Cricopharyngeal Myotomy for Cervical Dysphagia

Introduction
Dysphagia, particularly at the pharyngeal level, is complex in its aetiology and may either be primary, related to intrinsic disorders of the cricopharyngeus muscle, or secondary to neurological disorders, such as polio or cerebrovascular accidents[1]. Symptoms are usually related to misdirection of the bolus during and after deglutition[2]. In patients with radiological evidence of cricopharyngeal dysfunction leading to hesitation of bolus passage, division of the muscle fibres via a cricopharyngeal myotomy (CPM) can provide direct therapeutic relief.

Preparation
Preoperatively, the patient must be warned about the possible complications of CPM (Table 1). The loosened oesophageal inlet is more likely to reflux proximally leading to a risk of aspiration, particularly in the immediate postoperative period, and subsequent pneumonia. Other complications include perforation of the oesophagus and/or pharynx, salivary fistula, haematoma formation, recurrent laryngeal nerve injury, wound infection and continuing poor nutrition (Table 1). Whilst both sides can be approached for the procedure, the left side is preferable in the first instance as there is less risk to the recurrent laryngeal nerve as this runs in the tracheo-oesophageal groove and is naturally protected from injury. The right side is reserved for revision CPM in patients with continuing symptoms following the initial procedure, as in this case.

A flexible oesophageal bougie dilator is first placed into the oesophagus under direct pharyngoscopy. This will act as a guide during open exposure of the cricopharyngeus and will also act as a firm surface upon which to divide its fibres. The incision line is marked as shown in Figure 1.

Procedure
Following incision, the anterior border of sternocleidomastoid is identified and retracted laterally, thus exposing the carotid sheath (Figure 2). The omohyoid is divided and the carotid sheath is also retracted laterally to afford greater access to the oesophagus. The larynx is retracted and slightly rotated medially to expose the posterolateral aspect of the cervical oesophagus (Figure 3). The cricopharyngeus is identified by first palpating and identifying the cricoid cartilage: the cricopharyngeus starts just below this point. Once identified, its fibres are divided down to, but without breaching, the oesophageal mucosa through the use of sharp dissection with a 15 blade scalpel. The length of the divided area is approximately 2-3cm (Figure 4). The oesophageal mucosa should be seen to slightly herniate through the incision without restriction along this entire length (Figure 5). Haemostasis is secured with diathermy, a size 12 Redivac drain is inserted and the wound is closed in layers (Figure 6). We do not routinely insert a nasogastric tube.

Postoperative care
Most of our patients are effectively nursed postoperatively on the ENT ward. The drains are removed once less than 20ml of blood has drained over a 24-hour period, and the clips are removed in the outpatient department in 7-10 days. The patient is kept nil by mouth for four hours postoperatively and observed for signs and symptoms of mediastinitis (spiking temperature, chest pain, tachycardia). In the absence of this, sterile water is then introduced for a further four hours. Feeding is commenced once this is tolerated, starting with a soft diet in the first instance.

Personal experience
A total of 31 external approach CPMs were carried out between 2001 and 2010. The median age at operation was 69 years with a range of 48 to 80. Fifty-seven percent (n=16) were male and 43% (n=12) were female. The median time from listing the patient for surgery and performing the surgery was six months from the time of referral. The most common complications were regurgitation (72%), aspiration (3.6%), perforation (3.6%) and wound infection (3.6%) giving an overall complication rate of 17%. Over a 12-month period there was a recurrence rate of 22%. In our experience, patients report a significant improvement in swallowing solids and other symptoms associated with cricopharyngeal dysphagia after performing CPM.

Table 1. Possible complications of cricopharyngeal myotomy

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<td>Gastro-oesophageal reflux</td>
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<td>Aspiration pneumonia</td>
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<td>Oesophageal / pharyngeal perforation</td>
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<tr>
<td>Mediastinitis</td>
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<td>Salivary fistula</td>
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<td>Recurrent laryngeal nerve injury</td>
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<td>Continuing poor nutrition</td>
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Declaration of Competing Interests
None declared.
Conclusion

With careful selection of cases, comprehensive perioperative counselling and meticulous surgical technique, cricopharyngeal myotomy can offer substantial relief for a complex condition that can otherwise be very difficult to manage.

References


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Figure 1: Traction line marked for a right cricopharyngeal myotomy. This is a revision, as the left was previously performed. Note the esophageal dilator in situ.

Figure 2: Retraction of the right sternocleidomastoid laterally, seen here from the patient’s left. The carotid sheath is exposed.

Figure 3: The carotid sheath has been retracted laterally and the larynx retracted and rotated medially to expose the cricopharyngeus.

Figure 4: Line demonstrating the incision to be made to divide the cricopharyngeal muscle fibres.

Figure 5: Completion of the cricopharyngeal myotomy with esophageal mucosa now visible (arrow).

Figure 6: Insertion of drain and completion of the procedure.