

Case Report

Delayed esophageal perforation after anterior cervical fusion and retropharyngeal steroid use: a report of two cases

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Abstract

BACKGROUND CONTEXT: Prevertebral soft-tissue swelling (PSTS) after anterior cervical spine surgery may result in postoperative catastrophic airway complications and persistent dysphagia. Systemic or local corticosteroids have been used to decrease complications related to PSTS. To date, studies using retropharyngeal steroid (RS) have not reported complications with local steroids such as infection, pseudarthrosis, and other systemic adverse effects.

PURPOSE: The aim was to report delayed esophageal perforation in two patients who underwent anterior cervical spine surgery and RS use.

STUDY DESIGN/SETTING: This was a case report with a review of literature.

METHODS: We presented two cases of delayed esophageal perforation without obvious cause in two patients who underwent anterior cervical spine surgery and RS use.

RESULTS: A 45-year-old woman underwent C5–C6 anterior cervical discectomy and fusion (ACDF) for radiculopathy. Just before closing the wound, one ampule of triamcinolone acetate was placed in the retropharyngeal space. Two months postoperatively, she presented to the emergency department with clinical symptoms of esophageal perforation. Radiographic studies demonstrated a retropharyngeal abscess. A 0.5×1.0-cm sized esophageal defect was identified during the emergency surgery. Complete healing of the esophageal defect was achieved by revision repair with reinforcement using local muscle flap.

A 65-year-old man with a history of ankylosing spondylitis presented with severe dysphagia 1 year after C7 pedicle subtraction osteotomy, C2–T4 posterior instrumentation, and C6–C7 ACDF with a plate for a chin-on-chest deformity. Before closure, 1 cc of depomedrol had been placed into the wound. Eleven months postoperatively, he complained of new onset dysphagia. The endoscopic examination demonstrated an esophageal tear with visualization of the anterior cervical plate through the tear. Successful healing was possible with primary repair.

CONCLUSIONS: Retropharyngeal steroids have been shown to decrease PSTS and dysphagia after anterior cervical spine surgery. We believe that it would be prudent to consider avoiding the RS use in patients with a history of chronic corticosteroid use and/or soft-tissue vulnerability or only to use them with caution. Any history of dysphagia that occurs weeks, months, or even years

FDA device/drug status: Not applicable.

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later should be investigated for the possibility of esophageal perforation. © 2015 Elsevier Inc. All rights reserved.

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Introduction

Prevertebral soft-tissue swelling (PSTS) after anterior cervical spine surgery is inevitable because of retraction of the pharynx and esophagus during the surgical approach. Prevertebral soft-tissue swelling can be severe after multilevel cervical fusion, cervical spine trauma, and longer operative times [1–3]. It may result in odynophagia, postoperative catastrophic airway complications including asphyxia and respiratory arrest, and may contribute to persistent dysphagia after anterior cervical spine surgery [3,4].

Systemic or local corticosteroids have been used to decrease complications related to PSTS [2,5,6]. The effects of retropharyngeal steroids (RSs) on significantly reducing PSTS after anterior cervical spine surgery have been reported [5]. Another study demonstrated improved resolution of dysphagia with RS use after anterior cervical spine surgery [7]. To date, studies using RS have not reported complications with local steroids such as infection, pseudarthrosis, and other systemic adverse effects.

We report two cases of delayed esophageal perforation without obvious cause in two patients who underwent anterior cervical spine surgery and RS use.

Case reports

Case 1

A 45-year-old woman underwent C5–C6 anterior cervical discectomy and fusion (ACDF) for radiculopathy caused by right-sided foraminal disc herniation. She had a history of multiple arthralgias including both hand small joints with morning stiffness. She also had thin skin with easy bruising; however, there was no documentation of prior steroid use.

Via a left sided Smith-Robinson approach, a C5–C6 instrumented ACDF was performed using autogenous tricortical strut graft harvested from the left anterior iliac crest. No other fusion material such as bone morphogenetic protein or demineralized bone matrix was applied. Just before closing the wound, one ampule of triamcinolone acetate (40 mg) soaked with morcellized Gelfoam sponge was placed in the retropharyngeal space. The operative time was 75 minutes.

Postoperatively, she had resolution of her radicular symptoms, and radiographs (immediate and postoperative 6 weeks) demonstrated well-positioned instrumentation and autograft (Fig. 1).

Two months postoperatively, she presented to the emergency department with severe neck pain, odynophagia,

dysphagia, and chills. She had a temperature of 38.5°C, and erythrocyte sedimentation rate and C-reactive protein were substantially increased by 18 mm/h (normal: <20 mm/h) and 8.93 mg/dL (normal: 0.0–0.5 mg/dL) respectively. Radiographs, cervical spine computed tomography, and magnetic resonance imaging demonstrated a 4.6×6.5×1.8-cm retropharyngeal abscess (Fig. 2). Emergent surgery was performed to drain the abscess and remove the instrumentation. A 0.5×1.0-cm sized esophageal defect was identified at the C6 level and was primarily repaired with the assistance of a thoracic surgeon. Her intraoperative cultures were positive for *Streptococcus viridans*. Two weeks postoperatively, a persistent esophageal defect was detected on esophagography. Revision repair and reinforcement with local sternohyoid muscle flap resulted in healing of the defect. She was placed on tube feeds for 3 weeks and successfully transitioned to oral intake 1 month after the operation. Her clinical course has been uneventful at 4 years and 8 months postoperatively (Fig. 3).

Case 2

A 65-year-old man presented with severe dysphagia 1 year after C7 pedicle subtraction osteotomy, C2–T4 posterior instrumentation, and C6–C7 ACDF with a plate and allograft with demineralized bone matrix. The patient had ankylosing spondylitis and had been treated for a C7 compression fracture and chin-on-chest deformity. He underwent a posterior pedicle subtraction osteotomy followed by anterior fusion and plating. The length of the anterior surgery was 35 minutes, and before closure, 1 cc of 40 mg/cc dexamethasone had been placed into the wound. Postoperatively, the patient had significant improvement in his alignment and was satisfied. He had no complaints of dysphagia postoperatively until 11 months later, when he complained of new onset dysphagia. He was referred to an ENT specialist who performed an endoscopic examination. The endoscopy demonstrated an esophageal tear with visualization of the anterior cervical plate through the tear. He was afebrile but had an erythrocyte sedimentation rate of 26 (0–15.0 normal), C-reactive protein of 7.2, and WBC of 11.0. The rest of his laboratory reports were normal.

He was taken to the operating room at 1 year postoperatively from the initial surgery and underwent removal of the anterior plate. The plate was well fixed and non-displaced intraoperatively. Ear, nose and throat and thoracic surgery then performed primary repair of the esophageal tear, which was found to be a 1.5-cm longitudinal tear.

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