

CONGENITAL HEART BLOCK IN THE PREGNANT WOMAN WITH SUCCESSFUL OUTCOME- A CASE REPORT

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ABSTRACT

BACKGROUND

Congenital complete heart block without cardiac malformation is rare and potentially fatal. Occurrence of pregnancy in a women suffering from third-degree heart block is high-risk situation for both mother and foetus. A case is reported here who was unbooked, presented at 39 weeks of gestation with severe oligohydramnios. On examination, she had bradycardia and was confirmed by ECG as third-degree heart block. Echo showed no structural abnormalities other than trivial tricuspid regurgitation and trivial pulmonary regurgitation. And in view of severe oligohydramnios, decision was taken for caesarean section. Temporary cardiac pacing was done and she delivered a female baby of weight 2.6 kg by caesarean section under epidural anaesthesia. Maternal and foetal outcomes were good. She was discharged with advice regarding permanent cardiac pacing, follow-up and contraception.

KEYWORDS

Congenital Cardiac Heart Block, Bradycardia, Pacemaker, Oligohydramnios, Caesarean Section.

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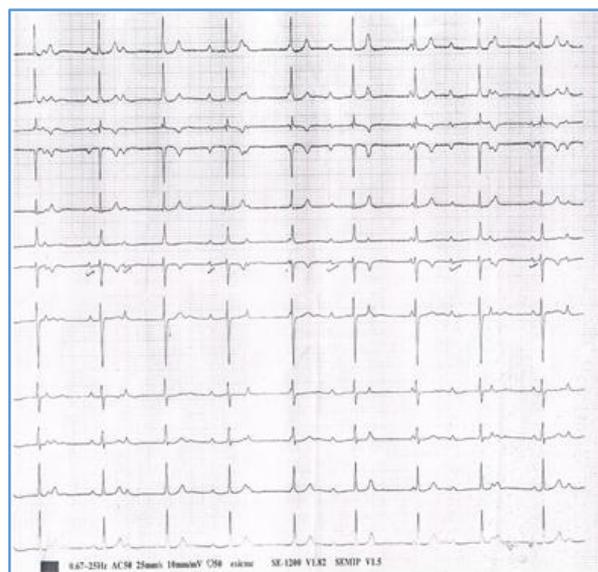
BACKGROUND

- Pregnancy complicated with complete heart block is very rare. Congenital complete heart block without cardiac malformation occurs in 1 – 15,000 to 1 in 20,000 pregnancies.^(1,2)
- Congenital heart block is frequently associated with underlying structural congenital heart diseases. The commonest being left atrial isomerism, often with an accompanying atrioventricular septal defect as well as levo-transposition of great arteries.
- In more than 90% of cases, it results from neonatal lupus erythematosus through transplacental passage of antibodies anti-SSA/ Ro and/ or anti-SSB/ La.⁽²⁾
- Improvement in the medical technology in the form of cardiac pacing has helped these women to go through pregnancy and delivery with good outcome.

CASE REPORT

- A 24-year-old, gravida 3, abortion 2, unbooked case was admitted with 39 weeks of pregnancy with severe oligohydramnios. On examination, her pulse was 50 beats per minute and CVS on auscultation revealed systolic murmur and per abdominal examination uterus term size, relaxed, longitudinal lie and cephalic presentation, liquor clinically less and foetal heart sound was 140 beats per minute. Per vaginal examination revealed unfavourable cervix.

- Her blood and urine investigations were normal. Obstetric ultrasound revealed 37 weeks of live baby with cephalic presentation with amniotic fluid index of 2 cm and BPP 6/8.
- ECG confirmed the diagnosis of complete heart block. Echocardiography showed evidence of only trivial Tricuspid regurgitation and Trivial Pulmonary regurgitation. Cardiologist's opinion was taken regarding complete heart block. Maternal and foetal monitoring was continued. In view of severe oligohydramnios, decision of caesarean section under epidural anaesthesia was taken.
- In view of persistent bradycardia, decision of temporary cardiac pacing was taken.
- Temporary intravenous cardiac pacing was done by interventional cardiologist in cardiac care unit by inserting a bipolar pacing electrode via subclavian vein up to apex of right ventricle, under ultrasonographic guidance. The heart rate was artificially adjusted to 79 beats per minute.



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- Caesarean section was carried out under epidural anaesthesia. She delivered a female baby of weight 2.8 kg with good Apgar score.
- There was no intraoperative complication. Temporary pacemaker was removed in the same post-operative day after 6 hours of monitoring.
- She was asymptomatic in the post-operative period. Overall, post-operative period was uneventful. She was discharged with baby on post-operative day 8 with advice regarding follow-up in view of decision for permanent cardiac pacemaker, regular follow-up and contraception.

DISCUSSION

- Atrioventricular block is defined as delay or interruption in the transmission of an impulse from atria to ventricles due to an anatomical or functional impairment in the conduction system. The conduction disturbance that is delayed, intermittent or absent.
- In complete heart block, there is no transmission of atrial electrical impulses to the ventricles.
- Congenital complete heart block is found in 1 in 22,000 live births and has close association with maternal systemic lupus erythematosus and anti-RO antibodies. These antibodies cross the placenta during second trimester of pregnancy, bind to foetal cardiac myocytes that undergo apoptosis with subsequent opsonization, altering the calcium homeostasis, promoting a pro-inflammatory reaction that may lead to conduction disturbances, myocarditis and arrhythmogenicity.
- Complete heart block is rare during pregnancy. The first case of CHB in pregnancy was reported by Nanta in 1914.⁽³⁾
- Majority of the cases remain asymptomatic and hence prophylactic placement of permanent pacemaker is not indicated in all asymptomatic patients.⁽⁴⁻⁶⁾
- ACF Kenmure and AJV Cameron reported a patient who was diagnosed to have congenital complete heart block at the age of 7 years and whose pregnancy proceeded uneventfully and was delivered by caesarean in view of failure of progress of labour.

- Evaluation of chronotropic competence can also be achieved with atropine and is a key step to determine whether a pacemaker will be necessary.⁽⁷⁾
- IUGR and Polycythaemia have been associated with complete heart block in pregnancy.⁽⁸⁾
- Permanent cardiac pacing is advocated in symptomatic cases during first and second trimester. Women may become symptomatic during labour due to further slowing of heart due to Valsalva manoeuvre during second stage.^(9,3)
- In a women without permanent pacemaker, temporary pacemakers are routinely inserted for labour and birth, probably to withstand any haemodynamic variation.⁽¹⁰⁾
- A 30-year aged patient with term pregnancy with complete heart block with pulse rate of 46/min has been reported by S Mehta and D Gowsami in 2003. Patient was delivered vaginally with temporary cardiac pacemaker in situ with heart rate set at 70 beats/min.
- The use of pacemaker during labour in case of congenital heart block is controversial.
- And caesarean delivery is restricted for obstetric indications only. In our case, indication for caesarean section was severe oligohydramnios.

CONCLUSION

Congenital cardiac heart block in pregnancy is a rare entity. Majority of the cases remain asymptomatic and does not need any intervention. Temporary pacemaker implantation is done to avoid haemodynamic variation during labour. A good team approach in the management resulted in optimum outcome.

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