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## Supra Ventricular Tachycardia in A Pregnant Woman with Wolff-Parkinson- White Syndrome

Geetha SK\*, Saraswathi K, and Nirupa S.

Department of Obstetrics and Gynaecology, Sree Balaji Medical College and Hospital, Chrompet, Chennai – 14, Tamil Nadu, India.

### ABSTRACT

We present a case of Wolff-Parkinson White (WPW) Syndrome in pregnancy. A 26 yrs old primigravida who was asymptomatic prior to pregnancy ,who suddenly developed Palpitations at 20 weeks gestation and diagnosed to have WPW syndrome and was treated with Adenosine, got admitted in our hospital with labor pains and delivered by outlet forceps without any attacks of SVT. But on the first postnatal day, she developed SVT and was managed effectively. The diagnosis and etiologic consideration of this syndrome in association with pregnancy are reviewed and concluded that antenatal patients presenting with symptoms of palpitations, breathlessness, syncopal attacks should be evaluated properly to arrive at a diagnosis,should be closely monitored during antenatal checkups and managed efficiently during antepartum, intrapartum and postnatal periods.

**Keywords:** Pregnancy, Supra Ventricular Tachycardia, Wolff-Parkinson-White Syndrome, Delta Wave, Ventricular Pre excitation.

*\*Corresponding author*

## INTRODUCTION

Physiological changes in pregnancy result in increase in heart rate and cardiac output. Patients with WPW syndrome can have heart rate of 160-220 beats per minute. Also, they are more likely to have Atrial Fibrillation or Atrial Flutter, causes the heart to beat at rates more than 250-300 times per minute. Although most of pregnant women have increased heart rate during their gestation, without any symptoms, some women may develop fainting or arrhythmia [1]. WPW syndrome is one form of ventricular preexcitation that can produce symptoms of syncope, palpitation, arrhythmia or sudden death. This WPW syndrome may be diagnosed firstly during pregnancy from close observation during antenatal checkup or from investigations of anemia, the patient has. We present a case of WPW syndrome in a pregnant woman who visited our hospital with labor pains for safe confinement and delivered by natural labor.

## MATERIALS AND METHODS

A 26 year old primigravida, married since 2 years with gestational age of 38 weeks 3 days, got admitted with complaints of labor pains. She had regular menstrual cycles in the past prior to pregnancy. She conceived spontaneously and had her antenatal checkups regularly by a private practitioner. She gave a past history of an attack of palpitation and shortness of breath at 20 weeks gestation and was taken to a private hospital where ECG was taken which showed features of Supra Ventricular Tachycardia due to WPW syndrome. She was kept in ICU and was treated with injection Adenosine. She was discharged after 3 days. She was asymptomatic after that and was able to carry out her routine work. She got admitted with labor pains at term in our hospital. As soon as the patient was admitted ECG was taken and cardiologist opinion was obtained. ECG showed a pulse rate of 90 per minute and Delta wave which is abnormal slow ascent of QRS complex, Echo cardiogram was normal. Cardiologist advised to give injection Amiodarone 150mg in 100ml of normal saline for half an hour if the patient develops SVT.

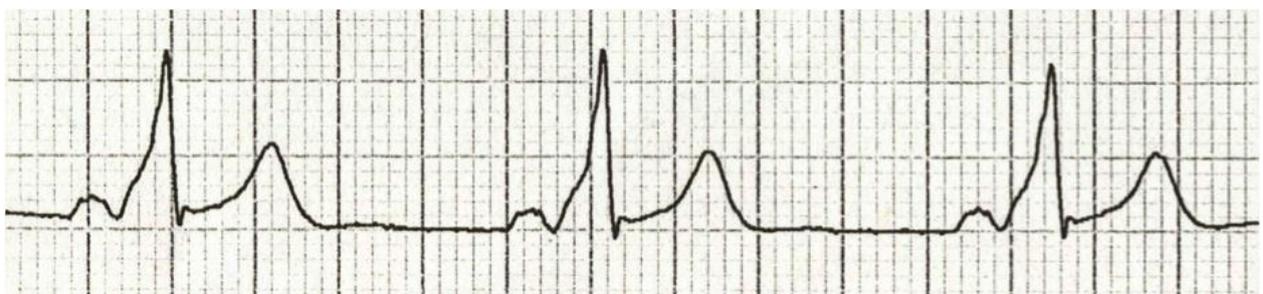
During the first stage of labor, patient was connected to multipara monitor, Cardiotocographic monitor, IV line maintained, injection Amiodarone was kept ready. Patient went into active labor and delivered by Outlet forceps an alive male baby weighing 3.1 kg with 5 minute APGAR score of 8/10. Throughout the labor pulse rate varied between 90-100 per minute and she didn't develop any symptoms or signs of SVT.

On first postnatal day patient complained of palpitation and breathlessness. Her pulse rate was 140 per minute, BP 110/70. ECG showed sinus tachycardia with normal QRS complex. Cardiologist was consulted, but the tachycardia resolved within half an hour on its own without any medications. She didn't have further episodes of SVT for the next five days of observation. Patient was discharged on 6<sup>th</sup> postnatal day and advised to attend cardiologist OPD for further management.

## DISCUSSION

WPW syndrome is estimated to occur in approximately 0.1 – 3.0 per 1000 of the general population. It is a form of ventricular preexcitation involving an accessory conduction pathway[2]. It occurs when any part of the ventricular myometrium is activated by an impulse originating in the atrium earlier than would be expected. The classic ECG features are

1. PR interval less than 0.12 sec.
2. Slurring of the initial segment of QRS complex known as Delta Wave.
3. Widening of QRS complex with a total duration greater than 0.12sec [1,3].



However these criteria are not always present and the absence of one or more does not rule out the diagnosis of WPW syndrome. Though the pre excitation is caused by the anomalous tract in WPW syndrome, after the establishment of tachycardia, the QRS complex assumes normal form during the episodes of tachycardia due to the conduction occurring through regular tract.

1. There is an increased propensity for SVT in pregnant women with WPW syndrome. Several mechanisms have been proposed to explain the increased incidence of tachy arrhythmia. Increased adrenergic sensitivity to estrogen – estrogen may alter the actomyosin ATPase relationships in the myocardium and increase myocardial contractility[6]. Although there are no relevant studies on the effects of sex hormones on the cardiac tissue, the increased adrenergic sensitivity may play a potential role in the genesis of arrhythmias.
2. Increased plasma volume which will increase the heart rate especially in patients with WPW syndrome and may induce atrioventricular tachycardia.
3. Stress and anxiety.

Treatment of WPW syndrome in pregnancy is similar to that in non-pregnant state. If atrial fibrillation occurs, intravenous procainamide is the treatment of choice in hemodynamically stable patient. Direct – current synchronized cardio version is necessary for hemodynamically unstable patient [2,3,8].

Afridi and co-workers[9] treated tachyarrhythmias in WPW syndrome with IV Adenosine. Leffler and co-workers [10] reported a case in which Adenosine was used to treat SVT in pregnant women with WPW syndrome without any adverse effect on maternal & fetal heart rate. Quinidine, procainamide and beta blockers have also been used in combination. Radio frequency catheter ablation of the accessory pathway is advisable for patients with symptomatic arrhythmias which are not fully controlled by drugs. It has high success rate, low incidence of complications and potential effectiveness [2].

In obstetric point of view, we should remember that pregnancy has an increased propensity for supraventricular tachyarrhythmia in patients with WPW syndrome. Intravenous Adenosine or Procainamide can be given during attacks. Patients in labor should be continuously monitored with multipara monitor, cardio tocographic monitor etc. Tocolytics and Oxytocics in high IV bolus doses after delivery should be avoided as they may induce SVT in these patients. Second stage of labor can be cut short by outlet forceps. Postnatally patients can be connected to Holter's monitoring for two to three days before discharging them.

### CONCLUSION

Pregnant women with WPW syndrome have an increased propensity to Supraventricular Tachyarrhythmias. Evaluation of maternal heart should be complete in pregnant women who complains of syncope, palpitation, tachycardia or breathlessness that may be overlooked as physiological changes of pregnancy.

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