

Parturient with Heart Rate 32bpm for Cesarean Delivery- Anaesthesiologist's Nightmare

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DOI: <https://doi.org/10.52403/ijhsr.20221209>

ABSTRACT

Sinus Bradycardia in parturient is very rare condition. It can be associated with hypothyroidism, pathological factors or drug related. Bradycardia may worsen during labour and subarachnoid block due to hypotension. We report a successful anaesthesia management for cesarean section in a parturient with heart rate of 32bpm.

Keywords: [Parturient, bradycardia, epidural anaesthesia]

INTRODUCTION

Parturient with bradycardia is a rare condition.¹ Atrioventricular heart blocks, peripartum cardiomyopathy and drug induced bradycardia are main causes of bradycardia. Anaesthesia technique is subjective choice as per experience of anaesthesiologists and urgency of surgery. Subarachnoid block can worsen bradycardia with severe hypotension in parturient.¹ Understanding of pathophysiology, Anticipation of the complications and multidisciplinary approach will definitely give better outcome. Few cases with congenital heart blocks are reported. We present a case of successful anaesthesia management of a parturient with sinus bradycardia posted for emergency lower segment cesarean section.

CASE REPORT

A 26 years old lady, multigravida with past history of cesarean section, 37 weeks of gestation with breech presentation, was admitted to our institute, she was a diagnosed case of hypothyroidism since 2 years and was taking tablet Thyroxin 25mcg

once daily. Preanaesthetic assessment was done for cesarean delivery. On evaluation, there was no history of giddiness, syncope and breathlessness. Patient was not on any drugs causing bradycardia like Calcium channel, Beta blocker drugs and digitalis. The heart rate was 32bpm, regular. ECG showed sinus bradycardia. 2D echo was done to rule out cardiomyopathy and normal bilateral ventricular functions. Hematology and biochemical tests were within normal limits. Blood sample for Thyroid function tests was sent at the time of admission. Cardiologists advised temporary transvenous pacemaker in case of disastrous bradycardia and Pacing sheath to be inserted for pacing.

Patient was taken to OR after high risk consent. Basic parameters were noted. Pacing sheath was put through 9Fr central venous catheter through right internal jugular vein by cardiologist. Emergency resuscitation drugs like atropine, adrenaline, dopamine and Isoprenaline were kept ready. We planned epidural anaesthesia for cesarean delivery. We put 20G epidural catheter at L2-3 level via 18G Tuohy needle

and fixed at 11cm. After confirmation of epidural test dose of 3ml of 2% adrenalized xylocaine, 0.375% Bupivacaine 8ml was given. Sensory blockade level was achieved T10. 5 ml of same was given gradually to achieve T6 level and to maintain hemodynamic stability. Cesarean section was carried out uneventfully in 50 min. No further epidural augmentation doses were required. Baby delivered with APGAR score 9/10. Though heart rate was 32-40/min, patient neither required vasopressor nor cardiac pacing during surgery. Blood pressure also remained normal between 110/60-130/76mm of Hg. Thyroid function tests (TSH 3.85 mIU/l) report came as normal in postoperative period for which blood sample was sent in preoperative period were normal. 10 Units of Oxytocin in Ringer Lactate was infused over 60 min. as uterotonic after delivery of fetus. Total input 1000ml of crystalloids was given and blood loss was 300ml, and urine output was 250ml.

Patient was observed overnight in intensive care unit and then shifted to ward. Pacing sheath was removed after 48hrs. Patient was discharged after one week with same heart rate. Cardiologist advised follow up after discharge. But patient didn't return for follow up.

DISCUSSION

Maternal pathological bradycardia is very rare.¹ Physiological bradycardia is mostly asymptomatic and mainly seen in athletes associated with high parasympathetic tone. Sick sinus syndrome, conduction pathway blocks, cardiomyopathy, myocardial infarction, hypothyroidism, electrolytes imbalance, infectious diseases and drug related bradycardia are the common causes.² In second trimester, symptomatic bradycardia can be due to hypotension and reduction in systemic vascular resistance. Treatment is rarely required in such cases.¹ ² Peripartum cardiomyopathy patient may be asymptomatic but there was a case report of bradycardia as presenting symptom for peripartum cardiomyopathy (PPCM).

Symptomatic unstable bradycardia should be treated with drugs or pacing as per guidelines^{1, 2, 3,4,5} stable bradycardia should be observed.

Asymptomatic bradycardia may become symptomatic because of demand of high heart rate and cardiac output in case of heart disease in pregnancy. In absence of structural heart disease, bradyarrhythmias may have favorable outcome.⁸ Spinal anaesthesia may worsen preexisting bradycardia due to rapid onset of sympathetic blockade as well as supine hypotension syndrome by further hypotension.^{8, 9,10} Our patient had no known etiology and had severe sinus bradycardia. Spinal anaesthesia was avoided due to risk of hypotension and worsening of bradycardia.

In case of severe fetal distress or cord prolapsed, general anaesthesia is the only option but again there is associated of risk of worsening bradycardia due to anaesthesia drugs.^{11, 12} There are also increased chances of aspiration of gastric contents.^{13, 14} Such bradycardia of unknown etiology can worsen in general anaesthesia. Hypothyroid patients are known for prolonged recovery with general anaesthesia drugs. Most of the cases, general anaesthesia also affects APGAR score of neonate. Commonly APGAR score improves with the timely interventions and in absence of other maternal and fetal risk factors.¹⁴

There was no fetal distress and no scar tenderness, so graded dosage of epidural anaesthesia was considered. Onset of sympathetic blockade is very gradual and hence minimal risk of hypotension. Anaesthesia level can be easily achieved by titrated doses of local anaesthetic drugs. Studies state that 0.5% bupivacaine is effective for cesarean section anaesthesia. But we gave 8ml 0.375% bupivacaine and 2mcg/ml fentanyl as first loading dose after test dose to avoid hemodynamic changes. Level was T10 with adequate motor blockade was achieved in 15minutes. So we continued 5ml of 0.375 % bupivacaine to achieve T6. And there was adequate

sensory as well as motor blockade. Mainly patient remain awake throughout the surgery and any new symptoms (chest pain, giddiness, breathlessness) can be recognized early and hence can be treated promptly. Also avoid neonatal depression due to anaesthesia drugs.¹⁵ It also offers postoperative analgesia. Hence epidural can be the option for such cases.

Patient was not registered antenatally and hence we couldn't get any relevant history and reports for bradycardia. Previous history of cesarean section also didn't mention any bradycardia. Cardiologist remained in OR throughout the surgery for pacing intervention if needed.

CONCLUSION

Tertiary level hospital with Multidisciplinary team is always major part of successful outcome of such cases.¹⁷ Any patient with bradycardia should be evaluated for etiology to treat the cause and temporary pacemaker should be stand by in case of severe bradycardia.

Declaration by Authors

Ethical Approval: Not Applicable

Acknowledgement: None

Source of Funding: None

Conflict of Interest: The authors declare no conflict of interest.

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How to cite this article: Vaishali P. Chaskar, Shrikanta Oak, Indrani Hemantkumar et.al. Parturient with heart rate 32bpm for cesarean delivery- Anaesthesiologist's nightmare. *Int J Health Sci Res.* 2022; 12(12):54-57.
DOI: <https://doi.org/10.52403/ijhsr.20221209>
