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The treatment of pharyngoesophageal perforation following anterior cervical spine intervention

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ABSTRACT

Objective: We aimed to investigate the diagnostic and therapeutic approaches in pharyngoesophageal perforation (PEP) following anterior cervical spine intervention (ACSI).
Methods: We reviewed the records of four patients with PEP after ACSI. Symptoms, physical examination findings, imaging results, treatment, and follow-up characteristics were evaluated.
Results: All four patients had undergone ACSI for either cervical trauma or cervical disc herniation with cervical cage reconstruction. Symptoms developed within the first 10 days of the postoperative period in three patients, and in the eighth month in one patient. Mucosal defects were detected during neck exploration in three patients. Reconstruction with primary suture and a local muscle flap was utilized in two patients. Three patients were discharged 3–8 weeks after surgical treatment.
Conclusion: In cases of PEP after ACSI, a good prognosis can be achieved when symptoms are detected in the early period and reconstruction with local muscle flap is applied.

1. Introduction

While rare, pharyngoesophageal perforation (PEP) is a serious complication of anterior cervical spine intervention (ACSI), which can lead to mortality. The incidence of PEP varies between 0.25% and 1.49% [1,2]. Its development is caused by esophageal wall damage due to inappropriate retraction during surgery or by chronic compression of the spinal reconstructive instrument in the long term [3]. Even though the leading cause of esophageal perforation is the iatrogenic injuries, which accounts for around 70% of the etiology, it may also result from foreign body ingestion, penetrating or blunt trauma, and caustic injury [4]. Odynophagia, dysphagia, hoarseness, high fever, and neck pain are common symptoms of PEP. Clinical prognosis deteriorates within 24 h after the onset of symptoms, and if left untreated; deep neck infection, pleural effusion, pneumonia, and mediastinitis may develop.

2. Materials and methods

In this retrospective study, the medical records of four patients who were treated for PEP after ACSI at Otolaryngology Department of Dokuz Eylul University between January 2010 and December 2014 were reviewed. The summary of the clinical characteristics of the patients treated for PEP after ACSI is shown in Table 1.

2.1. Case 1

A 37-year-old man was quadriplegic when transferred to emergency department and multiple displaced fractures were

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Table 1
Summary of patients treated for PEP after ACSI.

Case	Age	Time to diagnosis	Symptoms	Reason for instrumentation and type of surgery	Level of instrumentation	Findings of neck exploration	Conservative treatment	Surgical treatment	Revision	Outcome
1	37	10 days	Odynophagia, dyspnea and high fever	Trauma, ACCFC	C6–T1	4 cm mucosal defect, severe regional infection with pus	Oral intake was stopped and a nasogastric tube was inserted, systemic antibiotic therapy	Reconstructive surgery was not performed because of severe regional infection, two drains were inserted for repeated irrigation	Lost to follow-up	Lost to follow-up
2	66	1 day	Sore throat, odynophagia, and dysphagia	Cervical disc herniation, ACDFP	C3–C5	Saliva contamination with undetectable mucosal defect	Oral intake was stopped and a nasogastric tube was inserted, systemic antibiotic therapy	Mucosal defect was not observed, two irrigation drains were inserted	No	Regular diet at 10 days postoperative
3	31	2 day	Odynophagia, dysphagia, and sore throat	Cervical disc herniation, ACDFP	C3–C4	3 cm ×4 cm mucosal defect without local infection	Oral intake was stopped and a nasogastric tube was inserted, systemic antibiotic therapy	Primarily closed and superior pedicled strap muscle flap, two irrigation drains were inserted	No	Regular diet at 20 days postoperative
4	20	8 months	Sore throat and odynophagia	Trauma, ACCFC	C4–C6	2 cm mucosal defect without local infection	Oral intake was stopped and a nasogastric tube was inserted, systemic antibiotic therapy	Primarily closed and SCM muscle flap, two irrigation drains were inserted	Primarily closed and superior pedicled strap muscle flap	Regular diet at 3 weeks postoperative

ACCFC = anterior cervical corpectomy and fusion with cage.
ACDFP = anterior cervical discectomy and fusion with plating.
SCM = sternocleidomastoid muscle.

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