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Pharyngo-vertebral fistula secondary to cervical vertebral fracture in a patient with stab wound

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ABSTRACT

Pharyngo-vertebral fistula (PVF) associated with cervical (C) spinal fracture is an extremely rare event that may lead to life-threatening infectious complications if not recognized promptly. Successful management of PVF depends on the physicians' awareness of the causes, prompt recognition of the symptoms and clinical findings, and immediate institution of treatment. I report a case of PVF after C3 vertebral body fracture that was initially neglected and subsequently developed into osteomyelitis involving adjacent vertebrae. On computed tomography and magnetic resonance imaging showed a PVF. Despite conservative care, spontaneous closure of the fistula was not achieved. Removal of PVF and surrounding granulation was achieved without any complication. To the best of my knowledge, PVF as a complication of C spine fracture has not hitherto been reported in the English literature.

1. Introduction

Pharyngo-vertebral fistula (PVF) secondary to upper cervical (C) vertebral fracture by a penetrating cervical wound is extremely rare. To the best of my knowledge, there has been no report in the English literature. Esophageal perforation cases secondary to blunt spinal injury [1] or anterior cervical spine surgery [2] have been descibed. These perforations may develop in the early post-injury period or may manifest several years later, probably as a result of displaced fragments causing erosion. If not discovered early, PVF commonly leads to life-threatening mediastinitis and sepsis. The mortality rate with delayed surgery is very high [3]. Therefore, an early diagnosis and aggressive treatment are essential to prevent serious complications. I present a case of PVF caused by C3 vertebral fracture that was overlooked during the initial survey. This case, occurring two months after initial fracture, illustrates the need to be aware of this potentially serious complication.

2. Case report

A 72-year-old man was referred to my department with a complaint of severe posterior neck pain in the upper cervical area. The patient had experienced penetrating neck injuries by multiple stabbing during a suicide attempt two months before presentation. Initial neck and cervical spine computed tomography (CT) conducted in the emergency room had revealed soft tissue emphysema in neck and pneumomediastinum without definite evidence of major vessel injury (Fig. 1A and B). The scan had also showed the fracture of the C3 vertebral body with a teardrop fragment without any evidence of fractures in the posterior column (Fig. 1C and D). A brief neurologic examination had not revealed any motor or sensory deficits. The patient had been taken to the operating room and had undergone a tracheostomy, surgical neck exploration and wound repair. C3 body fracture had been deemed to be stable and not been addressed surgically at the time of injury. For the conservative management of cervical spine fracture, the patient was placed in a Sterno-Occipito-Mandibular Immobilizer (SOMI) brace for two months after surgery. At two months post-operatively, he complained of severe dysphagia and high fever (39 °C) besides severe posterior neck pain in the upper cervical area. He also reported aspiration pneumonia. Physical examination revealed local tenderness in the area of the C2–C4 spine. Laboratory investigations were consistent with infection (white blood cell count, 11,470 (normal range 4000–10,000/μL); erythrocyte sedimentation rate (ESR), 55 (normal range 0–9 mm/h); and C-reactive protein (CRP), 17.7 (normal range 0–0.3 mg/dL). Anterior–posterior and lateral radiographs of the cervical spine showed the disc space narrowing with retrolisthesis C3–C4 spine (Fig. 2A and B). Endoscopic pharyngeal examination revealed granulation in the posterior wall of the pharynx at the level of C3–C4 spine. Barium swallowing test could not performed due to poor

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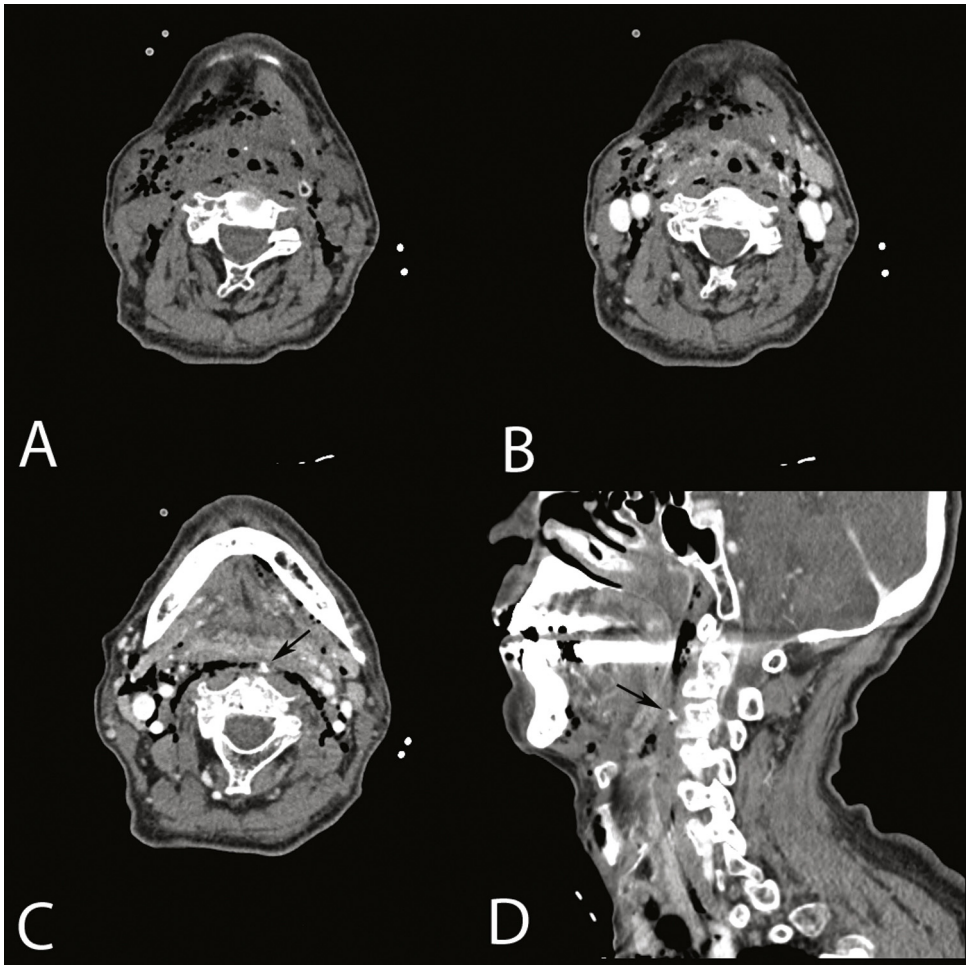

Fig. 1. Initial neck CT revealing soft tissue emphysema in neck and pneumomediastinum without definite evidence of major vessel injury. (A) Axial section and (B) coronal section. It had also showed fracture of the C3 vertebral body with a teardrop fragment (arrow) without any evidence of fractures in the posterior column. (C) Axial section and (D) coronal section.

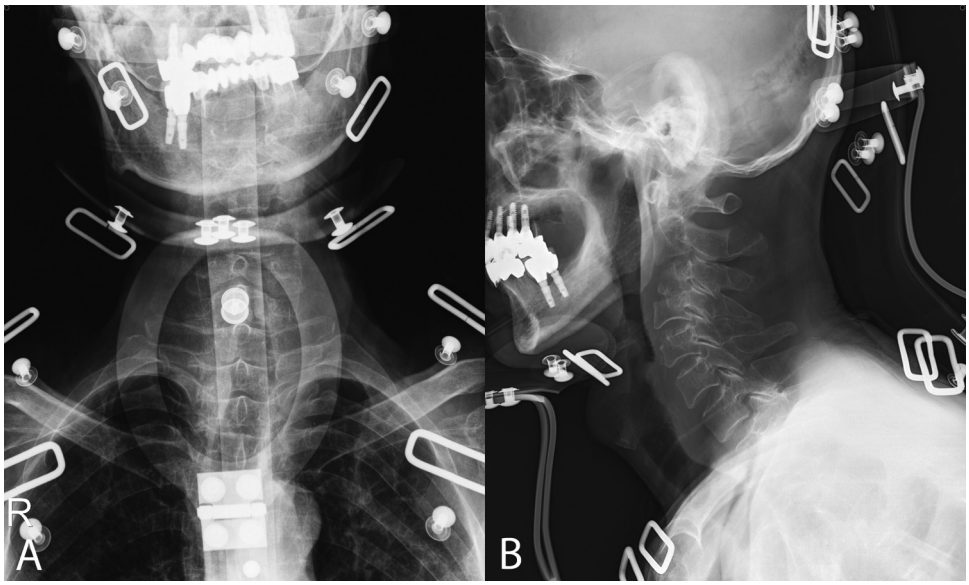

Fig. 2. The patient was placed in the SOMI brace after surgery for two months. (A) Anterior–posterior and (B) lateral radiographs of the cervical spine showed the disc space narrowing with retrolisthesis C3–C4.