

# Killian-Jamieson Diverticulum: The Rarer Cervical Esophageal Diverticulum

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## SUMMARY

**Killian-Jamieson (K-J) diverticulum is a rare cervical oesophageal diverticulum, less commonly encountered compared with Zenker's diverticulum (ZD). We report a case of K-J diverticulum in a 52-year-old lady who presented with sensation of lump in the neck and food stuck in the throat of 5 years duration. Esophagogram showed a large right-sided pharyngoesophageal diverticulum which was confirmed on endoscopy. The patient underwent a diverticulopexy and recovered without complications. Her symptoms had improved. In this report, we review the literature and describe our surgical technique.**

## KEY WORDS:

*Killian-Jamieson diverticulum, Cervical esophageal diverticulum, Zenker's diverticulum, Pharyngoesophageal diverticulum, Diverticulopexy*

## INTRODUCTION

Killian-Jamieson (K-J) diverticulum was first described by Ekberg and Nylander in 1983<sup>1</sup>. It is a rare cervical oesophageal diverticulum, less commonly encountered compared with Zenker's diverticulum (ZD), with an incidence ratio of 1:4<sup>2</sup>. It has also been referred to as a "proximal lateral cervical esophageal diverticula" or as a "lateral diverticula from the pharyngoesophageal junction area"<sup>1</sup>. The diagnosis and differentiation of these two types of cervical oesophageal diverticula is by radiological studies and endoscopy. K-J diverticulum originates on the antero-lateral wall of the cervical oesophagus through a muscular gap (the Killian-Jamieson space) below the cricopharyngeus and lateral to the longitudinal muscle of the oesophagus, whereas ZD develops at the anatomically weak posterior zone (the Killian's dehiscence) just above the cricopharyngeal muscle<sup>1-3</sup>. We present a case of symptomatic K-J diverticulum that was successfully treated with diverticulopexy and describe our surgical techniques.

## CASE REPORT

A 52-year-old woman presented with sensation of lump in her neck and food stuck in her throat of five years duration. She gave history of fruit seed trapped in her throat requiring endoscopic retrieval 6 years ago. Otherwise, she denied having dysphagia, odynophagia, halitosis, chronic coughing or gastro-esophageal reflux symptoms. Clinically, she had a collar scar over the base of right anterior triangle of the neck

which she attributed to incision and drainage of the neck abscess 41 years ago. Esophagoscopy showed a large pharyngoesophageal diverticulum 15-16 cm from the incisor. Esophagogram showed a large right-sided pharyngoesophageal diverticulum.

She underwent surgery under general anesthesia. A rigid esophagoscopy was performed by Ear, Nose and Throat surgeon at the start of the surgery. She was then placed supine with the head turned slightly to the left. A collar incision was made at the right anterior neck with skin flaps elevated to expose the anterior border of the sternocleidomastoid. A Jolls thyroid retractor was applied to retract the upper and lower edges of the wound. Sternocleidomastoid muscle and the underlying carotid sheath and contents were retracted laterally away from the midline. Omohyoid muscle was divided. Thyroid gland was mobilized with the division of the middle thyroid vein. Right recurrent laryngeal nerve was then identified and preserved. The inferior thyroid artery was divided to facilitate retraction of right lobe of the thyroid medially. The diverticulum was then dissected free until the neck has been visualized and was freely mobile. Plication of diverticulum using interrupted prolene 2/0 was done. A small redivac drain was placed at the retropharyngeal space.

During the last review at 6 months, she was asymptomatic and scheduled for further assessment later.

## DISCUSSION

A K-J diverticulum is an uncommon cervical esophageal diverticulum compared to the better recognized ZD. Hence, it is often unrecognized and misdiagnosed as a ZD on endoscopy. Its pathogenesis is unclear. It is not a true diverticulum as it does not involve all layers of the intestinal wall. It has been suggested that its formation is due to relatively high intra-luminal pressure building against a weakness in the gastrointestinal tract wall, i.e. the Killian-Jamieson space<sup>1-2</sup> and that discordant swallowing against a closed upper esophageal sphincter causes build-up in oropharyngeal pressure leading to a pulsion-type diverticulum originating from the K-J space.

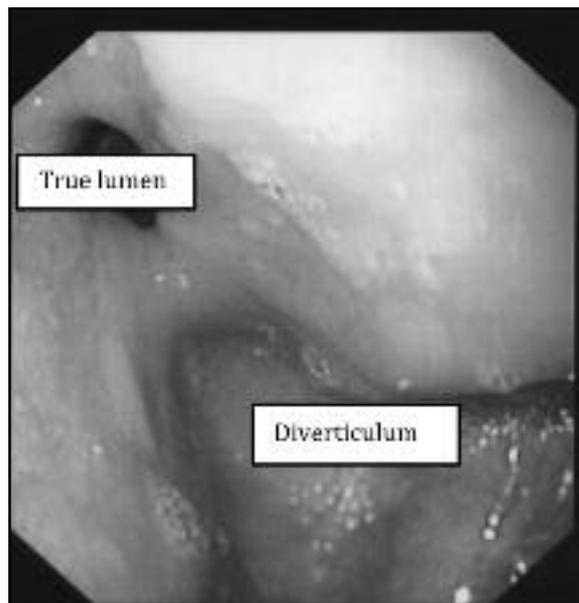
Cervical esophageal diverticula typically present with oropharyngeal dysphagia, usually to solids and liquids. Retention of food material and secretions in the diverticulum can result in regurgitation after meals, halitosis, chronic

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**Fig. 1:** Esophagogram in the frontal position showing a right-sided diverticulum of the pharyngoesophageal junction.



**Fig. 2:** Endoscopic finding of a pharyngoesophageal diverticulum.

coughing, and even aspiration pneumonia, especially if the underlying diverticulum is large. Patients may even notice food on the pillow upon awakening in the morning. These symptoms are more likely with ZD, which are attributable to the underlying diverticulum. In contrast, patients with K-J diverticulum are usually asymptomatic or have symptoms attributable to abnormal pharyngeal motility due to the anatomical location of the diverticulum below the cricopharyngeus which has remained closed during the imaging study. In 2001, Rubesin and Levine reviewed the records and pharyngo-esophagogram of 16 patients with K-J diverticulum and 26 patients with ZD and found that only 19% of patients with K-J diverticulum were symptomatic (particularly suprasternal dysphagia) compared to 62% of patients with ZD. In addition, they found that ZD was larger than K-J diverticulum, with an average maximal dimension of 2.5 and 1.4cm, respectively<sup>2</sup>.

A barium contrast esophagography is necessary for the accurate diagnosis of either ZD or K-J diverticulum. The location of the opening of the diverticulum in relation to the cricopharyngeus muscle is best shown on pharyngography when passage of the barium bolus outlines the protruding cricopharyngeal bar<sup>2</sup> which represents constriction of the cricopharyngeal muscle. ZD originates just above the cricopharyngeal bar and extends posteriorly, whereas K-J diverticulum originates below the cricopharyngeal bar and extends laterally.

Only patients who are symptomatic or who have large diverticula should be offered treatment. The treatment options are either surgical or endoscopic. In recent times, the traditional open surgical approach is being challenged by endoscopic technique such as endoscopic diverticulotomy<sup>3,4</sup>. The aim of performing the diverticulotomy is to create a communication between the diverticular sac and the

esophageal lumen for fluent drainage of food material without retention inside the diverticulum<sup>3,4</sup>. The main concern with endoscopic treatment will be the risk of recurrent laryngeal nerve injury as the K-J space lies in close proximity to the entry point of the nerve into the larynx<sup>5</sup>.

Diverticulopexy was selected over diverticulectomy in the present case because it was technically difficult to apply stapling device across the entire neck of the diverticulum as its lower edge was extending into thoracic inlet and the surgery proves to be equally effective. However, a larger number of cases and longer follow-up duration are needed to make a definitive conclusion.

**CONCLUSION**

Diverticulopexy is a feasible and effective option for the treatment of symptomatic K-J diverticulum.

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