

Neck pain with prevertebral soft tissue thickening

A 37-year-old man presented with a history of sudden-onset neck pain, which was worse on movement and neck extension. He reported no history of trauma or infection. He denied any neurological symptoms. A physical examination showed limited neck motion in all directions due to pain. Blood tests showed total white blood cell count to be within normal limits ($10.1 \times 10^9/L$); raised inflammatory markers with C-reactive protein (CRP) of 59.8mg/L; and erythrocyte sedimentation rate (ESR) of 38mm/h. A cervical spine radiograph showed swelling in both the retropharyngeal and prevertebral spaces with ill-defined faint calcification anterior to C2 (Fig. 1). Magnetic resonance imaging (MRI) of the cervical spine showed low signal calcific density just inferior to the anterior arch of C1, with marked swelling and effusion in the retropharyngeal and prevertebral spaces (Figs. 2A and 2B). There were also associated inflammatory changes in the right longus colli muscle and to a lesser extent, along the adjacent longus capitis muscle.

What is the most likely diagnosis of this prevertebral soft tissue thickening?

- A. Retropharyngeal abscess
- B. Acute calcific tendinitis of the longus colli
- C. Nasopharyngeal carcinoma
- D. Cervical spondylosis with a large detached osteophyte
- E. Prevertebral abscess

The patient was given a course of non-steroidal anti-inflammatory drugs (NSAIDs) and then reviewed by the otolaryngology department the week after, where a further physical examination showed no palpable lymph nodes. Nasoendoscopy revealed a central posterior nasal space (PNS) mass extending to the bilateral fossa of Rosenmüller with no posterior pharyngeal wall bulge. A biopsy of the PNS mass showed reactive lymphoid tissue, likely due to incidental adenoid enlargement. A further evaluation with a dedicated MRI of the nasopharynx was considered then to assess an underlying structural abnormality but our patient declined it as his neck pain had completely resolved following the short course of NSAIDs.

Both prevertebral and retropharyngeal abscesses can appear as prevertebral soft tissue thickening on a lateral neck radiograph, and are important considerations



Fig. 1. Lateral neck radiograph demonstrating prevertebral soft tissue thickening at the level C1–C4 (white arrows), with a faint calcific density (dotted white arrow) seen just inferior to the anterior arch of the C1 vertebral body.

in patients with such imaging findings. However, patients with abscesses usually present with fever and malaise, in addition to significantly raised inflammatory markers, which were not present in our patient. Patients with prevertebral abscesses may have accompanying imaging findings of spondylodiscitis, which was also not seen in our patient. Another key differentiation is the presence of rim-enhancement in the prevertebral or retropharyngeal fluid on post-contrast MRI sequences, although its absence does not completely exclude an underlying infective process in early phases before infection evolves into a walled abscess.¹ For our patient, no post-contrast study was performed as the clinical suspicion for infection was very low.

Nasopharyngeal carcinoma (NPC) is another important consideration that may result in prevertebral soft tissue thickening.² However, patients with NPC usually present with nasal and ear-related symptoms including epistaxis or conductive hearing loss, and may have neck swelling from nodal metastases. MRI may show a nasopharyngeal mass with enlarged retropharyngeal and cervical lymph nodes, which were absent in our patient.

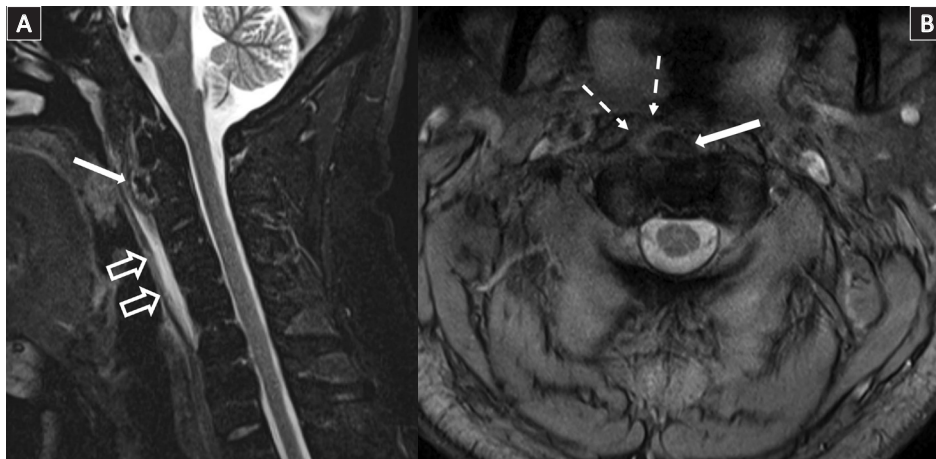


Fig. 2. (A) Coronal T2W-STIR and (B) axial T2W-MEDIC magnetic resonance imaging of the cervical spine.

- (A) Marked oedema/fluid in the retropharyngeal region (empty white arrows), with an irregular rounded structure with low signal and a mildly hyperintense rim corresponding to the faint calcific density just inferior to the anterior arch of C1 (white arrow).
- (B) Associated increased T2W signal is seen along the right longus colli muscle and adjacent longus capitis muscle (dotted white arrows). The low signal, faint calcific density is seen just inferior to the anterior arch of C1 (white arrow).

MEDIC: multi-echo data image combination; STIR: short tau inversion recovery; T2W: T2-weighted

Detached osteophytes from cervical spondylosis usually appear well-corticated on radiographs, and do not appear as faint calcific densities. In addition, the absence of significant degenerative change and no prior trauma make cervical spondylosis with a large detached osteophyte or fracture fragment less likely.

Acute calcific tendinitis of the longus colli (ACTLC), also known as retropharyngeal calcific tendinitis or acute calcific prevertebral tendinitis,³ is a rare and benign condition caused by basic calcium phosphate deposition in the tendons of the longus colli muscle that is accompanied by an aseptic inflammatory process.⁴ The specific aetiology of the condition is unknown, but some postulated mechanisms involve excessive mechanical strain in conjunction with degenerative spinal disease, collagen vascular or chronic renal disease, which can result in deposition of calcium crystals in muscle tendons.⁵

Patients with ACTLC typically present with acute or subacute onset of neck pain and restricted range of neck movements. Other reported symptoms include dysphagia, odynophagia, sore throat and even low-grade fever.⁶ Laboratory findings may include normal or mild leukocytosis, and slightly elevated inflammatory markers including CRP and ESR.⁷ Clinical presentation and initial radiographic findings can be confused with more serious conditions such as retropharyngeal abscess, infectious spondylitis, trauma or a foreign body, and hence awareness of ACTLC is important.⁸ Cross-sectional imaging with computed tomography

(CT) or MRI can be diagnostic in the appropriate clinical setting, with typical imaging findings including prevertebral soft tissue swelling extending from C1–C4 and amorphous calcification anterior to C1–C2 at the superior insertion of the longus colli muscle tendon.^{3,8,9} CT may be superior to MRI in demonstrating the calcification, and is usually sufficient for diagnosis in the acute setting especially when MRI is not readily available. The benefits of MRI over CT are better soft tissue resolution, additional sequences that aid in differentiating oedema or effusion from retropharyngeal infection, and improved detection of spondylodiscitis, effusion or synovitis in the facet or uncovertebral joints of the spine.⁶

Symptoms of ACTLC usually improve spontaneously over the course of 1–2 weeks, with conservative treatment that includes a short course of NSAIDs and avoidance of ACTLC exacerbating neck movements. Follow-up imaging is usually unnecessary due to the self-limiting nature of the condition, although a repeat radiograph will typically demonstrate resolution of the characteristic prevertebral soft tissue swelling and amorphous calcification.⁸

In conclusion, ACTLC is a rare cause of acute neck pain. Recognising this benign entity is important to prevent misdiagnosis of other serious life-threatening conditions that present similarly, such as retropharyngeal abscess that could result in unnecessary antibiotics and surgical intervention instead of conservative treatment.¹⁰

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