



Anaesthetic Management in Guillain Barre Syndrome Posted for Laparoscopic Cholecystectomy: A Case Report

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(Received: 11 June 2024

Revised: 16 July 2024

Accepted: 10 August 2024)

KEYWORDS

Guillain-Barre syndrome (GBS), laparoscopic, peripheral nerve stimulator

ABSTRACT:

Guillain-Barre Syndrome (GBS) is a complicated degenerative neurological disorder which can be acute or chronic in nature. Aetiology remains unclear but pathophysiology includes demyelination of spinal nerve roots. The syndrome affects the nerves that control muscle movement as well as those that transmit pain, temperature and touch sensations resulting in muscle weakness, loss of sensation in the legs and arms, and difficulty in breathing and swallowing. The anaesthetic risk is increased in these patients due to autonomic dysfunction. Here is a case of a 54-year-old female with Guillain-Barre Syndrome (GBS) undergoing laparoscopic cholecystectomy under general anaesthesia with peripheral nerve stimulator monitoring and ultrasound-guided subcostal transverse abdominis plane (TAP) block was given for post-operative pain relief.

1. Introduction

Guillain-Barre Syndrome (GBS) is demyelinating polyneuropathy, which is acute in nature with an incidence of 0.6 to 4 cases per 100,000 persons per year [1]. It is a rare neurological disorder in which a person's immune system attacks part of their peripheral nervous system. The first symptoms of Guillain-Barre syndrome include weakness or tingling sensations. They usually start in the legs and can spread to the arms and face [2]. Ventilatory support may be required as respiratory muscles might be involved. Approximately 20% of patients are left with a chronic disability, while mortality rates range from 4% to 15% [4,5,6,7]. Seventy percent of the patients may have autonomic dysfunction multiplying the anaesthetic risk [3]. The following case is of a 54-year-old female suffering from GBS who underwent laparoscopic cholecystectomy.

2. Case Description

A 54-year-old female with a history of Guillain Barre Syndrome (GBS) was posted for laparoscopic cholecystectomy. She gives a history of sudden weakness and pain in both the lower limbs, unable to stand with recurrent respiratory infections following which she was diagnosed with Guillain Barre Syndrome (GBS). She was treated with intravenous immunoglobulins for 10 days following which her symptoms resolved. On examination presently she has

no significant symptoms other than weakness and mild numbness of the upper extremities. She has no neurological deficits. All the routine investigations and airway assessments were within the normal limits. She has been known to be hypertensive for three years on regular medications. The surgery was planned under general anaesthesia with a subcostal transverse abdominis plane block for postoperative pain relief. The patient was assessed under ASA 2. Written and informed consent regarding the procedure was taken. The patient was then shifted to the operating theatre and standard monitors were attached and peripheral vein with 18G venflon was secured on the right upper limb. The patient was preoxygenated with 100% O₂ followed by induction using an injection of Propofol 120mg, Injection Fentanyl 100 mcg was given for analgesia. Injection of Atracurium 30mg given following which Oral endotracheal intubation with tube of size 7.0 was done. Bilateral air entry was confirmed with capnography. Anaesthesia was maintained on 50% oxygen 50% nitrous oxide and sevoflurane with MAC 1.0. A peripheral nerve stimulator was used to optimize the dose of neuromuscular blockade and the injection of Atracurium 10 mg was repeated for muscle relaxation. A bilateral subcostal transverse abdominis plane block was given for postoperative analgesia. The ultrasound-guided block was performed with a linear probe placed in the midline of the abdomen 2cm below the xiphisternum and moved laterally along the subcostal



margin to the anterior axillary line. The transverse abdominis muscle was identified as lying beneath and extending laterally to the rectus abdominis muscle. A 22G spinal needle was inserted in plane to a point just inferior to the costal margin and tip between the transverse abdominis and internal oblique muscle. 20ml of 0.75% ropivacaine plus 10ml of 2% lignocaine with adrenaline plus 10ml of distilled water was taken (total 40ml) following aspiration 20ml was given on each side. The surgery went on for two hours and twenty minutes. The patient was extubated once the TOF ratio was more than 0.9 with reversal using injection neostigmine 3.25mg. After confirmation of adequate reversal and motor function, she was shifted to postoperative care with 4L/min O₂ flow via face mask.

3. Discussion

GBS is an acute monophasic demyelinating neuropathy. Recurrent respiratory and gastrointestinal infections lead to progressive motor weakness of limbs with areflexia, and sensory disturbances [8]. Studies have stated that almost one-third of patients require ventilator support for respiratory paralysis with about ten percent mortality. The course of the illness has been altered with the introduction of immunoglobulins and plasmapheresis[9]. Further ventilator support was inessential in this case.

There is no superior mode of anaesthesia in patients with GBS, general anaesthesia and regional both may be accomplished and each has its risks. Multiple reports suggest that the triggering factor in the aetiology of GBS may be surgical stress [10]. Though a rare entity in the postoperative period, it has been reported in various surgeries like pancreatectomy[11], cranial surgery[12], mandibular surgery[13], gastrectomy[14], spine surgery[15], transplant surgery[16] and total hip replacement surgery[4]. General anaesthesia and sedation might precipitate the process of peripheral radiculopathy[17]. Reports comply that GBS has a reemission due to surgery in 5-9% of adults[18]. Although studies suggest the probable role of anaesthetic medications or natural history of GBS, surgically induced immunosuppression can lead to progressive axonal degeneration, substantial evidence is unavailable. Hence, accurate planning and implementation are extremely important to ensure wellbeing of the patients undergoing surgery.

Reports suggest the effect of nondepolarising neuromuscular blockers may be prolonged in patients

with GBS, and hence anaesthetic drugs should be used with caution and in smaller doses[20]. Hence we used a peripheral nerve stimulator for administering the non-depolarizing muscle relaxant.

Post-surgical GBS has an unprecedented course and progresses more rapidly than in other situations, it is more severe and involves the respiratory muscles more commonly. The diagnosis must be swift and appropriate treatment should be given immediately, failing which the condition may worsen[19]. To reduce the postoperative pain subcostal TAP block was given.

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