

Thoracoscopic Thymectomy for Myasthenia Gravis: A Case Report

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Abstract

Total thymectomy combined with medical therapy is currently the most effective therapeutic strategy for patients with myasthenia gravis. The standard approach for total thymectomy is that of a median sternotomy. Other approaches include the cervical approach and partial sternotomy. We report a patient who underwent video-assisted thoracoscopic thymectomy at our institution. There was no postoperative complications and the patient was discharged on the fifth postoperative day. Video-assisted thoracoscopic thymectomy has proved to be an effective surgical therapy for the treatment of myasthenia gravis. The long-term outcome awaits close follow-up of the patients operated using this technique.

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Key words: Thymectomy, Video-assisted thoracoscopic surgery

Introduction

Total thymectomy is the established surgical therapeutic method for generalised myasthenia gravis. Several approaches are used for the surgical removal of the thymus and these include the transcervical approach, partial sternotomy, median sternotomy and a combination of the transsternal and transcervical approaches.^{1,2} All of these procedures have demonstrated excellent results in the resection of the thymus. More recently video-assisted thoracoscopic (VAT) thymectomy has been advocated as a less invasive technique.^{3,4} We describe a patient with generalised myasthenia gravis who underwent elective VAT thymectomy.

Case Report

A 31-year-old Indian woman presented with myasthenia gravis. Her major complaints were frequent muscular weakness and easy fatigability due to a strongly positive decremental response. She was diplopic on upgaze and had mild dysphagia. She also had fatiguable ptosis. Her anti-acetylcholine receptor antibody assay was 34.83 nmol/L (normal range 0.4 nmol/L). Chest X-ray showed no mediastinal lymphadenopathy or widening, whilst computed tomographic scan showed that there was no thymoma. In view of her symptoms and her high antibody titre, the patient was listed for elective thymectomy. The patient underwent two cycles

of plasmapheresis prior to surgery. Elective VATS thymectomy was carried out in April 1997.

The VATS procedure was performed with the patient under general anaesthesia using a double-lumen tube to effect right lung collapse. She was placed at a 30° angle from the horizontal by a roll placed under the back on the right side. The right-sided approach was used and three 10-mm incisions were made on the infra-axillary area where the chest was to be entered (Fig. 1). A 30° telescope was placed through the middle incision and the grasping instrument and scissors through the lateral ones. With the use of the standard endoscopic instruments including a tissue-grasping forceps and endoscopic scissors, the dissection began at the thymic gland just anterior to the phrenic nerve (Fig. 2). Dissection was facilitated by gentle traction and electrocautery. All anterior mediastinal tissue was teased off the pericardium. With continued traction the right lobe of the thymic gland was dissected from the retrosternal area. The innominate vein and the thymic branches entering the innominate were identified and divided between endoscopic clips. The left lobe of the thymic gland was dissected off the contralateral pleura by the use of a blunt dissection so that the contralateral nerve would not be injured. A fan retractor was then used to retract the bulk of tissue out of the way and the dissection was carried out cephalad to the innominate vein until the superior

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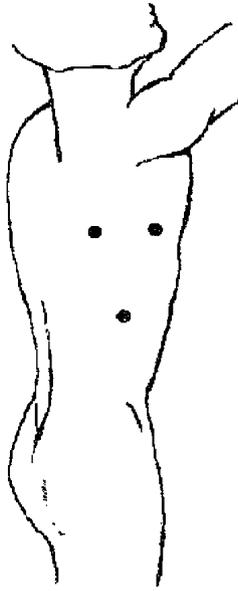


Fig. 1. Three standard thoracoscopic port access sites.

horns of the thymic gland were identified. The fascial attachments of the thymic gland to the inferior portion of the thyroid gland were divided. After the dissection, both lobes of the thymic gland were removed through an anterior trocar site. Histopathological examination of the tissue confirmed thymic follicular hyperplasia associated with myasthenia gravis.

The postoperative course was uneventful. She stayed in the intensive care unit for one day and was discharged on the fifth postoperative day without any complications. When reviewed in the outpatient clinic a month later she was found to be well.

Discussion

Myasthenia gravis is an autoimmune disease in which the body's antibodies attack and injure the acetylcholine receptors (AChRs) at the neuromuscular junction of the skeletal muscles, causing episodic weakness of these muscles. The common surgical approaches towards myasthenia gravis include the transcervical, the median sternotomy, with or without a transverse cervical extension and partial sternotomy. Masaoka et al⁵ and Mulder⁶ have described their techniques of extended thymectomy in which the en bloc resection of the anterior mediastinal adipose tissue including the thymus was carried out through a median sternotomy approach and a transsternal approach respectively. Both reports have shown good results with no mortality reported. However these sternal techniques often involve greater postoperative morbidity. Some institutions advocate the cervical and the modified transcervical techniques as they enable satisfactory visualisation and less morbidity. However the best therapeutic method remains con-

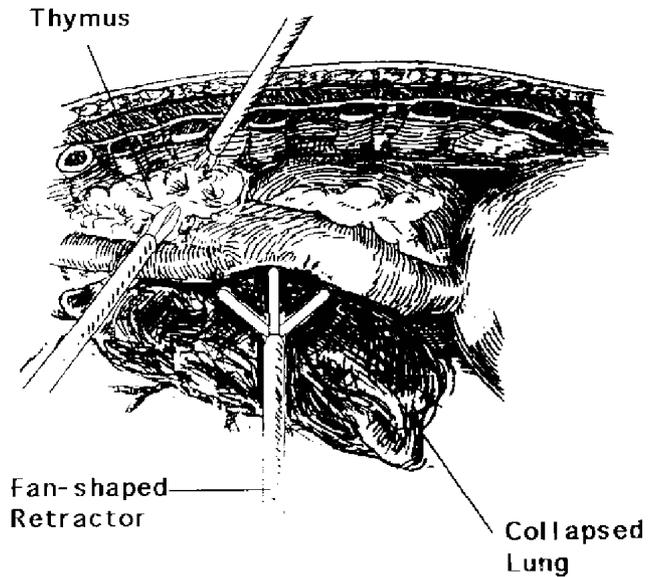


Fig. 2. Right side of the mediastinum as seen through the videoendoscope showing the thymus being dissected.

troversial and no consensus has been made regarding the optimal surgical approach for thymectomy.

The recent use of video-assisted thoracoscopic surgery (VATS) has provided a new approach to the surgical removal of the thymic gland. It has been widely utilised in various diagnostic and therapeutic procedures such as the treatment of pleural effusions, lung biopsy, staging of tumours and the evacuation of loculated haemothorax.⁷ Thymectomy via VATS is a new approach to the management of myasthenia gravis and also as an alternative to conventional transsternal approach for patients with myasthenia gravis undergoing thymectomy. This technique offers several advantages as patients who undergo this procedure experience less postoperative morbidity and minimal discomfort. There is a rapid functional recovery manifested by shorter postoperative hospital stays, thus reducing the hospitalisation cost. Thoracoscopic thymectomy offers excellent cosmetic healing compared to sternotomy as no midline scar remains. The patient also experiences minimal chest-wall trauma during the operation. We believe that a complete resection is necessary to achieve total remission of the symptoms. In addition, the use of a video camera allows not only the surgeons and the assistants to visualise the anatomy but also the nursing and the anaesthetic staff to appreciate the progress of the operation.

We conclude that VAT thymectomy is an effective alternative to other procedures for myasthenia gravis due to its less invasive nature and superior cosmesis. Although it is a technically feasible procedure, further studies are however required to confirm its long-term efficacy and to clarify its future role in thoracic surgery.

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