A Unusual Case of Complicated Zenker's Diverticulum

P. R. K. Bhargav · C. H. Venkata Pavan Kumar ·
A. Vinaya Kumar · S. D. Bhagat · K. B. Gayathri ·
V. Amar

Received: 2 April 2010 / Accepted: 20 February 2011 / Published online: 21 May 2011
© Association of Surgeons of India 2011

Abstract We report the surgical management of a case of Zenker's diverticulum in a 64 year old man, complicated by metallic nail penetration and surgical scarring due to previous surgery for cervical vertebral trauma

Keywords Zenker's diverticulum · muscular dysmotility · pharyngo-esophageal junction

Introduction

Zenker's diverticulum (ZD) occurs due to muscular dysmotility at the pharyngo-esophageal junction (PEJ). Sometimes, the operative management is complicated by previous surgery in its vicinity as highlighted in this case.

Case Report

A 64 year old man presented with progressive dysphagia, regurgitation and loss of weight since 6 months. There

was no history of hematemesis or malaena, suggestive of an upper gastrointestinal tract malignancy. He had met with a road traffic accident five years back resulting in cervical trauma with quadriplegia, but had recovered completely after operative reduction and fixation with titanium plate and screws at C6–7 vertebral level. On examination, there was no evidence of a neck swelling or lymphadenopathy. Gastro-esophagoscopy revealed a posterior median diverticulum at PEJ, but no growth or stricture of esophagus or stomach was found. Barium swallow showed a large posterior diverticulum with a filling defect and a protruding upper nail of the cervical plate into fundus of the sac (Fig. 1a). Preoperative preparation was done with antibiotics, chest physiotherapy and liquid diet for 3 days. At surgery, patient was placed in thyroidectomy position and a collar incision made. After raising the subplatysmal flaps, a plane between the carotid sheath and laryngo-pharyngo-esophageal complex was created. Later, the right side of the diverticulum was dissected, but the dense fibrous scarring had plastered the fundus and body of diverticulum to prevertebral fascia, precluding further dissection. The sac was opened at its neck, which revealed the upper end of the plate with the nail penetrating into the diverticulum (Fig. 2). The neck of the sac was divided from rest of sac and the rent in pharynx was repaired with 3–0 vicryl. The sac was removed and a 5 cm long cricopharyngeal myotomy was done. Oral liquids were allowed on 5th post-operative day (POD), soft diet on 7th POD and Ryle's tube was removed on 8th POD. He was asymptomatic and postoperative barium swallow on 8th POD showed a free flow of barium with no diverticulum (Fig. 1b). Extracted nails and plate are shown in Fig. 3. Histopathology of the excised sac showed a normal esophageal mucosa with chronic inflammation and fibrosis near its fundus. At follow-up of 6 months, patient had normal deglutition and regurgitation.

P. R. K. Bhargav (✉) · C. H. V. P. Kumar · A. V. Kumar ·
S. D. Bhagat · K. B. Gayathri · V. Amar
Mamata Medical College and Hospital (MMC/ MGH),
Khammam 507002, Andhra Pradesh, India
e-mail: kingbhargav@gmail.com

C. H. V. P. Kumar
e-mail: chvpavan@yahoo.co.in

A. V. Kumar
e-mail: vinay_akkina@yahoo.com

S. D. Bhagat
e-mail: sanjaybhagat12@rediffmail.com

K. B. Gayathri
e-mail: dr.gayathri.bhargav@gmail.com

V. Amar
e-mail: surgeon_amy@yahoo.com

Fig. 1 Barium swallow examination. **a** Preoperatively, showing a posterior diverticulum (*long arrow*) with plate protrusion (*short arrow*); **b** Postoperatively, showing no diverticulum and free flowing barium

Fig. 2 Diverticulum (*short arrow*) behind PEJ with penetrating nail (*long arrow*). i) Operative photograph; ii) Schematic diagram. **a.** Thyroid cartilage, **b.** Thyroid gland, **c.** Thyroid stay suture, **d.** Drapes, **e.** Skin, **f.** Platysma, **g.** Inferior pharyngeal oblique, **h.** Cricopharyngeal phincter, **i.** Oesophagus, **j.** Opened diverticulum, **k.** Prevertebral fascia, **l.** Carotid sheath, **m.** Screw visible in diverticulum, **n.** Babcock's holding edge of diverticulum

Fig. 3 Extracted plate and nails

Discussion

ZD is mucosal protrusion at PEJ in the area of Killian's dehiscence between oblique and horizontal parts of inferior pharyngeal constrictor, proximal to cricopharyngeal sphincter [1]. It occurs most commonly in men in their 7th and 8th decades [2]. It can be congenital or acquired and true or false. In our patient it occurred in 7th decade and was apparently an acquired, false diverticulum. The earliest proposed cause was increased intrapharyngeal pressure as described by Zenker and Ziemssen [3]. Etiology is widely speculated to be muscular incoordination due to tight upper esophageal sphincter, though exact cause still remains elusive. The classical surgical principles for treating ZD are removal of

the diverticulum and cricopharyngeal myotomy [4, 5]. Other treatment modalities are diverticulotomy, diverticulopexy, diverticulectomy, laser ablation, stapling etc. Though the best method is debatable, surgical diverticulectomy is traditionally considered as the definitive treatment [6]. Being the standard operation, we planned for open diverticulectomy, myotomy with removal of plate and nails. More problems than anticipated were faced due to prior surgery leading to dense fibrosis on posterior and left lateral aspects of diverticulum, complicated by nail/ plate penetration into sac with its fixation to prevertebral fascia. Probably dense adhesions around sac had prevented neck space infection due to the leakage of saliva or food, inspite of plate penetration. It is difficult to determine whether the diverticulum is due to post-cervical plate scarring or idiopathic in origin.

To conclude, rarity of such presentation and absence of active infection inspite of plate penetration makes the case for an interesting report.

References

1. Wouters B, Van Overbeek JJM (1990) Pathogenesis and endoscopic treatment of hypopharyngeal (Zenker's) diverticulum. *Acta Gastroenterol Belg* 53:323–329
2. Maran AGD, Wilson JA, Al Muhanna AH (1986) Pharyngeal diverticula. *Clin Otolaryngol* 11:219–225
3. Zenker FA, von Ziemssen H (1877) Krankheiten Des Oesophagus. In: von Ziemssen H (ed) *Handbuch der Speciellen Pathologie and Therapie*, Vol. 7 (Suppl). FCW Vogel, Leipzig, pp 1–87
4. Simić A, Radovanović N, Stojakov D, Bjelović M, Kotarac M, Sabljak P, Skrobić O, Pesko P (2009) Surgical experience of the national institution in the treatment of Zenker's diverticula. *Acta Chir Iugosl* 56(1):25–33
5. Zuckerbraun L, Bahna MS (1979) Cricopharyngeus myotomy as the only treatment for Zenker diverticulum. *Ann Otol Rhinol Laryngol* 88:798–803
6. Westrin KM, Ergun S, Carlsoo B (1996) Zenker's diverticulum: a historical review and trends in therapy. *Acta Otolaryngol* 116:351–360