Anaesthetic Management of Multiple Lipoma Excision in a Patient with Guillain–Barré Syndrome: A Case Report

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ABSTRACT

Background: Guillain–Barré syndrome (GBS) is an acute inflammatory demyelinating polyneuropathy affecting the peripheral nervous system, often associated with altered responses to neuromuscular blocking agents.

Case Presentation: We report the anaesthetic management of a 23-year-old male with a past history of GBS treated with immunoglobulin therapy, scheduled for multiple lipoma excision under general anaesthesia. Induction was performed using propofol and atracurium, followed by endotracheal intubation. Neuromuscular blockade was carefully titrated using train-of-four (TOF) monitoring throughout the procedure.

Management and Outcome: Anaesthesia was maintained with oxygen, nitrous oxide, isoflurane, and intermittent atracurium dosing. Adequate neuromuscular recovery was confirmed using TOF monitoring before reversal with neostigmine and glycopyrrolate. The patient recovered without residual neuromuscular blockade or complications.

Conclusion: Careful intraoperative neuromuscular monitoring allows safe administration of non-depolarizing muscle relaxants in patients with previous GBS, minimizing the risk of prolonged blockade.

Keywords: Guillain–Barré syndrome, neuromuscular monitoring, anaesthesia, TOF, atracurium

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Introduction

Guillain–Barré syndrome (GBS) is an acute immune-mediated disorder characterized by demyelination of peripheral nerves, resulting in progressive muscle weakness and possible respiratory compromise. Although recovery may occur, residual neuromuscular abnormalities can persist affecting anaesthetic management.

Patients with GBS are particularly sensitive to neuromuscular blocking agents. Depolarizing agents like succinylcholine are contraindicated due to the risk of hyperkalemia, while non-depolarizing agents may have prolonged effects. Hence, neuromuscular monitoring is essential.

This case report highlights the safe anaesthetic management of a patient with a history of GBS undergoing elective surgery.

Case Report

A 23-year-old male with a history of Guillain–Barré syndrome diagnosed two years prior, treated with intravenous immunoglobulin, presented for elective multiple lipoma excision. The patient had no residual motor deficits and normal neurological examination at the time of surgery.

Preoperative Assessment

- No muscle weakness or respiratory compromise
- Normal routine investigations
- ASA Physical Status: II

Anaesthetic Management

Patient was premedicated with Glycopyrrolate 0.005 mg/kg, Midazolam 0.05 mg/kg and Fentanyl 1–2 µg/kg. Induced with Propofol 100 mg, Atracurium 0.5 mg/kg and intubated with 8.0 mm endotracheal tube. Patient was maintained with Oxygen + Nitrous Oxide + Isoflurane and muscle relaxant atracurium 0.1 mg/kg (intermittent dosing). Patient was mechanically ventilated with volume-control mode (6-7 ml/kg). Intraoperatively Diclofenac 75 mg and Paracetamol 1gm given as analgesia, standard ASA monitoring and Neuromuscular monitoring was done using Train-of-Four (TOF). Patient was reversed from muscle relaxant with Glycopyrrolate 0.01 mg/kg and Neostigmine 0.05 mg/kg. TOF monitoring confirmed adequate recovery from neuro-muscular block before extubation.

Outcome

The patient was extubated successfully with no signs of residual neuromuscular blockade and had an uneventful postoperative recovery

Discussion

GBS patients pose significant anaesthetic challenges due to altered neuromuscular physiology. Denervation leads to upregulation of acetylcholine receptors, increasing sensitivity to both depolarizing and non-depolarizing muscle relaxants.

- **Succinylcholine** is contraindicated due to risk of severe hyperkalemia
- **Non-depolarizing agents** may show prolonged duration of action
- **Autonomic instability** may also occur in some patients

In this case, atracurium was used cautiously with real-time TOF monitoring, allowing titration of doses and preventing prolonged neuromuscular blockade.

The absence of residual neurological deficits in this patient likely contributed to the stable perioperative course. However, objective neuromuscular monitoring

remains crucial regardless of apparent recovery.

Conclusion

Patients with a history of Guillain–Barré syndrome can safely undergo general anaesthesia with non-depolarizing muscle relaxants when guided by neuromuscular monitoring. TOF monitoring plays a key role in preventing residual blockade and ensuring safe recovery.

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