Case Report

Anaesthetic management of a case of suspected myopathy posted for emergency appendicectomy

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Abstract

Introduction: Rarely we encounter patients with myopathic disorders for emergency surgeries where actual diagnosis is not known and there is no time for evaluation. We are describing the anaesthetic management of a female patient with suspected myopathy posted for emergency laparoscopic appendectomy. The case was managed with use of propofol, atracurium, neuromuscular monitoring. Use of Inhalation agents, suxamethonium and neostigmine were avoided, to reduce the risk of reported complications such as malignant hyperthermia, rhabdomyolysis–hyperkalemia, myotonic contractions.

Keywords: myopathy, polymyositis, muscular dystrophy, atracurium, succinylcholine, neostigmine, neuromuscular monitoring, malignant hyperthermia.

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INTRODUCTION

Myopathies are a heterogeneous group of conditions with diverse etiologies. They usually affect muscles without involving the nervous system or neuromuscular junction. Most of the congenital myopathies are chronic and slowly progressive. However, metabolic, inflammatory, toxic and endocrine myopathies present subacutely or even acutely. Polymyositis is a rare inflammatory disease that leads to muscle weakness, swelling, tenderness, and tissue damage, affecting adults and rarely, children. Polymyositis affects the skeletal muscles. It is also known as idiopathic inflammatory myopathy. The exact cause is unknown, but it may be related to an autoimmune reaction or infection. Polymyositis presents with, muscle weakness in the proximal muscles (shoulders, hips, etc.) which can make it hard to raise the arms over the head, getting up from a sitting position, or climbing stairs. Myotonic muscular dystrophy (MMD) is a form of muscular dystrophy that affects muscles and many other organs in the body. Myotonic dystrophy type 2/proximal myotonic myopathy typically presents in adulthood and has variable manifestations, such as, thigh muscle stiffness, muscle pain, and weakness of hip flexors, hip extensors, or long flexors of the fingers, early onset cataracts (< age 50 years), various grip myotonias. These diseases are also associated with various extra muscular manifestations such as pulmonary dysfunction due to thoracic muscle weakness and cardiac disturbances such as atrioventricular conduction defects, congestive heart failure and myocarditis.[1] Anaesthetic management is always challenging in such patients with these diseases. The problems which may encounter during perioperative period are delayed recovery from muscle relaxation, aspiration pneumonitis, arrhythmias, cardiac failure. Steroid supplementation becomes necessary in these patients as most of them will be on long term steroid medications[2,3]. Apart from these problems, rare cases of malignant hyperthermia and myotonic contractions are

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reported in these patients due to interaction with certain anaesthetic agents such as, succynylcholine, inhalation agents, neostigmine etc. We are presenting a case of a female patient with suspected myopathy posted for emergency laparoscopic appendectomy, managed with use of propofol, atracurium, neuromuscular monitoring. Inhalation agents, suxamethonium and neostigmine were avoided, to reduce the risk of complications.

CASE HISTORY

A 43 years old female weighing 55kg presented to the casualty with complaints of pain abdomen, diagnosed with acute appendicitis and was posted for emergency laparoscopic appendectomy. Patient had a history of slowly progressive muscle weakness involving proximal muscles around the shoulder, hip joint since 5 years. She had difficulty in walking and needed support for the same. Patient had difficulty in lifting heavy weights and also found it difficult to get up from squatting position. Patient had been under evaluation for these symptoms and two different muscle biopsy reports showed polymyositis and neurogenic atrophy respectively. She was on long term oral steroid medications. (prednisolone 10mg). Preoperative Examination revealed a pulse rate-70 beats /min, blood pressure(BP)-130/70mmHg, spo2-98% on room air, respiratory rate(RR) -15/min, with no signs suggestive of respiratory distress. Cardiovascular system and respiratory system were normal. Airway examination revealed a Mallampatti grade of II with normal neck and temporomandibular joint movements. Her haemotological and biochemical parameters were normal with CPK of 70IU/L. Her thyroid function tests were normal. ECG, chest x-ray and 2D-echo, electromyography were also normal. Patient was shifted to the operation theatre, all non invasive monitors – ecg, pulse oximeter, NIBP, Etco2, neuromuscular monitoring, temperature monitoring,(anaesthesia machine-Datex Ohmeda Aespire 7900 and monitor Wipro GE B650) were applied. Patient was premedicated with inj ondansetron 0.1mg/kg body wt, inj glycopyrrolate 0.04mg/kg body wt, inj hydrocortisone 25mg iv bolus was given. Patient was induced with inj propofol 2 mg/kg body wt, inj fentanyl citrate 1microgram/kg body wt. A baseline TOF measurement was taken. inj atracurium 0.5mg/kg body wt was used for tracheal intubation. Airway was secured with 7mmID portex cuffed endotracheal tube. Patient was taken on controlled mechanical ventilation with a tidal volume of 8ml/kg body wt; RR-14/min. Patient was maintained with N20:O2 mixture in the ratio of 60:40%. Propofol infusion was started at 75micrograms/kg body wt /min. Throughout the surgery TOF count was taken every 10 minutes. The surgery lasted for 40 minutes. As port closure was going on, TOF count became 3.The propofol infusion was stopped and a bolus of inj fentanyl 25microgram was given. After skin closure, TOF count was showing 40%. we waited for fifteen minutes, by then the TOF reading was 75%. Patient became conscious and followed verbal commands. There was no fading on double burst stimulation (DBS). Patient was extubated and shifted to recovery room.

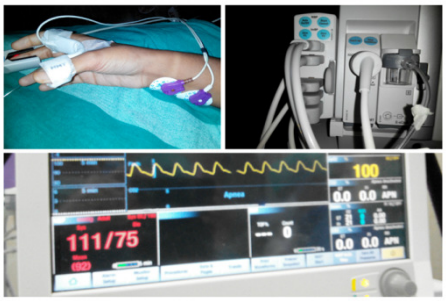

Figure1:

DISCUSSION

In routine anaesthetic practice, in situations wherein an emergency surgery has to be conducted on a patient with an undefined myopathic disorder eg: polymyositis, myotonic dystrophy, etc, certain blanket precautions has to be taken to avoid any untoward events. As the cardiovascular system may be involved, an echocardiogram and ECG must be done to rule out, dilated cardiomyopathy, conduction disorders – shortening of PQ interval, QT prolongation. A thorough respiratory evaluation should be performed because many myopathies in advanced stages are accompanied by a respiratory failure so it will be necessary to make an assessment of respiratory status and the patient's ability to mobilize secretions. In our patient, evaluations of these two systems were normal[4]. As patients with myopathic disorders are on long term steroid supplementation, intraoperative steroid supplementation should be done as there might be a pituitary –adrenal axis suppression. Our patient was on long term prednisolone treatment, we gave a bolus of 25 mg of inj hydrocortisone before induction[5]. In our case, induction was done with inj fentanyl and inj propofol. Succinyl choline was avoided as it may trigger rhabdomyolysis-hyperkalemia and rarely malignant hyperthermia. As there can be an unpredictable response to non depolarising neuromuscular blockers as well[6], graded dose of neuromuscular blocker has to be given with proper neuromuscular monitoring. In our case we used inj atracurium 0.5mg/kg body wt for facilitating tracheal intubation under neuromuscular monitoring, and there was no need for a subsequent dose as the TOF reading was less than 2 throughout the procedure (lasted for 40 minutes). Maintenance of anaesthesia was done with propofol infusion at 75micrograms/kg/min and no

volatile anaesthetic was used as they may not only be a trigger for malignant hyperthermia but even potentiate the effects of neuromuscular blocking agents. Neostigmine usage sometimes unpredictably potentiate the muscle weakness, cause severe dysrrythmias, and may precipitate myotonia[7].Therefore we avoided its use. After the surgery was over we waited for the neuromuscular effect to simply wear off (TOF percentage-75% after 15 minutes of closure). Patient was extubated and shifted to recovery room.

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