


CASE REPORT

Incidental Zenker's diverticulum during exploration of penetrating neck wound[†]

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Abstract

Intraoperative incidental findings are a persistent concern for surgeons. Even when such findings are not overtly life-threatening, surgeons must quickly decide whether to intervene. Esophageal diverticula are rare and underdescribed incidental findings associated with increased morbidity. A 40-year-old man was brought in by EMS after sustaining a penetrating Zone II left anterolateral neck wound. Emergent surgical exploration revealed a full-thickness distal oropharyngeal injury. The endotracheal tube was exposed and a Zenker's diverticulum was identified on the superior edge of the laceration. The diverticulum was excised and oversewn along with the oropharyngeal laceration repair. Intraoperative esophagogastroduodenoscopy leak test and 7-day post-op computed tomography esophagram were negative. Our case describes the first successful management of an incidental Zenker's diverticulum in the literature. The decision to resect the diverticulum allowed for proper repair of the oropharyngeal laceration and improved outcomes by reducing the need for future surgical intervention.

INTRODUCTION

Incidental findings are a prevalent concern for surgeons and require clinical decisions to be made quickly by the surgical team to proceed with repair or delay and discuss with the patient post-operatively. An esophageal diverticulum may be a type of incidental finding which requires intervention, but the individual situation is critical to such decision-making.

CASE REPORT

A 40-year-old male prisoner with no known past medical history was brought in by EMS after sustaining a penetrating stab wound to Zone II of the left anterior neck. On scene, he was noted to be coughing up blood and was intubated for airway protection prior to arrival at our Level 1 Trauma Center. The patient presented to the trauma bay with Glasgow Coma Scale score of 3T, blood pressure of 144/98 and heart rate of 115 bpm and respirations were ventilator-assisted. On inspection of the laceration, it was clear that the platysma was violated. The report that the patient coughed up blood at the scene, along with the density of vascular and other vulnerable landmarks within Zone II, raised concern for an

aerodigestive or vascular injury. This prompted emergent transfer to the operating room prior to imaging studies for surgical exploration of the neck laceration.

In the operating room, a standard neck exploration incision was made anterior to the left sternocleidomastoid muscle (SCM) and the SCM was retracted laterally. Upon exploration, the carotid sheath appeared intact and was dissected to confirm no major vascular injury. The trachea was also found to be intact. The stab wound then tracked superolaterally. A bronchoscopy was performed by anesthesiology around the endotracheal tube, the oropharynx was insufflated and a full-thickness distal oropharyngeal injury was identified with the endotracheal tube visualized through the defect. Such an injury was unusual, given its posterior location without anterior tracheal injury, suggesting that the blade may have been curved. Further exploration of the wound and dissection of the oropharynx identified a Zenker's diverticulum. The Zenker's diverticulum clearly communicated with the oropharynx and the superior edge of the laceration to the distal oropharynx.

The surgical team decided to proceed with a diverticulectomy wherein the Zenker's diverticulum was resected and the laceration to its edge was incorporated

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into the oropharyngeal repair. The full-thickness oropharyngeal laceration was repaired in two layers with overlying strap muscle to buttress the repair. A post-repair esophagogastroduodenoscopy leak test was negative. A tracheostomy was then performed due to extensive swelling in the patient's oral cavity and oropharynx, likely secondary to blunt trauma. The incisions were closed with a JP drain in place. The patient was then transferred to the ICU on a ventilator. A computed tomography esophagram performed 7 days post-operatively demonstrated no esophageal leak.

DISCUSSION

Intraoperative incidental findings are a persistent concern for surgeons. This is especially so for trauma surgeons as they often have less historical or radiographical knowledge of their patients, as in our case. When findings are unconfirmed prior to surgery but expected, and therefore discussed, or are incidental but life-threatening, the best course of action is to intervene. When such findings are not overtly life-threatening, such as a Zenker's diverticulum, a clinical decision must be made quickly by the surgical team to proceed with or delay surgical intervention. To our knowledge, there has only been one other reported case of a Zenker's diverticulum being found incidentally during a surgical procedure in the neck [1]. In that case, the diverticulum was perforated during a procedure and was repaired, not resected, which led to leakage of oropharyngeal contents into the neck soft tissue and prolonged hospital course [1]. Given the prevalence of Zenker's diverticulum (0.01–0.11% of the population, likely underestimated), it is a rare finding but one that has the potential to worsen patient outcomes if the defect is not recognized intraoperatively [1, 2]. Frameworks and decision algorithms have been created for how to approach intraoperative incidental findings [3]. Such frameworks weigh whether the intervention is life preserving or beneficial with the possible harm of intervening. Generally, Zenker's diverticula are not life-threatening but the gold-standard treatment for Zenker's diverticula that are >1 cm or symptomatic is

surgical resection. In our case, the Zenker's diverticulum was at the edge of the oropharyngeal injury, which raised the risk of a leak following primary repair without resection due to the decreased strength of the mucosal and submucosal layers of the diverticulum as the apical repair sutures would have had to be placed through the diverticulum. Thus, intervening at the time of primary repair likely decreased the risk of post-operative complications and reduced the need for additional surgical intervention on the patient's neck to remove the diverticulum in the future. Additionally, such a future operation may be more technically difficult due to scar tissue formed by the trauma and surgical intervention.

Erring on the side of caution in this case was appropriate, given that the diverticulum intersected with the laceration and despite the fact that the patient was not capacitated on arrival to have a thorough discussion of incidental findings. As noted above, in a prior case of an incidental Zenker's diverticulum, resection was delayed and the patient suffered post-operative complications. By contrast, our case suggests both the significance of an incidental esophageal diverticulum and that intervention in such cases should be carefully considered to secure proper closure and healing.

CONFLICT OF INTEREST STATEMENT

None declared.

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