

Infection

Cervical osteomyelitis and epidural abscess treated with a pectoralis major muscle flap

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Abstract

Background: Spinal osteomyelitis and epidural abscess are uncommon but have a potentially disastrous outcome, although the surgical techniques and antimicrobial therapy have advanced.

Case Description: We present a case of cervical osteomyelitis and epidural abscess resulting from pharyngeal squamous cell carcinoma ablation, which were treated with a pectoralis major muscle flap successfully.

Conclusion: Muscle flap insertion to the cervical contaminated wound enables radical removal of the contaminated tissue, and the muscle flaps for dead-space obliteration and neovascularization were obligatory for successful management of the infected complex wound. Furthermore, the inserted pectoralis major muscle flap can divide vertebrae and epidural canal from these origins of infection. We believe that this technique is simple, can be performed in a one-stage management, has minimal associated morbidity, and thus, is advocated as a desirable treatment option in the treatment of cervical osteomyelitis and epidural abscess.

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Keywords:

Cervical osteomyelitis; Epidural abscess; Debridement; Pectoralis major muscle

1. Introduction

A combination of antibiotics and surgical aggressive anterior debridement and fusion has been advocated for the treatment of osteomyelitis and epidural abscess, and many investigators have evaluated clinical features of these methods. However, the high morbidity and mortality from this infection have not been significantly reduced [2,3,10].

Generally, surgical treatment of chronic osteomyelitis requires aggressive debridement followed by obliteration of dead space with vascularized tissue [7,8].

We describe an unusual complication of cervical osteomyelitis/epidural abscess after pharyngeal cancer ablation, which was treated using pectoralis major muscle flap without development of tetraplegia and relapse of the infection.

2. Case report

A 64-year-old man consulted the Department of Neck and Head Surgery of our institution complaining of fever and neck pain. The patient had undergone radiation therapy of 65 Gy total dose for the treatment of pharyngeal cancer 14 years before. On examination, severe inflammation and ulceration were found on the posterior wall of pharynx. Computed tomography demonstrated inflammatory change of pharyngeal posterior wall (Fig. 1). There was no abscess on the epidural space at that time. Histologic analysis of a biopsy indicated squamous cell carcinoma; thus, total laryngo-pharyngo-esophagotomy was performed. Intraoperative examination showed that pharyngeal mucosal ulcer formed fistulae, which lead to the anterior surface of cervical spine. The anterior longitudinal ligament was infected and exposed (Fig. 2). After ablation of malignant tumor and debridement of inflammatory soft tissue in front of the vertebral bone, a free jejunum flap was transferred to the neck and inserted between the larynx and the esophagus.

Abbreviations: CT, computed tomography; MRI, magnetic resonance imaging.

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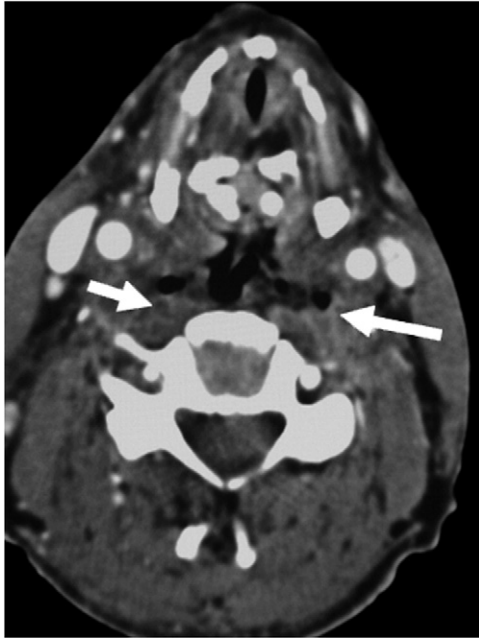


Fig. 1. Preoperative CT demonstrated inflammatory change of pharyngeal posterior wall (arrows).

Three days later the patient developed fever with discharge of pus from the neck wound, although the circulation of the transferred jejunum flap was good. The patient underwent emergent drainage and cleansing of abscess and was treated with intravenous antibiotics for 10 days, but the healing was hard conservatively. Methicillin-

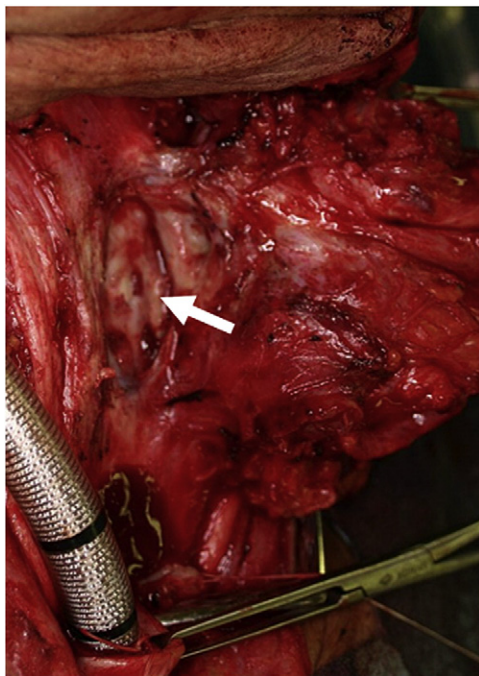


Fig. 2. Intraoperative examination of primary surgery. A fistula lead to the anterior surface of cervical spine and anterior longitudinal ligament was infected and exposed (arrow).

resistant *Staphylococcus aureus* was grown from cultures taken at the time of surgery. Computed tomography demonstrated an abscess in the cervical spinal canal and dead space between the vertebrae and transported jejunum flap (Fig. 3A). An MRI of the cervical spine was also performed demonstrating abscess in the spinal canal and deformity of vertebral bone, which suggested a cervical osteomyelitis (Fig. 3B). On this time, the patient complained neck pain but revealed no neurologic disturbance and motor disorders.

Surgery consisted of radical excision of the infectious tissues containing granulation, necrotic ligaments, and bone. The anterior surface of contaminated vertebral bone bodies between the C4 and C6 were osteotomized, with a vascularized pectoralis major muscle flap placed on the surface of the vertebral bodies to occupy the dead space (Fig. 4). An anterior cervical strut graft was not performed. A pectoralis major muscle flap was elevated from the left chest based on the thoracoacromial vessels in a standard manner. The viability of the flap was good, and there was no pus

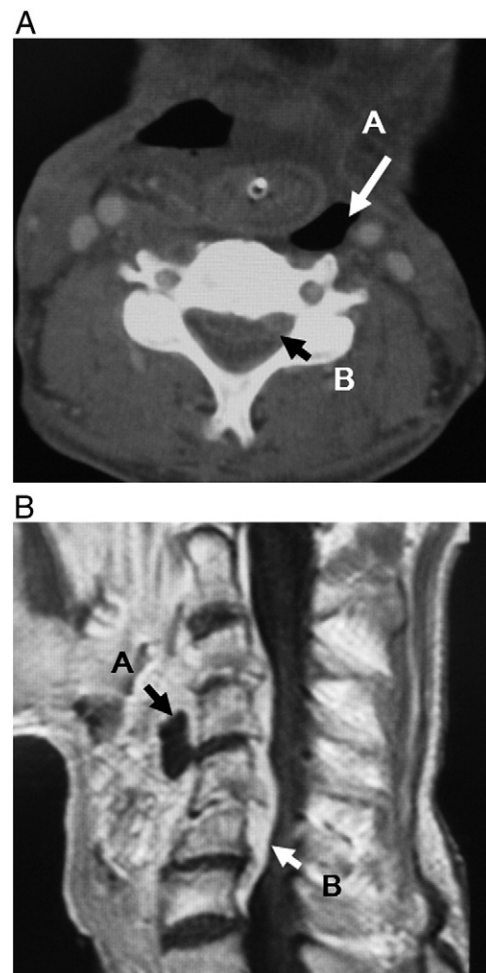


Fig. 3. A: CT demonstrated dead space between the vertebrae and transported jejunum flap (A) and an abscess in the cervical spinal canal (B). B: An MRI demonstrated dead space in front of vertebrae (A) and abscess in the spinal canal (B).

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