Case Report

Esophageal exclusion and bypass for corrosive injury: The lessons learnt

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ABSTRACT

While it is always preferable to excise and replace the diseased esophagus in corrosive injuries, the surgeon may be compelled to exclude and bypass it by a substernal conduit in select situations wherein excision is technically hazardous. This case illustrates the lessons learnt from a potentially life-threatening complication of bipolar esophageal exclusion.

KEY WORDS: Corrosive injury esophagus, esophageal bypass, esophageal exclusion, esophageal mucocele

INTRODUCTION

Esophageal replacement or bypass following corrosive injuries is indicated for non-dilatable recalcitrant strictures and complications like esophageal perforation or tracheo-esophageal fistula. While esophageal excision and replacement is always preferable, the surgeon may be compelled to retain the native oesophagus in situ and bypass it by a substernal conduit in select situations wherein excision is technically hazardous.¹⁻⁴ The appropriateness of esophageal exclusion and bypass has been debated in the literature. This case illustrates the lessons learnt from a rarely reported but, potentially life-threatening complication of bipolar surgical exclusion of esophagus in a child with corrosive stricture.

CASE REPORT

A 3-year-old boy underwent emergency end cervical esophagostomy, decompressive gastrostomy and feeding jejunostomy following esophageal perforation sustained during esophageal dilatation for corrosive stricture. Three months later, a substernal gastric pull up was performed, the native oesophagus being retained in situ with both ends divided and suture closed. Excision of the diseased native oesophagus was not attempted on account of prior mediastinitis in the setting of corrosive esophageal stricture. One year following the substernal gastric pull up, the boy presented with a 4-weeks history of repeated episodes of fever, tachypnea and an expiratory stridor on physical exercise or crying. An upper gastrointestinal endoscopy and barium swallow did not reveal any anastomotic stricture or delayed gastric emptying which could predispose to recurrent pulmonary aspiration. Subsequent contrast-enhanced computed tomography (CECT) scan of the chest revealed a size 3 × 11 cms. posterior mediastinal cystic structure causing anterior and lateral displacement of the trachea with compression of its lumen [Figures 1 and 2]. A diagnosis of mediastinal mucocele of the retained native oesophagus was made. The mucocele was excised by a right posterolateral thoracotomy. Operative findings revealed a thick walled, tense, mucocele containing frankly purulent fluid and an

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DISCUSSION

To excise or to bypass the diseased esophagus in corrosive injuries has been debated in the literature. While it is always preferable to excise the diseased oesophagus, excision may be technically unsafe in select situations such as prior perforation, mediastinitis, dense adhesions around the carina or tracheo-esophageal fistula.\[1-4\]

Satisfactory long-term results following esophageal exclusion and substernal bypass for corrosive injuries has been reported.\[1,2\] It is believed that prior corrosive injury renders esophageal mucosa atrophic and non-secretory, thereby, preventing mucocele formation. Hence, a symptomatic mucocele has been reported more often following bipolar esophageal exclusion for achalasia cardia or congenital esophageal atresia.\[1,3-5\]

Complications pertaining to bipolar esophageal exclusion fall into two groups: i) those related to mucocele formation\[3-5\] ii) malignant transformation.\[6\]

Though radiological demonstration of mucoceles is not infrequent, most remain small and asymptomatic.\[1,3,7\] Presumably, the ultimate size is limited by increased intraluminal pressure resulting in atrophy of submucosal glands.\[10\] However, mucoceles may manifest symptoms 10 years following oesophageal exclusion.\[8\]

The mucocele-related complications are: i) symptomatic tracheal compression as in our case\[3-5,9\] ii) an infected mucocele may cause recurrent fever\[8\] or fistulise into the tracheobronchial tree\[3,4\] iv) upper end blow out presenting as neck abscess or fistulae\[3,4,9\] v) lower end blow out with consequent intra-abdominal abscess.\[1,7-8\]

In the presence of a high index of clinical suspicion, the diagnosis is substantiated by an X-ray Chest, contrast-enhanced computed tomography chest or magnetic resonance imaging.\[4,10\]

The definitive treatment of a symptomatic mucocele is excision via a thoracotomy. This may be a technically challenging procedure\[3-5,8\] which in our case was related to: A grossly infected and ulcerated mucocele with significant peri-mucocele inflammation, a prior esophageal perforation and mediastinitis and an underlying corrosive stricture. The post-operative management issues were related to compromised preoperative nutrition and respiratory function. Should total excision of a mucocele be technically hazardous, a subtotal excision may be performed wherein a remnant of the wall adherent to the posterior mediastinal structures is left “in situ” followed by mucosectomy or mucosal ablation. A temporizing external drainage procedure maybe done for grossly infected mucoceles.\[5,6\]
This case is of clinical relevance because it highlights that potentially life-threatening complications of mucocele, though rare, can occur following bipolar esophageal exclusion for corrosive injuries though it is conventionally believed that prior mucosal destruction and cicatrization in corrosive injuries prevents mucocele formation. Bipolar esophageal exclusions should be discouraged. Should an esophageal bypass be necessitated in very select situations, a useful alternative is to drain the lower end of the retained native esophagus into a jejunal Roux-en-Y loop to prevent mucocele formation if the stomach is used as bypass conduit.\[^{[1]}\] This approach was adopted in subsequent two children operated under a similar clinical scenario by the authors. Alternatively, the gastroesophageal continuity should be preserved and the colon be used as the bypass conduit.

REFERENCES