CASE STUDY

Spinal-esophageal Fistula in a Patient Treated With Concurrent Chemotherapy and Radiotherapy

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KEYWORDS
Spinal esophageal fistula; Radiotherapy adverse effects; Extradural abscess

Abstract We present the case of a 56-year-old male patient with a history of glottic carcinoma treated with concurrent chemotherapy and radiotherapy in complete remission, who went to hospital with severe neck pain, upper right limb weakness and dysphagia. Physical examination showed neck stiffness as well. Spondylitis at C6–C7 spinal level with extradural abscess formation was diagnosed by MRI. Barium radiography revealed an esophageal ulcer with a posterior sinus path. Conservative treatment was given with percutaneous gastrostomy and antibiotics. The patient’s symptoms improved and the fistula and the abscess had disappeared in the later MRI control studies.

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PALABRAS CLAVE
Fistula esófago-raquídea; Efectos adversos radioterapia; Absceso extradural

Resumen Varón de 56 años con antecedente de carcinoma glótico tratado con quimioterapia y radioterapia concomitante en remisión completa. Acude a urgencias por cervicalgia intensa, paresia de miembro superior derecho y disfagia. La exploración física muestra además rigidez cervical. Se realiza resonancia magnética donde se objetiva espondilitis a nivel vertebral C6-C7 con formación de un absceso extradural que comprime la médula. Un tránsito baritado muestra una úlcera esofágica con trayecto fistuloso posterior. Se realiza tratamiento conservador con gastrostomía percutánea y antibioticoterapia. El paciente mejora ostensiblemente de sus síntomas y en los estudios de imagen de control se objetiva la desaparición de la fistula.

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Introduction

Classically, 4 major complications have been described following radiotherapy treatment for laryngeal cancer: oedema of the laryngeal mucosa, radiodermatitis, peri-chondritis and cartilage radionecrosis. However, advances in radiotherapy treatment planning have decreased their incidence. We report a patient treated with radiotherapy...
and chemotherapy for glottic squamous cell cancer, who presented a fistula as a rare complication. This created continuity from the pharynx to the spinal canal, causing an epidural abscess at this level.

Clinical Case

The patient was a 56-year old male who attended the Emergency Service due to fever and severe cervical pain radiating to the right upper limb (RUL) which decreased mobility. These symptoms were accompanied by dysphagia to solids and liquids.

As pathological background of interest, the patient had been treated for a T1N1M0 glottic squamous carcinoma and had received concurrent radiotherapy and chemotherapy 2 months earlier.

On examination, the patient presented RUL paresis of 2/5 with proximal predominance, preserved sensitivity and cervical stiffness. We performed laryngeal endoscopy and noted a fixed and oedematous right hemilarynx, with slight reduction of the glottic lumen. The patient was admitted and underwent a cervical spine MRI scan (Figs. 1 and 2), which revealed an epidural collection affecting one vertebral body and spinal cord involvement. This image appeared to rule out metastatic involvement and pointed to infectious complications. We also conducted a barium radiograph (Fig. 3), which revealed an ulcer on the posterior wall of the pharyngoesophageal segment and a posterior fistulous tract. We established a diagnosis of pharyngeal–spinal fistula as the source of the epidural abscess, which was indirectly responsible for spinal cord compression and neurological symptoms. We also conducted an electromyographic study which revealed polyradiculometameric or anterior root involvement at the level of the right C5–C7.

The patient showed clinical improvement after parenteral antibiotic therapy and removal of oral feeding. The paravertebral collection and, subsequently, the fistulous tract disappeared on the control MRI scan. The patient was able to restart oral feeding.

Figure 1  T1: sagittal T1-weighted MRI section showing a change in the normal signal of the vertebral bodies from C1 to T2, compatible with fat replacement after radiotherapy. We highlight a pathological enhancement of the body of C6 (arrow) indicating spondylitis at this level. T2: sagittal T2-weighted MRI section showing a diffuse involvement of the spine, with a signal increase going from C2 to T1. This indicates ischaemia at this level due to spinal cord compression.

Figure 2  Coronal T1-weighted MRI with Gd section showing a strong meningeal enhancement from C2 to T1. It is possible to observe a right, extramedullary collection of about 3 cm from C5 to C7, presumably epidural, with a thickness of 1 cm and compressing the spine.
ischaemia, fibrosis, dystrophy, torpid ulcers and necrosis. Based on this, hyperbaric oxygen therapy has been used in the treatment of laryngeal cartilage radionecrosis, since it seems to increase tissue vascularisation.

In the present case we found a late-onset side effect of radiotherapy, in which fibrosis and tissue ischaemia conditioned a weakening of the cervical fascia and the formation of a fistulous tract. Normally, the cervical fasciae act as a limiting barrier in deep cervical infections. However, in this case they had lost this barrier function and the infection was able to progress to the vertebral body and spinal canal.

The treatment of late-onset necrosis or ulcers after radiotherapy often requires surgical treatment. In our patient, conservative treatment with antibiotics and discontinuation of oral feeding was sufficient.

Although the literature reviewed contains numerous cases of chondroradionecrosis after radiotherapy for laryngeal squamous cancer, we did not find the complication described.

Conflict of Interests

The authors have no conflicts of interest to declare.

References