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A RARE CASE REPORT: FULL TERM PREGNANCY WITH COMPLETE HEART BLOCK-AN EMERGENCY CAESAREAN SECTION WITH TEMPORARY PACEMAKER

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ABSTRACT Pregnancy with complete heart block is rare, its management is not streamlined and requires a multidisciplinary team approach involving the obstetrician, cardiologist, anaesthesiologist, and neonatologist. A high index of suspicion in a woman with a slow heart rate and electrocardiographic examination will ensure the diagnosis of this condition. Such patients can be managed conservatively or may require temporary or permanent pacemaker implantation. We herein present a case of pregnancy with CHB detected for the first time during the latent stage of labour that has been managed by temporary pacemaker insertion with the coordination of a cardiologist, anaesthetist, and obstetrician

KEYWORDS : Heart Block, Pregnancy, Pacing

INTRODUCTION

Complete heart block (CHB) is a relatively rare and potentially serious issue in pregnancy.[1]

This condition poses a significant challenge to the treating physician.

Complete heart block (CHB) is an abnormal heart rhythm in which there is no conduction of electrical impulse through the atrioventricular (AV) node [2], so that there is complete dissociation of the atria and ventricles ECG findings of CHB are (1) regular P–P interval, (2) regular R–R interval, (3) lack of an apparent relationship between the P waves and QRS complexes and (4) presence of a greater number of P waves than QRS complexes

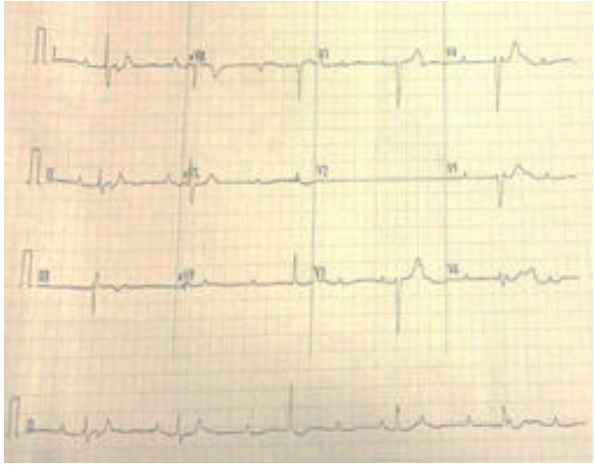
Obstetric outcome in women who have undergone permanent pacemaker has been reported as rare case reports, but there is a lack of literature on the management of complete heart block detected for the first time during labor in pregnancy

CASE REPORT:

A 20-year-old, un-booked, Primi at 38 weeks of gestation, was referred from a private hospital because of Prolonged PROM (24hrs) in the latent stage of labor with maternal bradycardia of 32- 40bpm

She had a regular antenatal check and it was uneventful. Had no cardiorespiratory complaints. No history of any medical illnesses, addiction, or drug intake such as beta-blockers, or calcium-channel blockers. No significant family history. On examination: general condition was fair, normotensive, with maternal bradycardia (PR=32 bpm). A cardiovascular system examination showed bradycardia and the respiratory system was unremarkable. Obstetric examination: full-term pregnancy with a single live fetus in cephalic presentation with a fetal heart rate of 140 beats/minute with regular uterine contractions. vaginal examination, cervix was 50% effaced, os 2 cm dilated, vertex at -2 station, membranes absent with clear leaking of liquor. Cardiology consultation was done in view of persistent bradycardia. An electrocardiogram (ECG) was done immediately which showed sinus bradycardia, atrioventricular (AV) dissociation, and ventricular rate of 40% suggestive of complete heart block. Echocardiography was normal.

All her routine investigations & thyroid and Renal Function Test are within normal limits. After discussing with the patient and attendants and with consent, the patient was shifted to the cath lab, temporary pacemaker insertion (TPI) was done via the Right femoral vein route (under Local Anaesthesia) by the cardiologist, and the heart rate was fixed at 80bpm. Emergency cesarean section was done under general anesthesia with high-risk consent in view of prolonged PROM (>24 hrs) with failed induction. Intraoperative hemodynamic status was stable and surgery proceeded uneventfully. She delivered a healthy female baby.



The neonate attended by pediatrician, did not have any rhythmic disturbances. The patient was transferred to Cardiac ICU for observation. Postoperatively, continuous monitoring was done with a pulse oximeter and non-invasive blood pressure. She was started on IV antibiotics (third-generation cephalosporins and metronidazole) and thromboprophylaxis with unfractionated heparin 5000IU IV 6th hourly. Heart rate tapered from 80 to 40bms in a span of 4 days, rest of the postoperative period was uneventful up to POD-10

On the 4th postoperative day, TPI was removed under aseptic precaution (Tab. Deriphylline and Tab. Orsibest added)

On POD-10 patient had Generalized Tonic-Clonic Seizures (GTCS). Physician, Neuro physician, Cardiologist opinion taken and convulsions controlled by giving Inj. Levipil 500mg IV in 100ml NS, Inj. Phenytoin 800mg IV in 100ml NS, Inj. Lorazepam 2mg slow IV, Inj. MgSO4(5gm IM 4th hourly 6 doses given prophylactically) Patient stabilized

As Neuro physician's opinion, the cause of GTCS might be due to hypoxic ischemia because of persistent bradycardia.

On POD16 permanent pacemaker was kept along with Antibiotics, Heparin, and Pyridoxine.

DISCUSSION

CHB detected for the first time during pregnancy and delivery is a rare disease with an incidence of 1 in 20,000 live births[3]. The etiology of complete heart block is not completely understood yet however it's considered to be mostly congenital in origin, un noticed like in our case.

Most often these patients are asymptomatic; however, the symptoms can also occur later in life. This is due to a variable degree of heart block.

Feto maternal outcome is favorable in asymptomatic cases and uncomplicated brady arrhythmias without significant underlying heart disease.[4]

Rarely, preterm birth and intrauterine growth restriction are observed. If a maternal resting heart rate of 50 beats/min or less, there are chances of the fetus getting hydrops fetal, neonate will get heart failure, if heart block is congenital, the child will have exercise intolerance.

Regarding Mortality from congenital complete heart block, it is highest in the neonatal period, is much lower in childhood and adolescence, and increases gradually later in life.

Asymptomatic pregnant patients without pacemakers may present with sudden cardiac death or heart failure during pregnancy or may become symptomatic during labor due to Valsalva-induced bradycardia. Some patients with CCHB may experience dyspnea, syncope and Stokes-Adams attacks

If a complete heart block presents for the first time in pregnancy, it is a therapeutic challenge to the physician. All Symptomatic patients in pregnancy should be managed with the use of a cardiac pacemaker and should be implanted whenever it is diagnosed. A pacemaker is needed to maintain cardiac function.

In women without a permanent pacemaker, temporary pacemakers are routinely inserted for labor and birth to withstand any hemodynamic variations.

However, the need of a temporary pacemaker during labor and its accurate timing and rate setting of pacemakers has not been objectively evaluated so far. Permanent pacemakers are implanted at any time in pregnancy, whereas temporary pacemaker is applied during delivery. Overall maternal and the neonatal outcome is good in such patients.[6]

There is no clear guideline as regards the appropriate anesthesia technique in women with CHB undergoing LSCS. The goal is to maintain hemodynamic stability, the technique and drugs chosen should have minimal effect on heart rate. Spinal, epidural, and general anesthesia, with or without a temporary pacemaker has been reported in case reports.

Regional anesthesia is safe in such a situation, as a stable hemodynamic status can be obtained by titrating intravascular volume and phenylephrine infusion guided by continuous invasive monitoring

CONCLUSIONS

In our case, CHB is identified at near-term pregnancy with quite a low heart rate (32 beats/min) and with a history of dizziness.

Women with asymptomatic CHB presenting at the time of labor pose a challenge to the treating Obstetrician.

Emergency cesarean section was carried out under temporary pacing coverage with a later plan of permanent pacemaker implantation resulting in excellent symptom-free status. [8]

This is the first case ever reported in Great Eastern Medical School and Hospital (GEMS&H) where the cooperation and coordination of the cardiologist, anesthetist, and obstetrician of our hospital have resulted in a happy ending by successful implantation of a pacemaker in a pregnant woman and uneventful post-operative period except for convulsions.

As suggested by our case, cesarean delivery might be safely contemplated with temporary pacing in symptomatic women with CHB. However, close monitoring with a multidisciplinary approach and follow-up of cardiac function is needed in these pregnant women during labor and perioperative period.

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