

Pharyngeal pouch following anterior cervical fusion

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Abstract

A case of an acquired pharyngeal pouch which formed as a consequence of previous anterior cervical fusion is reported. This is a rare cause of pharyngeal pouch formation with only one such case previously reported in the English language literature. In our case adhesions had formed between the posterior pharyngeal wall and the area around the screw used to hold the Senegas plate on the anterior aspect of the fifth to seventh cervical spinal vertebrae.

Key words: Zenker's diverticulum; Cervical vertebrae

Case report

A 45-year-old man was referred to our ENT department complaining of a 12-month history of painless dysphagia to solids. He had not lost any weight nor had any episodes of dysphonia. At 32 years of age he had been involved in an accident whilst hang-gliding and suffered a median vertical fracture of the sixth cervical vertebral body which had left him quadriplegic. This injury was treated by an anterior fusion between the fifth and seventh cervical vertebral bodies using a Senegas plate and an 18 mm cortical screw. A barium swallow was requested and this showed a large posterior pharyngeal pouch (Figure 1). After discussion with the patient it was decided to excise the pouch via an external approach. At surgery it was noted that there were adhesions between the cortical screw and the pouch wall. The patient made a good recovery and is currently symptom free.

Discussion

A pharyngeal pouch is an acquired herniation of pharyngeal mucosa through a muscular defect in the posterior pharyngeal wall just proximal to the cricopharynx. It was first described by the German pathologist Zenker who described the pulsion nature of these diverticula (Zenker and Von Ziemssen, 1877). The location of the diverticulum is in an area of natural weakness described by Killian in 1907 at the dorsal wall of the hypopharynx between the inferior constrictor muscle and the cricopharyngeus muscle (Killian, 1907). The most common presenting symptoms are dysphagia, regurgitation, aspiration and patients may subsequently suffer from malnutrition, aspiration pneumonia or lung abscess (Ellis *et al.*, 1969).

The aetiology is unclear with numerous theories proposed although most implicate some abnormality of the cricopharyngeus muscle and pharyngoesophageal sphincter with increased intrapharyngeal pressure during deglutination (Zaninotto *et al.*, 1983; Cook *et al.*, 1992; Witterick *et al.*, 1995). Traumatic prevertebral pharyngeal pseudodiverticulum have been reported following traumatic instrumentation of the pharynx (Wells *et al.*, 1974).

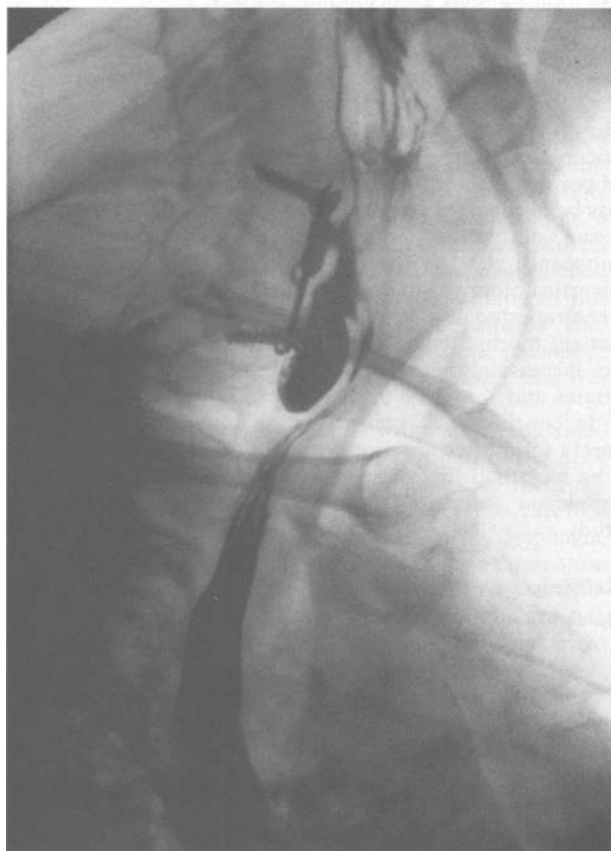


FIG. 1

Barium swallow demonstrating pharyngeal pouch and Senegas cervical plate.

Salam and Cable reported formation of a pharyngeal pouch following anterior cervical fusion (Salam and Cable, 1994). In their case the bone graft used in the cervical fusion had extruded through the posterior pharyngeal wall

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with subsequent healing and scar formation at the site of extrusion which resulted in further traction on the posterior pharyngeal wall and development of the pouch. In our case adhesions between the posterior pharyngeal wall and the area around the cortical screw component of the anterior cervical fusion caused a degree of traction on the posterior pharyngeal wall which in turn led to the formation of a pharyngeal pouch.

There are various treatment options for patients with pharyngeal pouches. They include external diverticulectomy, inversion of the sac, endoscopic diverticulotomy or endoscopic stapling diverticulotomy. Most surgeons advocate a cricopharyngeal myotomy at the same time in order to relieve the high intrapharyngeal pressure due to the malfunctioning cricopharyngeus muscle (McConnel *et al.*, 1994). The external approach is a longer procedure with greater morbidity but has the advantage of providing a specimen for histological analysis to exclude the presence of subclinical carcinoma within the pouch (Saunders *et al.*, 1993). However, there are complications including recurrent laryngeal nerve palsy, pharyngocutaneous fistula, wound infection, mediastinitis and surgical emphysema and for this reason less extensive procedures have been advocated in patients who are elderly or have general medical problems especially if the pouch is small and not too long-standing (Morton and Bartley, 1993).

Dohlman first reported an endoscopic procedure using a specially designed double-tipped oesophagoscope where the septum between the pouch wall and oesophagus is divided with electrocautery (Dohlman and Mattson, 1960). However with this procedure the depth of division of the cricopharyngeal fibres is unpredictable and there is a risk of perforation; the use of a CO₂ laser to divide the septum has been reported to give better control over the extent of tissue destruction with good results (Benjamin and Innocenti, 1991). More recently endoscopic stapling diverticulotomy using a linear cutting stapling gun has been reported as a simple yet effective procedure with low patient morbidity and short hospital stay and is becoming an increasingly popular way of treating these patients (Bates and Koay, 1996; Koay *et al.*, 1997).

In conclusion, it seems that pharyngeal pouches may rarely form after anterior cervical fusion and any patients who have had this surgery and complain of symptoms of dysphagia warrant further investigation by a contrast study.

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