

A patient with neck pain and fever

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CASE REPORT

A 40-year-old man without significant medical history presented to the emergency department with a four-day history of neck pain and fever. Two weeks before presentation he had experienced an episode of throat pain with dysphagia and marked lymphadenopathy. There was no recent history of swallowing a foreign body or dental procedures. At presentation, his body temperature was 39.6°C, blood pressure was 140/90 mmHg, pulse rate was 110 beats/min and his respiratory rate was 16 breaths/min. Mild cervical lymphadenopathy was present, as well as local tenderness to gentle percussion of the cervical spine. Intraoral inspection revealed a low-grade periodontitis of element 28 and a red posterior pharyngeal wall, but nasofibroscope could not demonstrate any swelling of pharyngeal soft tissue, nor were there any signs of

oral candidiasis or herpes lesions. On further physical examination normal breath sounds and heart tones were heard, and no skin lesions were observed. On neurological examination there were signs of meningismus, and a diminished biceps reflex on the left side. There was no paresis or sensory deficit present. Cerebrospinal fluid analysis revealed a white blood cell count of 629 cells/mm³. The patient underwent both computed tomography after intravenous contrast, and gadolinium-enhanced MRI of the neck region (figures 1-3).

WHAT IS YOUR DIAGNOSIS?

See page 357 for the answer to this photo quiz.

Figure 1. Sagittal T1-weighted MRI image after gadolinium showing the intraspinal low-signal intensity lesion with wall enhancement at level C5, indicating an intraspinal abscess. Slight swelling and enhancement of the prevertebral soft tissue can also be appreciated



Figure 2. Axial T1-weighted MRI image after gadolinium showing the continuity between the prevertebral compartment and intraspinal compartment of the abscess through the neuroforamen with compression of nerve root C6 on the left. Also notice the anterior displacement and stretching of the longus colli muscle on the left side indicating that the abscess lies in the prevertebral compartment

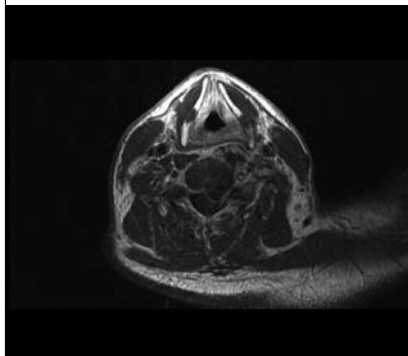


Figure 3. Schematic drawing of the axial T1-weighted MRI image



A) combined prevertebral and intraspinal abscess; B) musculus longus colli; C) vertebra cervicalis VI; D) medulla spinalis.

ANSWER TO PHOTO QUIZ (PAGE 356)
A PATIENT WITH NECK PAIN AND FEVER

DIAGNOSIS

Combined prevertebral and intraspinal abscess in a patient with a de novo HIV infection.

The initial CT scan of the neck region raised the suspicion of the presence of an intraspinal abscess. Additional gadolinium-enhanced MRI of the neck region, carried out in order to evaluate the extension of the abscess more accurately, showed a hyperintense lesion on T2-weighted images at C5 to C6 and enhancement of the lesions on the T1 with gadolinium, suggestive of spondylodiscitis. There was also a combined prevertebral and intraspinal abscess over levels C4 to C7 (figures 1-3). Gram stain and culture of the cerebral spinal fluid were unremarkable, but blood cultures were positive for *Staphylococcus aureus* (methicilline susceptible). No clues regarding the aetiology of the abscess could be derived from detailed medical history taking (including risk factors for HIV) or the physical examination at the time of initial presentation. Since spinal abscesses could be a rare complication of haematogenous spread of an infective endocarditis, additional transoesophageal echocardiography was performed, but could not reveal any signs indicative of an infective endocarditis.

Nonsurgical treatment of the abscess was initiated with intravenous metronidazole and ceftriaxone, since no paresis or sensory deficit were present at the moment of presentation. After blood culture results became available, treatment was continued with penicillin G 18 x 10⁶ IE/day for six weeks, after which the patient had a complete neurological recovery. Three weeks after neurological recovery however, the patient presented again at the emergency department, this time with a (pneumocystis) pneumonia. Additional immunological studies were performed, which revealed the presence of

anti-HIV and p24 antigen, and an HIV-1 RNA level of 912,000 cp/ml (NucliSENS HIV RNA assay (detection limit, 4 x 10⁴ copies/l; Organon Teknika), with a CD4 count of 120/mm³ (normal value 400-1300/mm³), after which retroviral therapy with emtricitabide / tenovovir and efavirens was initiated.

Prevertebral abscesses are a very rare cause (<1%) of deep neck infections.^{1,2} They can be discriminated from retropharyngeal abscesses on MRI by looking at the displacement of the longus colli muscle, which is anterior in prevertebral abscesses, and posterior in retropharyngeal abscesses. Deep neck infections are often preceded by odontogenic infections, upper airway infections and skin infections, which can spread either haematogenously or by local extension to the prevertebral space.³ Predisposing factors that compromise the immune system (such as diabetes mellitus, rheumatoid arthritis, chronic steroid use or (in this case) HIV), render the host more susceptible to the spread of any of these infections to the deep neck space and/or the spinal canal.⁴

REFERENCES

1. Larawin V, Naipao J, Dubey SP. Head and neck space infections. *Otolaryngol Head Neck Surg.* 2006;135:889-93.
2. Brook I. Microbiology and management of peritonsillar, retropharyngeal and parapharyngeal abscesses. *J Oral Maxillofac Surg.* 2004;62:1545-50.
3. Reynolds SC, Chow AW. Life-threatening infections of the peripharyngeal and deep fascial spaces of the head and neck. *Infect Dis Clin North Am.* 2007;21:557-76.
4. Huang TT, Liu TC, Chen PR, Tseng FY, Yeh TH, Chen YS. Deep neck infection: analysis of 185 cases. *Head Neck.* 2004;26:854-60.