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## Case Report

# Spontaneous Perforation of an Unknown Esophageal Diverticulum in a Hemodialysis Patient

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## ABSTRACT

Zenker's diverticulum is a rare disease, with an annual incidence of about 2 cases per 100000, occurring most often in elderly men. No data are reported in dialysis patients. We report a case of a hemodialysis patient who experienced a sudden spontaneous perforation of an unknown esophageal diverticulum. To our knowledge, this is the first case reported in a hemodialysis patient. Its description could be helpful to consider in such patients the possibility of the perforation of an esophageal diverticulum when typical symptoms are referred in addition to the exclusion of other events with similar symptoms (acute esophagitis and gastroduodenitis, perforated peptic ulcer, acute pancreatitis, myocardial infarction, pneumothorax, dissecting aortic aneurysm).

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## Introduction

Esophageal (Zenker) diverticulum is a rare disease with annual incidence of about 2 cases per 100.000 and the majority of patients diagnosed when older than 70 years [1]. The prevalence of diverticula in the general population is between 0.01 % and 0.11 % with male/female ratio of 3:1 [1, 2]. In dialysis patient's prevalence and incidence of esophageal diverticula are unknown. We report the case of a hemodialysis patient who experienced a sudden spontaneous perforation of an unknown esophageal diverticulum accompanied by substernal pain, nausea and shortness of breath. To our knowledge, this is the first case reported in a hemodialysis patient.

## Case Report

A 68-year-old woman under 240 min/three times a week chronic bicarbonate hemodialysis for 36 months presented to Nephrology Unit

complaining of severe retrosternal pain, nausea and shortness of breath, which started after lunch. Clinical history was negative regarding these symptoms except for the presence in the last seven days of dysphagia, gastric pyrosis, vomit, dry cough. Acute substernal pain added to the above-mentioned symptoms the day before her presentation to the hospital.

ECG and serum troponin excluded acute myocardial infarction (AMI) and blood biochemical analyses showed data compatible with her end-stage renal disease/chronic dialysis status with no particular abnormalities (hemoglobin 11.5 g/dl, leucocytes 10.500/mm<sup>3</sup>, 95% polymorphonuclear cells, serum amylases and bilirubin in the normal range).

Antacid medications were administered and improved the patient's gastric pyrosis. Chest RX showed pseudo mediastinitis with air around the esophagus to the bottom of the neck. Mild pleuric effusion was also

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evidenced. RX analysis showed transit of barium from the esophagus into mediastinum compatible with the perforation of an esophageal diverticulum. The patient underwent thoracic surgery, which found residual of “spaghetti” in the mediastinum (Figure 1). The patient had no complications related to the surgery and then she was transferred to the Intensive Care Unit where five days later she died due to AMI.



**Figure 1:** Residuals of spaghetti found in the patient's mediastinum.

## Discussion

Esophageal diverticula are generally located in the dorsal wall of the hypopharynx through the Killian opening, the weak area between the muscle inferior pharyngeal constrictor and the transverse fibers of the muscle cricopharyngeus. They are caused by altered motility resulting in abnormal intraluminal pressure and the pushing of the esophageal mucosa through focal weaknesses of the muscular wall (pulsion diverticula) [2]. The aetiology remains unknown but theories centre upon a structural or physiological abnormality of the cricopharyngeus. Esophageal pouches usually occur in the seventh decade or later and their incidence is difficult to ascertain as a significant number of elderly patients with pouches have minimal symptoms and may not seek

medical advice. Early identification might allow minimal invasive therapy, reducing the risk of death as a consequence of complications related to the surgery performed in an emergency or of other complications related to the possible high frailty and morbidity of an old patient [2, 3].

Prevalence and incidence of esophageal diverticula are not known in dialysis patients. The case we have described, which to our knowledge, has no similar report in literature, shows typical symptoms although with rapid and dramatic onset to mimic an AMI. Nephrologists should consider the possible perforation of an unknown before esophageal diverticulum when symptoms as dysphagia, substernal pain, and shortness of breath appear in old dialysis patients and more common events with similar symptoms (acute esophagitis/gastroduodenitis, perforated peptic ulcer, acute pancreatitis, AMI, dissecting aortic aneurism) have been excluded.

## Conflicts of Interest

None.

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