

# Anesthetic Management of Thymectomy in a patient with Thymoma with Myasthenia Gravis - A Case Report

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**Abstract:** A 32 - year - old male with MG was scheduled for thymectomy. General anesthesia was induced and maintained with mainly propofol, fentanyl and midazolam. We administered the minimum necessary dose of atracurium while closely monitoring the train - of - four (TOF) response when a neuromuscular relaxant was required. Patient was extubated after 6 hrs of ventilation post - surgery. Postoperative analgesia was performed by a continuous thoracic epidural infusion of bupivacaine and tramadol.

**Keywords:** TOF - Train of Four, MG - Myasthenia Gravis, TIVA - Total intravenous anesthesia, TEA - Thoracic epidural anesthesia, AChR - Anti - acetylcholine receptor, NMBD - Neuromuscular blocking drugs

## Patient Description

A 32 - year - old male with MG was scheduled for thymectomy. He came with complaint of breathlessness, known case of MG and was on pyridostigmine 60mg 8 hourly, with past history of swallowing.

Computerized tomography (CT) scan revealed heterogenous mildly enhanced soft tissue density lesion of size 7x6.1x9.7cms (anterior mediastinal mass).

## Physical examination results

CT guided Fine needle aspiration cytology was suggestive of malignant thymoma. Patient was posted for surgery. General anesthesia was induced and maintained with mainly propofol, fentanyl and midazolam. We administered the minimum necessary dose of atracurium while closely monitoring the train - of - four (TOF) response when a neuromuscular relaxant was required. During the surgery heart rate was maintained between 68 - 92 beats/minute, Blood Pressure decreased to 92/60 mm Hg for about 20 minutes after the initial dose of 0.5% epidural bupivacaine was given, further during the procedure BP remained between 104 - 130/58 - 72 mm Hg. Patient was extubated after 6 hrs of ventilation post - surgery. Postoperative analgesia was performed by a continuous thoracic epidural infusion of bupivacaine and tramadol.

## Results of Pathological test and other investigations:

Catherine Chevalley and colleagues conducted a retrospective study involving 36 myasthenia gravis (MG) patients who underwent thymectomy. They found that postoperative ventilatory support was more often required when muscle relaxants were administered during surgery. Conversely, a higher rate of early extubation was observed when a combination of thoracic epidural anesthesia and general anesthesia with IV propofol technique was employed, highlighting the impact of anesthesia choices on post - thymectomy outcomes in MG patients.

## Treatment Plan:

Use of techniques for thymectomy avoiding use of Neuromuscular blocking drugs (NMBD) is recommended. Individuals with some types of neuromuscular disorders are known to be markedly sensitive to non - depolarizing NMBAs Myasthenia gravis (MG) is an autoimmune disorder and

neuromuscular junction disease characterized by muscle weakness. Anti - acetylcholine receptor (AChR) antibodies are detected in the most individuals who have MG. In addition myasthenia crisis after thymectomy is a life - threatening complication. The presence of AChR antibodies in individuals with myasthenia gravis leads to a further classification into two categories known as 'early - onset' and 'late - onset' myasthenia gravis. Among them, "early - onset myasthenia gravis with AChR antibodies" and "thymoma - associated myasthenia gravis" can profit from surgical treatment. There are no standard anesthetic management guidelines for MG.

## Expected outcome:

We reported the anesthetic management of a patient with MG who underwent a thymectomy. Rapid recovery and effective postoperative analgesia lead to early restoration of spontaneous ventilation and extubation within few minutes of completing the surgical procedure. Thoracic epidural anesthesia (TEA) and Total intravenous anesthesia (TIVA) technique can be used successfully for myasthenic patient undergoing transsternal thymectomy. Further research is necessary to clarify MG patient's sensitivity to atracurium.

## Conclusion

We reported the Anesthesia Management of a patient with MG who underwent thymectomy under general anesthesia with use of NMBD and TEA. Further research is necessary to clarify MG patient sensitivity to atracurium.