

Cervical Screw Missing Secondary to Delayed Esophageal Fistula: Case Report

Sekonder Geç Özefagus Fistülüne Bağlı Servikal Vida Kaybolması: Olgu Sunumu

ABSTRACT

Although anterior surgical approaches to the cervical spine have become popular and safe in recent years, they also have some complications. We present a case of loss of an anterior cervical plate screw by the natural tracts. The patient was a 47-year-old woman who was operated on for cervical spondylotic myelopathy at another institution. Surgical interference included two levels of anterior discectomy, iliac graft placement and fixation using plate and screws. Two years later, plate dislocation and partial migration of the upper screws were observed. After 7 years the patient complained of dysphagia and she accepted removal of the osteosynthesis. Radiographical examination showed that one of the upper screws was missing and two lower screws were broken. Esophageal perforation was found during the surgery and repaired. Further progress was favourable. Complications associated with esophageal perforation may range from massive infection and death to spontaneous recovery. Erosion of the esophageal wall due to extruded bulky constructs may lead to a persistent fistula, abscess or septic diffusion. Spontaneous perforation of the esophagus and screw loss via the gastrointestinal tract make this case interesting..

KEYWORDS: Esophageal perforation, Cervical spine, Complication, Screw loss

ÖZ

Servikal omurgaya anterior cerrahi yaklaşım son yıllarda popüler ve güvenli olmasına rağmen, bazı komplikasyonları da vardır. Bu yazıda, anterior servikal vidanın doğal yollardan spontan olarak kaybolduğu olguyu sunuyoruz. 47 yaşında bayan hasta, servikal spondilolitik miyelopati nedeniyle bir başka merkezde opere edilmişti. Cerrahi girişim, iki seviye anterior diskektomi, iliak greft yerleştirilmesi ve plak vida kullanılarak fiksasyonu içermekteydi. 2 yıl sonra plak dislokasyonu ve üst vidalarda kısmi yer değiştirme gözlemlendi. Operasyondan 7 yıl sonra, hasta disfaji nedeniyle re-operasyonu kabul etti. Servikal grafilerinde, üst vidalardan birinin kaybolduğu ve alttaki vidaların kırıldığı izlendi. Cerrahi sırasında özefagus perforasyonu tespit edildi ve onarıldı. Operasyon sonrası gelişim uygun sınırlardaydı. Özefagus perforasyonu ile ilgili komplikasyonlar, spontan iyileşmeden şiddetli enfeksiyon ve ölüme kadar değişebilir. Yerinden çıkmış büyük cihazların sebep olduğu özefagus duvar erozyonu, dirençli fistüllere, apse ve sepsise neden olabilir. Spontan özefagus perforasyonu ve bir vidanın gastrointestinal yoldan kaybolması, oldukça nadir görülen bir durumdur.

ANAHTAR SÖZCÜKLER: Özefagus perforasyonu, Servikal omurga, Komplikasyon, Vida kaybolması

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INTRODUCTION

Anterior surgical approaches of the cervical spine have been widely used for decompression, fusion and instrumentation for degenerative tumors, traumatic and infectious disorders since the 1990s (8,18). The original techniques, first described by Smith and Robinson in 1955, and then Bailey and Badgley in 1960, and Cloward in 1961 did not use stabilization devices (4,17). Although anterior cervical spine surgery is a well-established procedure, it contains many potential complications like infection, displacement and migration of plates, screws and grafts, esophageal perforation and airway complications (6,12,14,21,22).

Our patient had plate dislocation and loss of one screw. Surgery revealed perforation of the esophagus.

CASE REPORT

A 47-year-old female patient was operated on for cervical spondylotic myelopathy at another institution. Surgical treatment included anterior discectomy of the C4-C5 and C5-C6 levels, anterior iliac crest graft placement and fixation using plate and screws. The immediate post-operative course was uneventful. Plate dislocation and partial anterior migration of the upper screws (Figure 1A,B) were observed during the second post-operative year. However, the patient did not accept revision surgery. She later complained of dysphagia and accepted removal of the cervical plate at the 7th postoperative year. One of the upper screws was found to be missing on direct radiographs, and two lower screws were broken (Figure 2A,B). These were not seen on a routine chest and abdominal X-rays. Esophagography was normal. Esophageal perforation was found during the surgery and repaired primarily. The patient was fed using a nasogastric tube for one week. Further progress was favourable. Cervical fusion remained uneventful.

DISCUSSION

Anterior cervical spine surgery including fusion and stabilization is an effective procedure for the treatment of spondylotic disease, cervical myelopathy or radiculopathy and cervical spine trauma (19). Even though the experience of surgeons has increased, these operations still have many complications because of the complex anatomy of the anterior neck region. These complications can be classified into three categories; (1) soft tissue lesions,



Figure 1: C4-5, C5-6 anterior discectomy, autograft, plate fixation. The upper screws became loose and were pulled out on the 2nd year of follow-up. Lateral view (A), A-P view (B).



Figure 2: The left upper screw is lost at the 7-year follow-up with plate dislodgment. A) lateral view, B) A-P view.

(2) spinal cord or root injuries, (3) problems related to spinal stabilization (6,11). Displacement of the graft, plate or screws and esophageal penetration and perforation are potential complications. Complications after esophageal perforation may range from minor problems to mediastinitis and death. Main symptoms of esophagus perforation are dysphagia, loss of weight and dyspnea (8,13,15).

There are some reports on the displacement of the graft or screws that resulted in esophageal perforation. Cloward mentioned a case of transesophageal graft migration that required endoscopic removal in 1971 (5). In 1992, Smith and Bolesta reported two cases with esophageal penetration because of displacement and migration

of screws (20). Yee and Terry reported a screw that migrated completely into the esophagus and remained in the gastrointestinal tract (23). Chataigner et al. (3) reported a similar case in 1997. In 2000, Fujibayashi et al. reported a case where an anterior cervical plate and screw disappeared completely and was unnoticed (8). They state that the device was small enough to have traversed the lumen of the gastrointestinal tract and passed through the rectum with feces without significant morbidity and without the patient being aware of it. In 2001, Geyer and Foy mentioned a case report about oral extrusion of a screw after anterior cervical spine plating, and the same year Sharma et al. reported a case of pharyngeal perforation and spontaneous extrusion of the cervical graft with its fixation device (9,19). Then, Pompili et al reported a case of esophageal perforation caused by a displaced cervical screw, with spontaneous, asymptomatic elimination through the gastrointestinal tract (16).

In 2005, Wong et al reported an anterior cervical screw extrusion leading to acute upper airway obstruction. In 2006, Fountos et al reported the extrusion of a screw into the gastrointestinal tract after an anterior cervical spine plating operation (7,22).

The main predisposing factor in the development of screw or plate extrusion in the reported cases is the initial suboptimal position of these screws. Some of the cases in these reports had multilevel fusion and the others single (7). Our patient had multilevel fusion. Hanci et al. suggested that the esophageal perforation was due to pressure sores caused by the metallic implant and the microtrauma effect (10).

The complications of esophageal perforation range from asymptomatic and local infections to mediastinitis and death (15,16,23). The clinical course depends on the etiology, location and time of perforation. Patients generally present with difficulty swallowing, regional swelling, neck pain, dysphagia, loss of weight, dysphonia, subcutaneous emphysema and fever. Our patient presented with dysphagia (13,14,15,19,22,23).

The management of plate and/or screw extrusion is important because of these serious and life-threatening complications. Conservative treatment can be preferred for small contained defects less than 1 cm. This treatment consists of elimination of oral feedings, tube feeding to restore

fluid and nutritional balance and intravenous antibiotics. Some cases need surgical repair that includes closure of the perforation with a primary suture or sternocleidomastoid or pectoralis major flap repair (1,13,15,23). We operated on our patient to remove the displaced plate and screws despite a normal esophagography. Esophageal perforation was found and repaired with a primary suture during the surgery. The patient was then fed by nasogastric tube for one week, and further progress was favourable.

CONCLUSIONS

Anterior surgical approaches to the cervical spine have become popular and safe. Although devices for anterior stabilization have improved in quality, failure of the devices may occur either because of technical or implantation errors. Reoperation is not always necessary as spontaneous recovery is possible. Displacement of the graft and screws and esophageal perforation are some of these complications. Complications associated with esophageal perforation may range from massive infection and death to asymptomatic spontaneous resolution. Erosion due to extruded bulky constructs leads to a persistent fistula with abscess or septic diffusion. Spontaneous esophageal closure and healing without significant morbidity is possible following perforation due to complete migration of small foreign bodies like screws.

The spontaneous esophageal perforation and the missing screw via the gastrointestinal tract make this case interesting.

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