Anaesthetic Management of Parturient with Polymyositis Posted for Lower Segment Caesarean Section: A Case Report

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ABSTRACT

Introduction: Polymyositis is an idiopathic inflammatory muscle disease characterized by symmetric proximal muscle weakness, electromyography abnormalities and poses challenges in anaesthetic management of patient.

Case report: A 21-year-old primigravida with a diagnosed case of polymyositis was posted for emergency caesarean section because of fetal distress. On examination, Blood pressure – 124/72 mmHg and pulse - 90/min. Neurological examination revealed muscle power of 4/5 in most proximal muscle group. Serum creatinine kinase – 500U/L. Electromyography showed myopathic pattern. Cardiovascular and respiratory systems normal. After written informed consent for regional anaesthesia, she was premedicated with injection metoclopramide 10mg intravenous. Subarachnoid block was given in L3 -L4 interspace using 2ml of 0.5% heavy bupivacaine. Adequate sensory block was achieved upto T5. Baby delivered had APGAR score of 7 and 9 at 5 and 10 minutes respectively. Intraoperative vitals were normal.

Conclusion: Anaesthetic management in parturient with polymyositis is challenging. Regional anesthesia preferred in these patients rather than general anaesthesia to avoid risks including delayed recovery from muscle relaxation, aspiration pneumonitis, cardiac failure.

Keywords: Polymyositis, Electromyography, Myopathic pattern, Creatinine kinase, Regional anaesthesia

INTRODUCTION

Polymyositis (PM) is an idiopathic inflammatory muscle disease of unknown etiology.[1] It is characterized by symmetric proximal muscle weakness, increased serum skeletal muscle enzymes, electromyography (EMG) abnormalities and inflammatory cell infiltrates in muscle tissue. Hormonal factors, environmental exposures and genetic factors are suggested to contribute to the onset of this disease. Although the inciting event of PM is unknown, it has been said that some microvascular injury may lead to the release of muscle auto antigens leading to activation of T-lymphocytes which then proliferate and release cytokines such as interferon gamma and interleukin.[2] The presence of auto aggressive inflammatory cells that surround, enter, and destroy morphologically normal appearing myofibres is the characteristic feature of PM.[3] The main symptoms are dysphagia, difficulty speaking, fatigue and shortness of breath. While symmetrical, bilateral neck, shoulder, and pelvic muscle weakness are seen in 50% of these patients; intercostal and diaphragmatic muscles and pharyngeal muscles may also be affected. Main diagnostic tests for polymyositis are Muscle biopsy, Autoantibodies and serum creatinine kinase.[4] The treatment for polymyositis aims to increase muscle strength, prevent the development of contractures and manage the systemic manifestations of the disease. The most important one is the early detection of disease and patient's immunological control.[5]

When these patients present for some elective or emergency surgery, they present a huge anaesthetic challenge. We hereby present a successful anaesthetic management of a parturient with polymyositis posted for emergency LSCS.

CASE REPORT

A 21 year-old primigravida at 37 weeks gestation was posted for emergency caesarean section because of fetal distress. She was a known case of polymyositis since 1 year and was on tablet prednisolone OD . There was no other surgical, medical or family history present. On general_physical examination BP -124/72 mm Hg, PR - 90/min. Cardiovascular and respiratory systems were normal. Neurological examination revealed a muscle power of (4/5) in most proximal muscle group, compared to distal muscle groups (5/5).

Preoperative Investigations were –

Hb – 10 gm%, TLC – 11000/mm^3 Platelets – 1.1 lacs/mm^3 BUN – 23 mg/dl, S.creatinine – 0.8mg/dl, Creatinine kinase – 700IU/L.

Patient planned for regional anaesthesia. After taking written informed consent, patient was taken on OT table and ASA standard monitors including ECG, NIBP, Pulse oximeter were attached.

Preoperative vitals PR – 90/min, BP – 124/72 mmhg, Sp02 – 98% in room air.

Premedicated with metoclopramide (10 mg Iv.) and ranitidine (50 mg Iv). Lactated Ringer's solution was started a rate of 15 to 20 mL per kg per hour within 15-20 min before regional anaesthesia. Subarachnoid block was given in L3-L4 interspace using 2ml of 0.5% hyperbaric bupivacaine with patient in lateral position. Adequate sensory block was achieved up to T5.

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A healthy female baby weighing 2.5 kg was delivered with APGAR score of 7 and 9 at 5 and 10 minutes respectively. After baby delivery, 10 U oxytocin in 500 mL crystalloid solution was given by slow intravenous infusion to mother. Intraoperatively she had one episode of hypotension corrected by Inj mephenteramine 6mg IV. Patient was shifted to PACU with stable vitals for further monitoring.

The patient was continued on oral prednisolone in the postoperative period.

Clinically her muscle function showed no deterioration from the antepartum period.

Our patient was safely discharged home on the sixth postoperative day.

DISCUSSION

Availability of advanced treatment for infertility and good antenatal care makes patients with various rare medical diseases presenting with pregnancy to opt for caesarean section. Anaesthetic management of such parturients becomes challenging especially during emergency situations.

Points to be taken into consideration in the anaesthetic management are: respiratory insufficiency, aspiration pneumonia, arrhythmias, cardiac failure and hyperkalemia .

Patients with polymyositis are sensitive to nondepolarizing muscle relaxants, and the use of their antagonist drugs may cause muscle weakness and severe dysarrhythmias . Avoid volatile anaesthetic agents as they may not only serve as a trigger of malignant hyperthermia but also potentiate the effects of muscle relaxant.

Succinylcholine is also advised to be avoided as it may serve as a trigger for malignant hyperthermia and leads to hyperkalemia . In addition, vecuronium and pancuronium are associated with prolonged neuromuscular paralysis.[6] However, atracurium could be implemented as a safe drug under neuromuscular monitoring .Safe, successful administration of regional anesthesia in pregnant women requires an understanding of the normal physiologic changes of pregnancy.[7] At term, obstruction of the inferior vena cava by the enlarging uterus distends the epidural venous plexus and increases epidural blood volume. These effects cause a decrease in spinal cerebrospinal fluid volume (CSF) and enhance the cephalad spread of local anesthetic solutions during spinal and epidural anesthesia and therefore risks of higher block. Both vital capacity and closing capacity are minimally affected but FRC decreases up to 20% at term. The parturient is at greater risk than the nonpregnant patient for developing airway closure and hypoxemia during major regional anesthesia if there is high block. Futiza et al. performed thoracic epidural block, and no problems occurred during and after the surgery so they showed epidural anesthesia to be a successful method.[8] Ohta et al. reported anesthetic management of two patients suffering from polymyositis, in one of which no muscle relaxation was used for endotracheal intubation and maintenance of anesthesia. The other patient was operated under epidural anesthesia with sedation.[9]

Spinal anesthesia is an appropriate choice for urgent cesarean sections but one of the major disadvantages of spinal anesthesia is higher incidence of hypotension.[10]

CONCLUSION

Polymyositis is rare idiopathic inflammatory myopathy affecting striated muscles.Due to risks associated with it, appropriate anaesthetic technique that minimizes cardiac and respiratory depression should be used. In a parturient with polymyositis, general anaesthesia not preferred due to risks including delayed recovery from muscle relaxation,aspiration pneumonitis, cardiac failure. Regional anesthesia preferred especially spinal anaesthesia when emergency caesarean to be done.

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