In patients with corrosive oesophageal stricture for surgery, is oesophagectomy rather than bypass necessary to reduce the risk of oesophageal malignancy?

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Abstract

A best evidence topic in cardiothoracic surgery was written according to a structured protocol. The question addressed was, ‘is there an increased risk of cancer in a non-resected corrosive oesophageal stricture?’ Altogether, 133 papers were found using the reported search; six papers were identified that provided the best evidence to answer the question. The authors, journal, date and country of publication, patient group studied, study type, relevant outcomes and results of these studies were tabulated. From the studies, 198 consecutive patients had corrosive oesophageal stricture resulting from corrosive oesophageal injury, 50 of whom (25.3%) developed oesophageal cancer. The interval between the burn and the diagnosis of scar carcinoma was 46.1 years and ranged between 25 and 58 years. The incidence of carcinoma of the oesophagus among patients from the study was significantly higher than that of the general population. In one review, seven (13%) of 54 consecutive patients treated by conservative means for caustic oesophageal stricture (COS) developed oesophageal cancer, leading to the conclusion that simultaneous resection of the oesophagus with reconstruction for such patients would provide a better probability of being completely cured of the disease. Furthermore, in patients with COS in need of operation who had a bypass procedure, it was pointed out that malignancy may develop even years after the bypass operation in the remaining part of the oesophagus and so total oesophagectomy was suggested instead of bypass. In another study, as many as 10 (31.3%) of 32 patients with corrosive oesophageal stricture developed cancer. That gave further credence to the arguments against conservative treatment or bypassing of corrosive oesophageal strictures. The risk of morbidity for intrathoracic oesophageal replacement in uncomplicated cases was 2.4%. There were basically two things that were agreed from the studies: that corrosive-induced carcinoma can occur with a reasonably high incidence if part or all of the oesophagus was left during reconstructive surgery; and that simultaneous resection of the oesophagus at the time of reconstruction for a patient with corrosive stricture offered a better outcome. The limitations of the present review were the lack of randomized controlled trials and no close follow-up.

Keywords: Oesophagectomy • Oesophageal bypass surgery • Corrosive oesophageal stricture • Corrosive-induced carcinoma

INTRODUCTION

A best evidence topic was constructed according to a structured protocol. This protocol is fully described in ICVTS [1].

Three-part question

In [patients who suffer a corrosive oesophageal stricture] would [oesophageal resection] compared with [conservative treatment] result in the [lowest chance of mortality from cancer].

Clinical scenario

While operating on a patient with corrosive oesophageal stricture that was not amenable to a previous series of bouginage, a colleague pointed out that it will be safer to remove the native oesophagus, because bypassing it alone could lead to corrosive-induced carcinoma. You quickly shrug this off as being a mere myth because you have not seen any cases in your practice, but on second thought you resort to confirming this through literature search.

Search strategy

The literature search was done by MEDLINE from 1966 through January 2012 using the PubMed interface, as follows: (‘caustics’ [MeSH Terms] OR ‘caustics’ [All Fields] OR ‘corrosive’ [All Fields]) AND (‘oesophageal stricture’ [All Fields] OR ‘oesophageal stenosis’ [MeSH Terms]) OR (‘oesophageal’ [All Fields] AND ‘stenosis’ [All Fields]) OR (‘oesophageal stenosis’ [All Fields] OR...
Search outcome

One hundred and thirty-three papers were found using the reported search. From these, six papers were identified that provided the best evidence to answer the question. The results are tabulated in Table 1.

Table 1: Best evidence papers

<table>
<thead>
<tr>
<th>Author (date), journal, country Study type (level of evidence)</th>
<th>Patient group</th>
<th>Key results</th>
<th>Outcomes</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kim et al. (2001), Eur J Cardiothorac Surg, South Korea [2] Retrospective study (level 4 evidence)</td>
<td>54 consecutive patients with COS</td>
<td>The patients were followed up for 12 years</td>
<td>Seven patients developed oesophageal cancer</td>
<td>Simultaneous oesophagectomy for patients with COS provides a better chance of being completely cured of the disease</td>
</tr>
<tr>
<td>Ti (1983), Br J Surg, Malaysia, Singapore [3] Retrospective study (level 4 evidence)</td>
<td>49 patients treated over a 10-year period for dysphagia from corrosive injury</td>
<td>10-year treatment period</td>
<td>Six patients developed oesophageal squamous cell carcinoma</td>
<td>Follow-up</td>
</tr>
<tr>
<td>Hopkins and Postlethwaite (1981), Ann Surg, USA [4] Retrospective study (level 4 evidence)</td>
<td>846 patients with squamous cell carcinoma of the oesophagus</td>
<td>The average age was 52.8 years; the interval from injury to development of carcinoma was 45.8 years</td>
<td>12 patients had a history of caustic oesophageal injury</td>
<td>Other patients with oesophageal cancer</td>
</tr>
<tr>
<td>Imre and Kopp (1972), Thorax, Hungary [5] Retrospective study (level 4 evidence)</td>
<td>32 patients with late complications after a corrosive burn of the oesophagus</td>
<td>Long-term conservative treatment</td>
<td>Cancer developed in 10 patients with corrosive stricture</td>
<td>Arguments against long-term conservative treatment of COS. Other complications assessed</td>
</tr>
<tr>
<td>Csikos et al. (1985), Langenbecks Arch Chir, Hungary [6] Retrospective study (level 4 evidence)</td>
<td>36 patients were treated for COS</td>
<td>The interval between caustic burn and development of scar carcinoma</td>
<td>46.1 years</td>
<td>Total oesophagectomy was suggested instead of bypass</td>
</tr>
<tr>
<td>Isolauri and Markkula (1989), Acta Chir Scand, Finland [7] Retrospective study (level 4 evidence)</td>
<td>15 cases of carcinoma of the oesophagus associated with a history of corrosive ingestion</td>
<td>The mean age was 57 years</td>
<td>High risk of carcinoma in patients with corrosion injury</td>
<td>Identification of time of injury</td>
</tr>
</tbody>
</table>

COS: caustic stricture of the oesophagus.


RESULTS

Kim et al. [2] provided a retrospective review of 54 consecutive patients treated for caustic oesophageal stricture (COS), seven of whom had oesophageal cancer. They concluded that as a result of the high incidence of cicatricial carcinoma from the strictures, simultaneous resection of the oesophagus at the time of reconstruction in patients with COS offered a better outcome.

Ti [3] conducted a retrospective review of six patients who had corrosive oesophageal injury in late adolescence and developed oesophageal carcinoma. The association between corrosion and carcinoma was probably causal in five patients who developed oesophageal cancer 25–50 years after corrosive injury and coincidental in one patient with a recent history of corrosive ingestion. They concluded that oesophageal resection during reconstructive surgery for severe corrosive oesophageal stricture would have a preventive role in corrosive-induced carcinoma.

Hopkins and Postlethwaite [4] obtained a history of caustic injury in 12 of 846 patients (1.4%) with carcinoma of the oesophagus. The average age of the patients was 52.8 years; the interval from injury to development of carcinoma was 45.8 years.

Imre and Kopp [5] reported that 10 of 32 patients with corrosive oesophageal stricture developed cancer, while the remainder had peptic stricture, fistulae and mediastinal abscesses. These findings presented arguments against long-term conservative treatment of corrosive oesophageal strictures. Early operation gives final relief from dysphagia and prevents late complications. The risk of morbidity for intrathoracic oesophageal replacement with a segment of bowel/colon or jejunum in uncomplicated cases was 2.4% in this series of 42 cases.

Csíkos et al. [6] found that the number of patients with corrosive-induced carcinoma of the oesophagus was on the rise. Thirty-three patients with this condition were treated surgically during a 20-year period. In patients with COS in need of operation, both a bypass procedure and a resection can be performed, but it should be pointed out that malignancy may develop even years after the operation in the remaining part of the oesophagus. Total oesophagectomy is therefore suggested instead of bypass.

Isolauri and Markkula [7] reported 15 cases of carcinoma of the oesophagus associated with ingestion of corrosive substances, which comprised 3% of the total number of patients treated for oesophageal carcinoma. The mean age from the study was 57 years and the average time from corrosion injury to diagnosis of carcinoma was 47–58 years. As a result of the high risk of carcinoma, it was suggested that patients with corrosion oesophageal injury should be kept under surveillance that included regularly repeated oesophagoscopy, cytological study of washings and biopsy, at least when the time from the injury exceeds 20 years.

CLINICAL BOTTOM LINE

The result of corrosive-induced oesophageal carcinoma is high, because it can occur in 31.3% of patients with oesophageal corrosive injury with attendant morbidity and mortality. It does not spare the remaining normal portion of the oesophagus; hence, there is a need for total oesophagectomy instead of bypass during reconstruction. The limitations of the present study include the lack of randomized controlled trials and lack of close follow-up.

Conflict of interest: none declared.

REFERENCES