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Original article

Comparative Analysis of Video-assisted Thoracic Surgery Versus Open Resection for Early-stage Thymoma☆,☆☆

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ABSTRACT

Background: Video-assisted thoracic surgery (VATS) has significantly developed over the last decade. However, a VATS approach for thymoma remains controversial. The aim of this study was to evaluate the feasibility of VATS thymectomy for the treatment of early-stage thymoma and to compare the outcomes with open resection.

Methods: A comparative study of 59 patients who underwent surgical resection for early stage thymoma (VATS: 44 and open resection: 15) between 1993 and 2011 was performed. Data of patient characteristics, morbidity, mortality, length of hospital stay, the relationship between miasthenia gravis-thymoma, recurrence, and survival were collected for statistical analysis.

Results: Thymomas were classified according to Masaoka staging system: 38 in stage I (VATS group: 29 and open group: 9) and 21 in stage II (VATS group: 15 and open group: 6). The mean tumor size in the open group was 7.6 cm (13–4 cm) and in the VATS group 6.9 cm (12–2.5 cm). The average length of stay was shorter in the VATS group than in the open group ($P<.001$). No significant differences were found in the estimated recurrence-free and overall 5-year survival rates (96% vs 100%) between the 2 groups.

Conclusions: VATS thymectomy for early-stage thymoma is technically feasible and is associated with a shorter hospital stay. The 5-year oncological outcomes were similar in the open and VATS groups.

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Análisis comparativo del abordaje para el tratamiento del timoma estadio I-II: VATS versus abordaje convencional

Palabras clave:
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Timectomía
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RESUMEN

Introducción: La cirugía torácica video-asistida (VATS) es una técnica que ha evolucionado en las últimas décadas. A pesar de sus ventajas, este abordaje continúa siendo discutido para el tratamiento de los timomas. El objetivo de este estudio fue evaluar los resultados obtenidos por el abordaje convencional y la VATS para el tratamiento de timomas en estadio I-II.
Métodos: Estudio comparativo en 59 pacientes a los que se les realizó una timectomía por timoma en estadio I-II (VATS: 44 y cirugía convencional: 15) entre los años 1993 y 2011. Se analizaron las siguientes variables: características de los pacientes en ambos grupos, morbilidad, mortalidad, estancia hospitalaria, la relación miastenia gravis-timoma, recidiva y supervivencia a los 5 años.
Resultados: Los timomas se clasificaron según la clasificación de Masaoka: 38 en la etapa I (grupo VATS: 29 y grupo convencional: 9) y 21 en la etapa II (grupo VATS: 15 y grupo convencional: 6). El tamaño medio del tumor en el grupo convencional fue de 7,6 cm (13-4 cm) y en el grupo VATS 6,9 cm (12-2,5 cm). La duración media de la estancia hospitalaria fue más corta en el grupo VATS que en el grupo de cirugía convencional ($p < 0,001$). No se encontraron diferencias significativas entre los 2 grupos, en las recidivas ni en la supervivencia a los 5 años (96% vs 100%).
Conclusión: La timectomía mediante VATS es una técnica factible y segura en el tratamiento de timomas estadio I-II. Se asocia a una menor estancia hospitalaria y a unos resultados oncológicos a los 5 años similares a los de la cirugía convencional. Los resultados oncológicos con un seguimiento de 5 años fueron similares a los obtenidos por la cirugía convencional.

Introduction

Thymoma is the most common tumor of the anterior mediastinum, although it is a relatively rare disease. Recent studies have estimated an incidence in the United States of 0.15 per 100 000 person-years.[1] Thymomas are characterized as slow-growing tumors that spread by local extension. Local recurrence (pleura, diaphragm, pericardium) and metastases are highly uncommon, but have been reported in all stages and all histological subtypes of the disease.[2,3] Surgical resection is the best available treatment and has been considered the most important determining factor for long-term survival.[4,5]

A review of the literature provides the description of a number of surgical approaches for thymectomy to treat thymoma. Although total thymectomy via median sternotomy is the standard approach, a number of reports support the feasibility of using video-assisted thoracic surgery (VATS) to perform thymectomy for the treatment of early-stage thymoma (stages I and II). Unfortunately, in the literature, there are no published series comparing the long-term results of a laparoscopic approach with those of open surgery. As a consequence, the approach to thymoma using VATS continues to be controversial. The objectives of the present study were to determine the feasibility of VATS thymectomy for the treatment of early-stage thymoma and compare the long-term results of a minimally invasive intervention (VATS) with those obtained after resection with open surgery.

Methods

Between January 1993 and December 2011, a total of 59 patients with a diagnosis of stage I–II thymoma was treated surgically: 44 by VATS thymectomy and 15 by open surgical resection. We retrospectively reviewed our experience with thymectomy for the treatment of stage I–II thymoma up to January 2007. Thus, all the patients studied had a minimum follow-up period of 5 years. We identified a total of 38 patients who had undergone thymectomy for stage I–II thymoma during this time period.

Patient Characteristics

Of the 38 patients, 21 had stage I thymoma and 17stage II; there were 15 women and 23 men. The mean age was 53.5±15.5 years in the open surgery group and 59.1±15.7 years in the VATS group. The median sizes were 6 cm and 7 cm, respectively. Twelve patients had myasthenia gravis (MG).

Surgical Technique: Video-assisted Thoracic Surgery Approach

Under general anesthesia with selective intubation, the patient was placed in left lateral semidecubitus position (30°). At the start of the intervention, transitory carbon dioxide insufflation at pressures of 5–8 mmHg was used to facilitate rapid and complete lung collapse. In the first 3 procedures, a left transthoracic approach was utilized. However, the