Pharyngeal pouch

Synonym: Zenker's diverticulum

What is a pharyngeal pouch?

A pharyngeal pouch is a pulsion diverticulum, or false diverticulum, located dorsally at the wall between the pharynx and oesophagus.[1] This area is known as Killian's triangle or dehiscence and is a region of relative weakness. It is a herniation between the thyropharyngeus and cricopharyngeus muscles that are both part of the inferior constrictor of the pharynx.

What causes a pharyngeal pouch (aetiology)?

The aetiology (cause) is unknown. However, weakness of the muscular wall and malfunction of the upper oesophageal sphincter probably contribute.

How common is a pharyngeal pouch? (Epidemiology)

It is uncommon (rates range from 0.01% to 0.11% of the population), but the incidence appears to be higher in Northern Europe than elsewhere.[2] It is largely confined to those aged over 70 years and males outnumber females by 5:1.

Symptoms of a pharyngeal pouch (presentation)

The usual presenting features are dysphagia, regurgitation, aspiration, chronic cough and weight loss.[3] Usually there are no clinical signs but there may be a lump in the neck that gurgles on palpation. There may also be halitosis from food decaying in the pouch.

Differential diagnosis

Usually this is the differential diagnosis of dysphagia and must include oesophageal carcinoma and oesophageal strictures, webs and rings.

Diagnosing a pharyngeal pouch (investigations)

A barium swallow is the initial investigation and may show a residual pool of contrast within the pouch.[4] Indirect laryngoscopy may show a pooling of saliva within the pyriform fossa.

Endoscopy should be avoided as an initial investigation for fear of perforating the lesion.

Management of a pharyngeal pouch[5]

This is depends on the size of the pouch. With recognition of the importance of the cricopharyngeus muscle in the pathogenesis of the pouch, the emphasis on treatment has shifted from diverticulectomy to cricopharyngeal myotomy.

Diverticulectomy[6]

This is used for larger lesions. A rigid endoscope is passed and the pouch is packed with gauze. An incision is made at the level of the cricoid cartilage and the fascia at the anterior border of the sternomastoid is divided. The pouch is identified and excised and the defect closed. Cricopharyngeal myotomy is performed to prevent recurrence. The patient is fed via a nasogastric tube for a week postoperatively. Potential complications include:

- Recurrent laryngeal nerve palsy.
- Cervical emphysema.
- Mediastinitis.
- Cutaneous fistula.

Dohlman's procedure[7]

This is suitable for smaller lesions and is performed via an endoscope. A double-lipped oesophagoscope is used and the wall between the diverticulum and oesophageal wall is exposed. The hypopharyngeal bar is divided with diathermy or laser.

The advantages are that it is a minimally invasive technique that allows:[8]

- Shorter duration of anaesthesia.
- More rapid resumption of oral intake.
- Shorter hospital stay.
- Quicker recovery.

Z-POEM

Zenker's per-oral endoscopic myotomy (Z-POEM) has grown in popularity as a safe and effective treatment option for Zenker's diverticulum.[9] This uses a submucosal tunnelling approach. Traditional flexible endoscopic septotomy (FES) was first described in 1995 and involves division of the septum containing the cricopharyngeus muscle between the Zenker's diverticulum and oesophagus from the mucosa to the diverticular base. The main proposed advantage of Z-POEM over FES is the ability to visualize and completely cut the septum in the submucosal tunnel under the safety net of the overlying intact mucosa, theoretically leading to lower rates of symptom recurrence.

Complications of a pharyngeal pouch[2]

- Aspiration from the pouch can cause inhalation pneumonia.
- Carcinoma may develop in the pouch, although the true level of risk is debated.[3]
- Other complications include bleeding, fistula formation with the trachea and obstruction of the oesophagus, recurrent laryngeal nerve paralysis, mediastinitis, oesophageal perforation/stenosis, and cervical emphysema.

History

Friedrich Albert von Zenker was a German physician and pathologist. He was born in Dresden in 1825 and died in 1898. He studied at Leipzig and received his doctorate in 1851. His name is also attached to Zenker's degeneration: severe glassy or waxy hyaline degeneration or necrosis of skeletal muscles in acute infectious diseases, and to Zenker's paralysis: peroneal nerve palsy.

Further reading

- Friedrich Albert von Zenker; whonamedit.com
- Watanabe Y, Taniyama Y, Koseki K, et al; Distinguishing Killian-Jamieson diverticulum from Zenker's diverticulum. Surg Case Rep. 2023 Feb 10;9(1):21. doi: 10.1186/s40792-023-01599-7.
- Flexible endoscopic treatment of a pharyngeal pouch; NICE Interventional Procedure Guidance, February 2015

References

1. Zaw ST, Zaw T, Haque M; Large Zenker's Diverticulum: A Case Report. Cureus. 2023 Mar 28;15(3):e36783. doi: 10.7759/cureus.36783. eCollection 2023 Mar.
2. Nesheiwat Z, Antunes C; Zenker Diverticulum.
3. Siddiq MA, Sood S, Strachan D; Pharyngeal pouch (Zenker's diverticulum). Postgrad Med J. 2001 Aug;77(910):506-11.
4. Rahim I, Napolitano A, Burd C, et al; Imaging of pharyngeal pathology. Br J Radiol. 2023 Sep;96(1149):20230046. doi: 10.1259/bjr.20230046. Epub 2023 Jul 26.
5. Murat Buyruk A, Erdogan C; Efficacy and Safety of Peroral Endoscopic Myotomy in the Treatment of Zenker's Diverticulum: A Single-Center Experience. Turk J Gastroenterol. 2024 Feb;35(2):119-124. doi: 10.5152/tjg.2024.23402.
6. Bizzotto A, Iacopini F, Landi R, et al; Zenker's diverticulum: exploring treatment options. Acta Otorhinolaryngol Ital. 2013 Aug;33(4):219-29.
7. Endoscopic stapling of pharyngeal pouch; NICE Interventional Procedures Guidance, November 2003
8. Sen P, Bhattacharyya AK; Endoscopic stapling of pharyngeal pouch. J Laryngol Otol. 2004 Aug;118(8):601-6.
9. Swei E, Pokala SK, Menard-Katcher P, et al; Comparison of Zenker's per-oral endoscopic myotomy (Z-POEM) with standard flexible endoscopic septotomy for Zenker's diverticulum: a prospective study with 2-year follow-up. Surg Endosc. 2023 Sep;37(9):6818-6823. doi: 10.1007/s00464-023-10136-4. Epub 2023 Jun 5.

Last updated by: Dr Hayley Willacy, FRCGP 28/06/2024	
Peer reviewed by: Dr Colin Tidy, MRCGP 28/06/2024	**Next review date:** 27/06/2027