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Swallowing Difficulty due to Deep Neck Infection after Anterior Cervical Spine Fusion: A Case Report

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Introduction

An infection affecting the cervical area and its surrounding tissue layers, which may involve the formation of abscesses and inflammation, is referred to as a deep neck infection. Causes include inflammation of the tonsils, pharynx, teeth, oral cavity, and esophagus. Symptoms may include swollen neck, sore throat, dysphagia, and fever. We report a case to a describe deep cervical infection that was found to be the cause of swallowing difficulty in a tetraplegic patient with a history anterior cervical discectomy and fusion for upper cervical spine injury.

Case report

A 60-year-old male underwent anterior cervical discectomy and fusion (ACDF) for retrolisthesis between the 3rd and 4th cervical spines resulting from falling forward while riding a bicycle. He underwent a tracheostomy for ventilatory care and was later weaned off the ventilator and decannulated. The patient was admitted to our hospital for rehabilitation 3 months after the initial injury. Two months after admission, the patient developed pain and swelling at the left chin, and a neck CT was performed which showed severe parotitis and mild hypopharyngitis (Fig. 1). His symptoms improved after administration of intravenous antibiotic. Later, he complained of swallowing difficulty and swelling of the left neck. Following CT revealed aggravated hypophryngitis while parotitis disappeared (Fig. 2-A and B). Delayed swallowing reflex, incomplete laryngeal elevation and minimal penetration at liquid material were noticed at video fluoroscopic swallowing study. While hypopharyngitis improved by intravenous antibiotics, the patient continued to complain of odynophagia. Also, he developed fever, and inflammatory markers were elevated on laboratory test. CT demonstrated diffuse retropharyngeal edema and multifocal air densities from 4th to 7th cervical spines (Fig 2-C and D). MRI showed deep neck infection at corresponding cervical spines (Fig. 3). No fistula from the airway or esophagus to the infectious area was observed on endoscopic evaluation. Instead of surgical treatment, intravenous antibiotics was administered. Since then, his symptom has improved significantly, and inflammatory markers have improved.

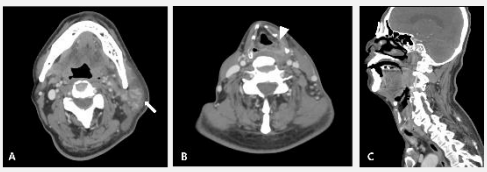

Fig. 1. Neck CT performed to evaluate left chin swelling. (A) Axial image showing severe swelling of left parotid gland (arrow). (B) Axial image representing mild mucosal thickening of left hypopharynx (arrowhead). (C) Sagittal image showing hypopharynx and retropharyngeal space.

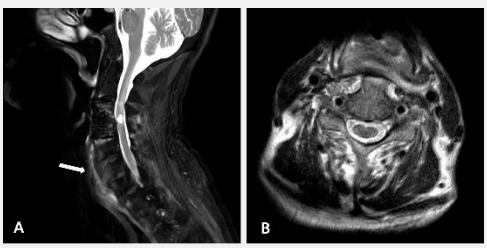

Fig. 3. MRI of cervical spine suggesting deep neck infection. (A) Sagittal T2 weight enhanced image showing edema and soft tissue enhancement of prevertebral space of C4 to C7 (arrow). (B) Axial T2 image presenting prevertebral soft tissue enhancement and bone marrow edema at C5 level.

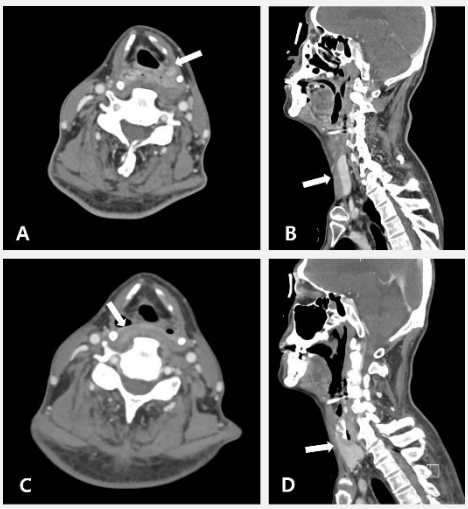

Fig. 2. Neck CT showing hypopharynx and retropharyngeal area. (A) Axial image demonstrating hypopharyngitis (arrow). (B) Sagittal image showing hypopharyngitis (arrow). (C) Neck CT of 2-week follow study showing retropharyngeal edema (arrow). (D) Sagittal image of 2-week follow study Neck CT shows progressed state of diffuse retropharyngeal edema (arrow).

Conclusion

In this case report, the patient showed delayed deep neck infection after cervical spine surgery. It should be noted that in patients with a history of cervical instrumentation, deep neck infection may be the cause swallowing difficulty.