Expert's comment concerning Grand Rounds case entitled “Postoperative pharyngocutaneous fistula: treated with sternocleidomastoid flap repair and cricopharyngeus myotomy” (by V.A. Iyooob)

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Abstract

Great care should be taken to minimise damage to the pharynx and upper oesophagus during an anterior approach to the cervical spine. If noticed at the time of surgery primary repair should be carried out; if noticed in the postoperative period, thorough cleaning and placement of a pharyngocutaneous drain will result in spontaneous healing of the majority of fistula. For persistent fistula secondary repair is required using well-vascularised tissue.

Keywords Cervical spine · Pharyngocutaneous fistula

Introduction

The author describes management of the rare but well-recognised complication of pharyngeal injury as a result of an anterior approach to the cervical spine [1]. My experience

of assisting colleagues in spinal surgery would suggest that this is usually caused by misplacement of the self-retaining retractors used during this approach. Neither of the injuries was noticed at the time of operation and both required delayed repair some time after the original surgery.

Pharyngeal injury and repair

Resection and repair of the pharynx is a part of the operative procedure in many major head and neck operations, e.g. total laryngectomy, pharyngolaryngectomy. The often substantial defect is closed in two layers with the aim of creating an airtight and watertight seal.

If injury is recognised at the time of spinal surgery, the wound should be thoroughly irrigated with saline, a single-dose of a broad spectrum antibiotic given and a nasogastric tube placed before closing the defect in two layers with an inverting suture technique. A head and neck or upper gastrointestinal surgical team should be involved as soon as pharyngeal injury is noted to increase chances of a successful outcome. Most head and neck surgeons keep patient nil by mouth for 7 days after total laryngectomy and pharyngeal repair, but early oral feeding at 48 h has been described [2].

Pharyngocutaneous fistula

Pharyngocutaneous fistula is a well-recognised complication after pharyngeal resection, occurring in 15–20 % of patients [3, 4]. Many factors appear to contribute to a high rate of fistula formation including poor nutrition and residual tumour, but the most important factor is poor surgical technique, either leaving gaps in the suture line or repair under tension [3, 4].

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The symptoms and signs of air, food and fluid entering the neck are well described by the authors with pain and swelling of the wound and fever being most common. If untreated, infection rapidly develops and spreads through the tissue planes of the neck and down into the mediastinum. This is often fatal.

Early recognition and management are vital to prevent an adverse outcome. My preferred technique is to explore and debride the pharyngeal injury from the inside using rigid endoscopes under general anaesthetic, and then open the neck to deliberately create a pharyngocutaneous fistula. No attempt should be made to repair the fistula at this point. The wound should be thoroughly cleaned removing any debris and irrigated with copious quantities of normal saline. A nasogastric tube should be placed at this point. I then place a corrugated drain through the neck and into the pharynx and stitch it to the skin to prevent movement. The authors describe a similar procedure using a T-tube. I agree with the authors that there is no need to remove the metalwork. Although this is foreign material in the neck, it is very inert and unlikely to impair healing.

The pharyngocutaneous drain controls the fistula and allows the surrounding tissues to heal, reducing the size of the fistula to the size of the drain. The volume of fluid and saliva draining through the neck will gradually reduce, usually over a period of 7–10 days, and the drain may be removed in stages with the fistula healing from the inside. Once the drain has been removed, a contrast swallow study will confirm healing of the fistula and the patient may be started on oral nutrition.

80 % of pharyngocutaneous fistula will heal if managed in this way [5]. The tradition being to wait 40 days and 40 nights before attempting secondary repair.

Secondary repair of pharyngocutaneous fistula

The authors describe secondary repair of established pharyngocutaneous fistula using a sternomastoid muscle flap and cricopharyngeal myotomy to reduce pressure in the region of the upper oesophageal sphincter. Head and neck reconstruction is founded on the principle of ‘replace like with like’ and a pliable muscle flap is ideal for pharyngeal repair. Three questions should be asked prior to repair:

- local factors: is the fistula clean and free from infection?
- systemic factors: is the patient in a good nutritional state?
- Reconstruction: does the selected reconstruction provide enough fresh tissue to repair the defect without tension?

A number of muscle flaps and free tissue transfers have been described for repair of pharyngocutaneous fistula. If the defect is small, a sternomastoid flap may be ideal. It is close to the defect and easy to harvest but not always reliable with relatively high failure rate described in the literature [6]. For larger defects, and pharyngocutaneous fistula after major head and neck surgery that are almost always large, a pectoralis major flap is ideal, easy to harvest and very reliable, it has been the staple of head and neck surgeons for over 50 years [7]. Free tissue transfer is increasingly used for a pharyngocutaneous fistula but requires a good donor vessel in the neck to ensure success—something that may be difficult to find after extensive infection [8].

Cricopharyngeal myotomy is done routinely as part of total laryngectomy to improve voice rehabilitation, but the effect on healing is unknown [9]. It may reduce pressure in the pharynx and if at operation it is easy to access, then cricopharyngeal myotomy can be attempted.

Conclusion

As with any complication, prevention is better than cure and great care should be taken to minimise damage to the pharynx and upper oesophagus during an anterior approach to the cervical spine. If noticed at the time of surgery, primary repair should be carried out; if noticed in the postoperative period, thorough cleaning and placement of a pharyngocutaneous drain will result in spontaneous healing of the majority of fistula without the need to remove metalwork. For persistent fistula, secondary repair is required and the authors describe a method of repair for small fistula that resulted in excellent outcomes.

Conflict of interest None.

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