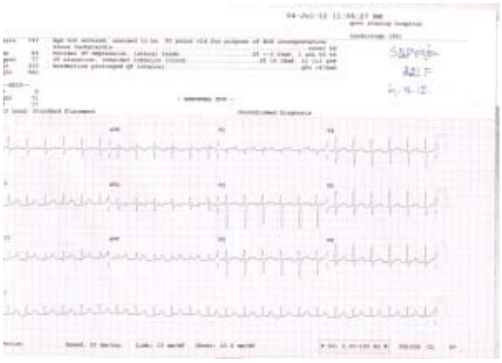

fig1: ECG on day one of admission

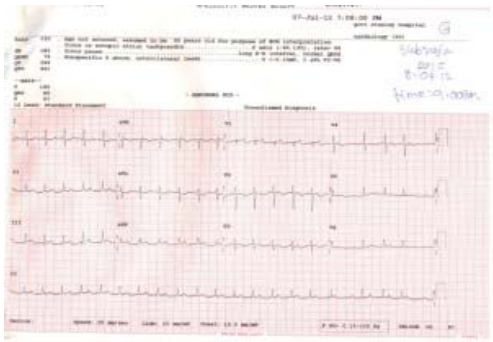

Fig 2: Day three after admission showing intermittent 2:1 blocks.

Echocardiogram showed a non dilated left ventricle with an ejection fraction of 56%.Carotid sinus massage was not successful. IV adenosine was also not successful. It only resulted in transient slowing of the tachycardia due to development of 2:1AV block and subsequently again heart rate increased to 150/ min. DC cardiversion was not attempted because the pateint was hemodynamically stable. So we made a provisional diagnosis of ectopic atrial tachycardia and started on digoxin and carvedilol, along with low dose of diuretics and syrup potassium chloride. The rate slowed to about 130 per minute and showed intermittent 2:1 AV blocks(**Fig 2**) . All her blood investigations including electrolytes, haemoglobinTotal count, Thyroid profile and cardiac enzymes were within normal limits. She was discharged with the tachycardia after a period of two weeks and was continued on digoxin 0.25mg and carvedilol of 25mg/day.

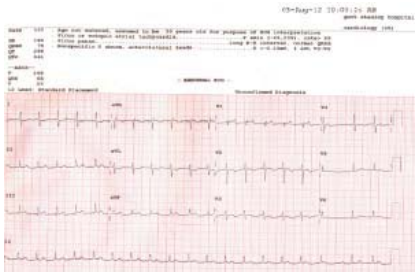

Fig 3: One month of follow up showing persistent atrial tachycardia with intermittent AV blocks

She was on regular follow up and the ECG taken after a period of one month (**Fig 3**)showed similar findings as prior to discharge and Echo parameters were within normal limits. She was started on verapamil at a dose of 120mg/day after stopping carvedilol and digoxin was continued. She was followed up regularly and the dose of verapamil was increased to 240mg/day. She was also on regular follow up for monitoring the foetal heart rate.

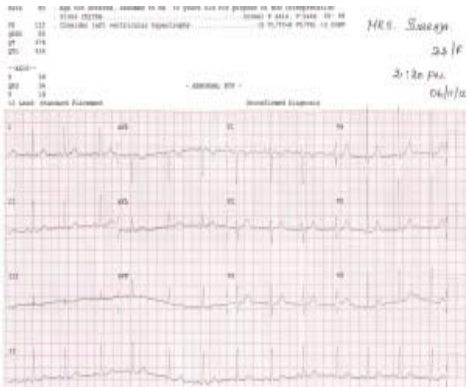

Fig 4: One day after delivery showing sinus rhythm

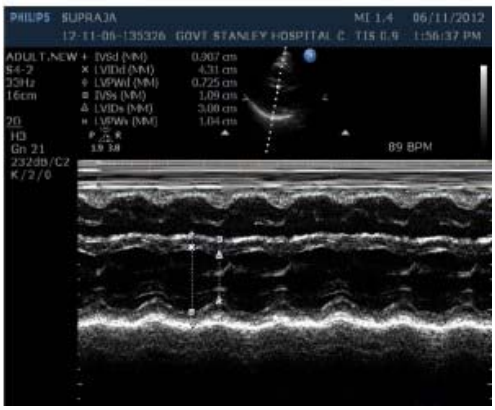

Fig 5: Echo done one day after delivery.

At term, she naturally delivered a healthy male baby without any complications. The tachycardia persisted during the labour. One the first day after the delivery the tachycardia spontaneously reverted and the heart rate reduced to 90 per minute. The ECG (**Fig 4**)showed the normal sinus P waves with a rate of 90 per minute. A repeat echo done (**Fig 5**)during this period was also within normal limits. Hence the diagnosis was made of a pregnancy induced incessant atrial tachycardia. She was discharged after the delivery without any medications and during follow up over 1 year period, there were no history suggestive of recurrence.

Discussion:

The actual incidence of first onset supra ventricular tachycardia during pregnancy was found to vary in studies. Tawam et al found a high incidence 34% of new onset SVT [2]. Lee et al investigated 207 women and found the incidence of 3.9% for first onset SVT[3]. Out of this they found 90% were AVRT and only 10% were AVNRT. No cases of automatic trial tachycardia was noted in both the studies. An automatic atrial tachycardia usually occurs in childhood, as acomplication of cardiomyopathies or with digoxin toxicity. The incidence of atrial tachycardia is rare in pregnancy as evidenced by only a very few case reports [4,5,6,7,8].

In some cases the episodes were associated with use drugs like oxytocin during delivery or ephedrine during spinal anaesthesia [9.] In some of the reported cases, the arrhythmia subsides and terminatesshortly after delivery, suggesting that pregnancy may contribute to the initiation and maintenance of this tachyarrhythmia[5,6]. The exact mechanism involved is not clear, but many have been proposed [10].:

-increased catecholamine level

-increased adrenergic receptor sensitivity

-increased intravascular volume causing atrial stretch

-increased estrogen and beta HCG can alter the status of cardiac ion channels

The presentation of SVT during pregnancy is the same as in the nonpregnant state which include palpitations presyncope syncope, dyspnoea, and/ or chest pain. Patients with PSVT typically describe a regular and rapid tachycardia of abrupt onset, with or without abrupt termination. Many reports suggest a favourable outcome for the mother and foetus after an uncomplicated SVT [2,9]. There are however rare reports of hemodynamic instability caused by the incessant tachycardia induced cardiomyopathy [7].In episodes of PSVT which are hemodynamically stable vagal manoeuvres can be tried. The drug of choice in stable patients is adenosine. A dose of 6- 12mg is required. It effectively terminates 90% of the episodes [10,11]. A high dose of more than 20 mg is associated with adverse foetal outcomes. The

second choice drugs are IV beta-blocker such as metoprolol and propranolol. Calcium channel blockers are not commonly used because of increased incidence of maternal hypotension episodes, verapamil (50%) and diltiazem (13%) [10]. Usage of CCBS is given a class II b recommendation by ACC-AHA-ESC guidelines. In patients who are hemodynamically unstable DC cardioversion can be safely used. Prophylactic therapy includes the following: a combination of type IA anti arrhythmic drug (except disopyramide) and digoxin for women with concealed accessory pathway. Beta blocker and digoxin are used for AVNRT. Amiodarone is to be avoided because of its possible teratogenic effects. Flecanaide and other class Ic drugs have a not been proven to be safe in pregnancy. Atrial tachycardia is difficult to treat and is generally well tolerated by the mother and the foetus. The treatment of atrial tachycardia similar to non pregnant state. This arrythmia is often refractory to medical treatment and to DC cardioversion in attempts to convert it into sinus rythm. Vagal manoeuvres or the use of anti arrhythmic agents that decrease AV nodal conduction will not usually terminate this arrhythmia. The administration of adenosine may be useful as a therapeutic and diagnostic tool. Urgent DC cardioversion or administration of multiple intravenous drugs is not recommended when pregnant women are hemodynamically stable [11]. Rate control can be usually achieved with digoxin, beta blockers, or calcium channel blockers. Rarely if the tachycardia is poorly tolerated by the patient with signs of heart failure or if the it can be treated with radiofrequency ablation with adequate protection of the foetus or by minimising the radiation by using three dimensional electro mechanical mapping.

Conclusion:

Atrial tachycardias are a rare in pregnant females in the abscence of heart disease. It is usually well tolerated by mother and the foetus. It is usually not responsive to medical or electrical attempts in terminating it. Heart rate can be usually effectively controlled by AV nodal blocking drugs. It mostly spontaneously reverts after the end of pregnancy period.

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