



Original article

Influence of the Type of Thoracic Access on Postesophagectomy Respiratory Complications[☆]

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A B S T R A C T

Introduction: A systematic review of the literature was performed with the aim to determine differences in the rate of respiratory complications after esophagectomy for esophageal cancer using minimally invasive access vs traditional thoracic access.

Methods: A literature search was performed using Medline and Cochrane Library, identifying studies that compared the 2 types of thoracic access, regardless of the type of abdominal access (laparotomy/laparoscopy). The studies selected described respiratory complications in absolute numbers and different categories. Studies that considered minithoracotomy as a minimally invasive technique were excluded. Inclusion criteria were studies describing the different types of respiratory complications (9 in total), and analysing the most common complications: respiratory infection, respiratory failure and pleural effusion.

Results: Nine studies were selected (one prospective randomised trial and 8 case control studies) including 1190 patients, 1167 of whom were operated on for esophageal cancer: 482 patients by thoracotomy and 708 by thoracoscopy. Three studies included definitions of respiratory complications, and one stratified them. The more frequent complications that allowed a meta-analysis were respiratory infections, pleural effusion, and respiratory failure. No significant differences were found between the 2 types of access in the global analysis.

Discussion: The type of thoracic access (thoracotomy or thoracoscopy) does not seem to influence the development of respiratory complications after esophagectomy for cancer. However, the design of the studies analysed, the absence of clear definitions and stratification of the complications make this conclusion questionable. A consensus on the definition of complications and further prospective randomised clinical trials are necessary.

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La influencia del tipo de abordaje torácico sobre el desarrollo de complicaciones respiratorias tras la esofagectomía

RESUMEN

Palabras clave:

Complicaciones respiratorias
Cirugía mínimamente invasiva
Toracoscopia
Esofagectomía
Derrame pleural
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Introducción: Revisión sistemática de la literatura con el objetivo de determinar diferencias entre el abordaje torácico mínimamente invasivo y por toracotomía tradicional para la esofagectomía por cáncer de esófago, en términos de complicaciones respiratorias.

Métodos: La búsqueda se ha realizado a través de las bases de datos Medline y Cochrane Library, identificando los estudios que comparaban las 2 variantes técnicas mencionadas, independientemente del tipo de abordaje a nivel abdominal (laparotomía/laparoscopia). Se seleccionaron aquellos estudios que describían las complicaciones respiratorias desglosadas por categorías y en datos absolutos. Se excluyeron los estudios en que se consideraba la minitoracotomía en el grupo de abordaje torácico mínimamente invasivo. Los criterios de selección fueron: consideramos los estudios en los que se describieron las complicaciones respiratorias desglosadas (9 en total) y analizamos las complicaciones más frecuentes (infecciones respiratorias, insuficiencia respiratoria y derrame pleural).

Resultados: Seleccionamos 9 estudios (un ensayo clínico prospectivo y aleatorizado, y 8 estudios de casos y controles) totalizando 1.190 pacientes, de los cuales 1.167 fueron intervenidos por cáncer de esófago, 482 pacientes por toracotomía y 708 por toracoscopia. En 3 estudios se encontraron definiciones de las infecciones respiratorias y la estratificación por gravedad de las complicaciones descritas se encontró en un estudio. Las complicaciones más frecuentes y que permitieron realizar un metaanálisis fueron: las infecciones respiratorias, el derrame pleural y la insuficiencia respiratoria. No se identificaron diferencias estadísticas significativas entre los 2 abordajes en el análisis global en cuanto a la tasa de complicaciones respiratorias mencionadas.

Discusión: El tipo de abordaje torácico (toracotomía o toracoscopia) no parece influir de forma significativa en el desarrollo de complicaciones respiratorias postesofagectomía por cáncer. Sin embargo, el diseño de los estudios analizados, los criterios de definición heterogéneos y la ausencia de una estratificación adecuada de las complicaciones hacen cuestionable esta constatación. Se necesitan más ensayos clínicos prospectivos y aleatorizados y un consenso en cuanto a la forma de definir las complicaciones respiratorias postoperatorias postesofagectomía.

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Introduction

Esophagectomies to treat malignancy are one of the most complex interventions in digestive surgery. This procedure is associated with a high complication rate, and respiratory complications rank first with regard to frequency and severity. These complications are usually reported in 40%–50% of cases,¹ but the actual incidence varies significantly depending on the entities included in this category and the criteria used to define them. The minimally invasive approach, which is a possible key factor in reducing these complications, has gradually been incorporated within the armamentarium of oesophageal surgery. However, this incorporation has occurred more slowly compared with other areas of surgery due to the technical complexities of the procedures involved.

The assessment of the effects of the type of surgical approach on clinical outcomes is based on experience with patient series in which different minimally invasive surgery methods (i.e., thoraco-laparoscopy or hybrid procedures) are compared with either transthoracic or open transhiatal

esophagectomy. Based on these studies, systematic reviews (SRs) have been published that highlight the benefits of the endoscopic approach (e.g., reducing blood loss and hospital stays) without showing the differences related to oncological resection criteria. One SR² described a trend towards fewer respiratory complications when using minimally invasive techniques, whereas three other SRs^{3–5} did not find differences when compared with open procedures. However, none of the studies included in these analyses were designed to evaluate the effect of surgical techniques on respiratory complications. A recent retrospective study⁶ addressed this issue and found a trend towards the decreased incidence of respiratory complications in a minimally invasive surgery group.

Objectives

The objective of this study was to evaluate if there are differences in the incidence of respiratory complications between the minimally invasive thoracic approach and traditional thoracotomies for esophagectomies used to treat patients with oesophageal cancer.

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