

RUPTURE OF THE CERVICAL ESOPHAGUS FOLLOWING A RADICAL NECK DISSECTION

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Summary

Esophageal rupture is a surgical emergency associated with high morbidity and mortality. We reported a rare case of a spontaneous rupture of the cervical esophagus following radical neck dissection. A 57-year-old man with the history of overconsumption of alcohol and cigarettes developed a primary lung carcinoma and metastasis in the thyroid gland and cervical lymph nodes. The patient underwent total thyroidectomy and extended radical neck dissection. The trachea and esophageal wall were intact and there were no intraoperative complications. On postoperative day 2, after a severe coughing attack and a brief episode of vomiting, the patient felt acute sharp pain in the neck and developed subcutaneous emphysema in left side of the neck. After the diagnosis of a rupture of the cervical esophagus was made by rigid esophagoscopy, emergency exploration of the neck was performed and the esophageal wall was repaired properly with primary closure of the rupture.

KEY WORDS: *esophageal rupture, neck dissection*

PRISNUĆE VRATNOG DIJELA JEDNJAKA NAKON RADIKALNE DISEKCIJE VRATA

Sažetak

Prsnuće jednjaka je hitno kirurško stanje združeno s visokim morbiditetom i mortalitetom. Autori prikazuju rijedak slučaj spontanog prsnuća vratnog dijela jednjaka nakon radikalne disekcije vrata. 57-godišnji pacijent s anamnezom dugogodišnjeg potatora i konzumenta cigareta, razvio je primarni karcinom pluća s metastazama u štitnu žlijezdu i limfne čvorove vrata. Kod pacijenta se provede totalna tireoidektomija s proširenom disekcijom lijeve strane vrata. Dušnik i stijenka jednjaka intraoperativno intaktni. Drugi postoperativni dan, nakon napadaja teškog kašlja i povraćanja, razvijaju se oštar bol i potkožni emfizem lijeve strane vrata. Nakon što se dijagnostičkom ezofagoskopijom potvrdi ruptura vratnog dijela jednjaka, pristupi se odmah eksploraciji vrata. Stijenka vratnog dijela jednjaka se revidira i mjesto prsnuća primarno zatvori.

KLJUČNE RIJEČI: *prsnuće jednjaka, disekcija vrata*

INTRODUCTION

Esophageal perforation or rupture is a life-threatening occurrence requiring urgent management. Esophageal rupture may be iatrogenic, spon-

taneous, or caused by external trauma or diseases of the esophagus. Medical instrumentation of the esophagus such as endoscopy or dilatation, insertion of nasogastric tubes and intraoperative esophageal injuries causes more than one-half of

all perforation cases. Spontaneous esophageal rupture is rare (8-15%). The site of perforation varies depending upon the cause. Iatrogenic perforations are common both in the cervical and distal portion of the esophagus while spontaneous rupture are described only in the thoracic portion (1-3). The first spontaneous rupture was described in 1724 by Herman Boerhaave. He described the case of Barron Jan Wassenaer, the Grand Admiral of Holland. The admiral had consumed a huge meal, had taken a self-prescribed emetic, and «shortly afterwards he vomited, but only a little and this not easily». After 16 hours, he died. The spontaneous rupture was described as a complete atraumatic, transmural rupture of the lower part of an intact esophageal wall and became known as Boerhaave syndrome (2, 3). There are several theories and hypotheses regarding the cause of death of Alexander the Great that are based on historic description, diaries and interpretation of the event. Although a condition such as acute pancreatitis or acute perforated peptic ulcer can be the cause of his death, several factors indicate that he developed a postemetic perforation of the esophagus - Boerhaave syndrome (4-6).

Postemetic spontaneous rupture of the thoracic esophagus is a potentially lethal condition which prognosis is directly contingent on early recognition and appropriate intervention (1, 3, 7). We describe a rare case of a spontaneous rupture of the cervical esophagus following radical neck dissection. To the best of our knowledge, this condition has not been described in the medical literature.

CASE REPORT

A 57-year-old man presented to the clinic with a history of overconsumption of alcohol and cigarettes and persistent hoarseness and mild neck pain localized in projection of the right lobe of the thyroid gland during the last six weeks. Examination revealed a left true vocal palsy, and cervical lymphadenopathy. There was no dyspnoea or stridor and barium esophagram was normal. Ultrasonud scan of the thyroid gland showed a multinodular goiter that extended retrotracheally and enlarged lymph nodes in III and IV neck regions. The results of fine-needle

aspiration biopsy of the thyroid mass and lymph nodes were interpreted as malignant pathology, but presented a diagnostic dilemma in pathohistological differentiation of tumor types. X-ray and computed tomography scan (CT) of the neck and thorax showed pulmonary pathology without significant hilar or mediastinal adenopathy. After tracheobronchoscopy by the brushing procedure, the cytological results were the same as those from fine-needle aspiration biopsy of the thyroid mass and referred to lung carcinoma. The diagnostic findings suggested that the patient had primary lung carcinoma and metastasis in the thyroid gland and cervical lymph nodes. The patient underwent total thyroidectomy and extended radical neck dissection. Tumor was found in the left thyroid lobe next to the left cricopharyngeus muscle without infiltrating it, extending in the tracheoesophageal groove and macroscopically invading the left recurrent laryngeal nerve. The trachea and the esophageal wall were intact (Fig. 1). There were no intraoperative complications. On postoperative day 2, after a few puffs on a cigarette, the patient suffered a severe coughing attack and a brief episode of vomiting. He felt acute sharp pain in the neck and developed subcutaneous emphysema in the left side of the neck. After that, he drank a few sips of water that appeared in a drainage tube. The patient was hemodynamically stable without dyspnoea or other symptoms of an esophageal rupture. We used rigid esophagoscopy and visualized the rupture of the cervical esophagus. The rupture was 3.5 cm long in the left esophageal wall, 2 cm under the superior

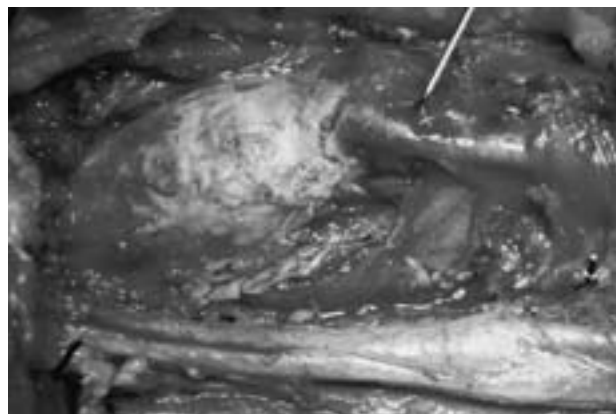


Figure 1. Intact tracheal and esophageal wall after radical neck dissection

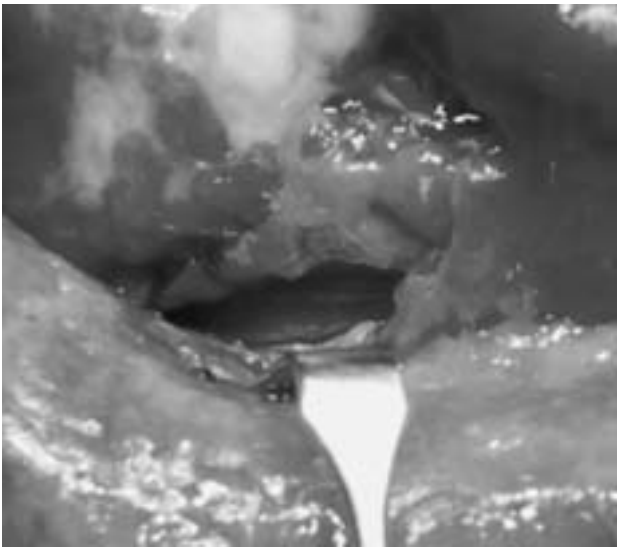


Figure 2. A 3.5 cm long rupture of the cervical esophagus

constrictor of the esophagus (Fig. 2). Emergency exploration of the neck was performed and a feeding tube was inserted. The esophageal wall was repaired properly with primary closure of the rupture and the wound was drained. Perioperative and postoperative periods were uneventful.

DISCUSSION

The cervical region often represents the site of numerous neoplastic pathologies, including both primary and metastatic diseases. The most common surgical complications of neck dissection at the time of surgery are nerve injury, rare internal jugular vein complication, artery complication or a chyle leak. Relatively common postoperative complications are seroma and hematoma, and rare are fistula, wound infection and flap loss or carotid exposure, and until now, the rupture of the cervical esophagus was described only as an iatrogenic injury.

The spontaneous rupture of the cervical esophagus in this case must be described as a complication of radical neck dissection because it developed shortly after the surgery. There was no medical evidence that the surgical procedure increased the risk of spontaneous esophageal rupture, but it is possible that there was a microscopic intraoperative damage of the cricopharyngeus causing the neuromuscular incoordination

during vomiting. Boerhaave syndrome is a barogenic injury resulting from a sharp increase in the intraluminal pressure against a closed cricopharyngeus (2, 3). Although there are no intraoperative complications and the esophageal wall is intact, every surgeon must take into consideration all risk factors that increase the incidence of complications of neck dissection. The classic presentation of spontaneous esophageal rupture is in a middle-aged man with a history of dietary overindulgence and overconsumption of alcohol, with chest pain and subcutaneous emphysema after recent vomiting or retching (Mackler triad) (2, 3, 7). Our patient developed a clinical feature of Boerhaave syndrome. He is a middle-aged man with alcoholism as a primary risk factor, but since the rupture was in the cervical esophagus, there was no chest pain but cervical pain and subcutaneous emphysema developed in the neck. Also, no other symptoms of compromised respiration or mediastinal contamination were developed. Patients with spontaneous rupture of the cervical esophagus do not have classic symptoms and diagnosis can be difficult. Neck pain and subcutaneous emphysema are nonspecific. Unusual findings may include hoarseness of voice and/ or a tracheal shift (2, 3). After neck dissection, these symptoms can present a diagnostic dilemma since they also can be a result of a poor suture or tracheal fistula, which are more common complications of neck dissection.

Early diagnosis is an imperative on which prognosis is directly contingent (2, 3, 7). It is very important to distinguish Boerhaave syndrome, a transmural perforation, from Mallory-Weiss syndrome, a nontransmural esophageal tear, which typically goes with hematemesis (3). Gastrograffin (a water-soluble contrast) esophagram shows extravasation of the contrast and helps to confirm the diagnosis. CT scan may be performed if contrast esophagography cannot be made, cannot localize the rupture, or is nondiagnostic (2, 3). In this case, the leakage of water in the drainage tube had the same diagnostic value as Gastrograffin esophagram. We used endoscopy, although it carries the additional risks of increasing the size and extent of the original perforation, to prove the rupture especially because it occurred after the neck surgery (3).

Iatrogenic perforation and spontaneous rupture had the same poor prognosis (8). Early diagnosis allows immediate surgical repair as a standard treatment in most cases (2, 3). Patients with cervical perforation had a significantly better survival compared with those with midesophageal and distal esophageal perforations. Esophageal rupture needs aggressive treatment. The treatment depends mainly on two factors: perforation in a healthy esophagus, and perforation with pre-existing underlying intrinsic esophageal disease causing distal obstruction. The esophageal rupture associated with stenotic lesions (benign or malignant) needs esophageal extirpations. Perforation in a healthy esophagus should be treated by primary closure if encountered early. Nonoperative conservative treatment is rarely indicated and appropriate when the esophageal perforation is encountered late (9).

CONCLUSION

In conclusion, the incidence of complications of neck dissection certainly decreases, but each surgeon must take into consideration all risk factors that increase the incidence of postoperative complications albeit no intraoperative complications. He must understand the presentation and treatment of each complication. Esophageal rupture is a life threatening condition, and any delay in diagnosis and therapy remains a major contributor to the attendant mortality.

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