
CASE REPORT

Acute Calcific Tendinitis of the Longus Colli

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ABSTRACT

Acute calcific tendinitis of the longus colli is an unusual cause of acute neck pain and stiffness. Acute calcific tendinitis is a relatively benign inflammatory condition that can clinically mimic more serious entities such as retropharyngeal abscess, spondylodiscitis, or spine trauma. On computed tomography, acute calcific tendinitis shows characteristic signs of amorphous calcification in the longus colli tendon at the C1 to C2 level and prevertebral fluid, which can help to distinguish this from other more ominous conditions afflicting the neck. This report presents the computed tomography features of this rare entity in three patients presenting with acute neck pain and stiffness.

Key Words: Acute disease; Calcinosi; Neck muscles; Neck pain; Tendinopathy

中文摘要

急性頸長肌鈣化性肌腱炎

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急性頸長肌鈣化性肌腱炎是急性頸部疼痛和僵直的非常罕見病因。急性鈣化性肌腱炎是一個相對良性的炎症性疾病，臨床上可以與更嚴重的疾病如咽後膿腫、椎間盤炎或脊椎創傷表現相似。電腦斷層掃描顯示急性鈣化性肌腱炎的特徵是在C1至C2水平的頸長肌肌腱位置出現無定形鈣化及椎前積液，這些徵象有助於該病與頸部其他更嚴重的病理狀態之間的鑑別。本文報告因急性頸部疼痛和僵直就診的三名該病患者，描述這種罕見疾病的電腦斷層掃描特徵。

INTRODUCTION

Acute calcific tendinitis of the longus colli is an inflammatory process caused by calcium hydroxyapatite crystal deposition in the superior oblique tendon of the longus colli muscles. Acute calcific tendinitis is an uncommon cause of neck pain, stiffness, odynophagia, and retropharyngeal soft tissue swelling that responds well to a short course of non-steroidal anti-inflammatory drugs (NSAIDs), and restricted

neck movement. The clinical presentation may mimic traumatic injury, retropharyngeal abscess, or infectious spondylitis / discitis.¹ The recognition of characteristic imaging features of calcific tendinitis of the longus colli is therefore important to prevent unnecessary intervention. We report on three patients with longus colli tendinitis who presented to the emergency room with clinical presentations mimicking inflammatory / infectious processes and trauma. The diagnosis of acute

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calcific tendinitis of the longus colli was made for all three patients on the basis of characteristic computed tomographic (CT) features.

CASE REPORTS

Patient 1

A 57-year-old man presented with a stiff neck and sore throat. Routine blood examination was normal. At physical examination, the patient had limited range of motion of the neck, but there were no palpable masses or focal tenderness. Clinical findings suggested an inflammatory process or an early infection. CT examination of the neck was performed with intravenous contrast, which revealed elongated irregular calcification anterior to the anterior arch of the C1 vertebra extending down to the mid-C2 level. Ill-defined fluid in the retropharyngeal space extending from C1 through to the C4 to C5 level was also seen (Figure 1).

The airway was unremarkable. There was no significant tonsillar or lymph node enlargement or abscess. The CT findings were characteristic of calcific tendinitis of the longus colli. The patient was given NSAIDs and advised to limit neck movement, to which he responded well.

Patient 2

A 49-year-old woman presented with an inability to turn her neck and low-grade fever. She underwent a CT scan of the neck, with the provisional clinical diagnosis of a retropharyngeal abscess, which showed a calcific density at the C1 to C2 level, likely representing calcification of the longus colli tendon. There was prevertebral space fluid extending from the C2 to C4 vertebral levels, without rim enhancement, indicating a reactive fluid collection rather than an abscess (Figure 2). The patient was discharged with a prescription for

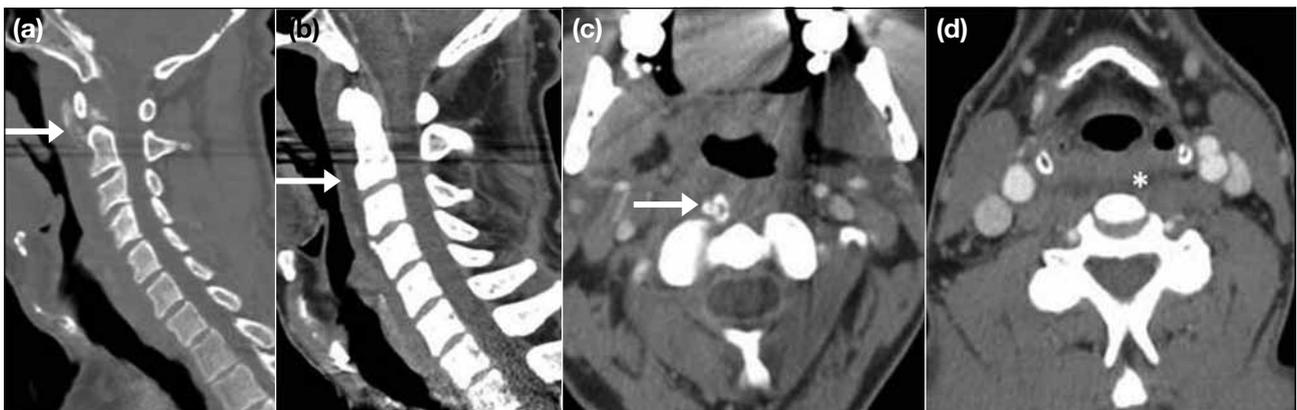


Figure 1. Computed tomography of the neck: Sagittal images show (a) elongated irregular calcification anterior to the anterior arch of the C1 vertebra extending up to the mid-C2 level (arrow), and (b) ill-defined fluid in the prevertebral space extending from C1 to the C4 to C5 level (arrow). Axial images demonstrate (c) calcification anterior to the C1 and C2 vertebrae (arrow), and (d) ill-defined fluid in the prevertebral space without rim enhancement (asterisk). No other evidence of inflammatory changes or abscess is seen.

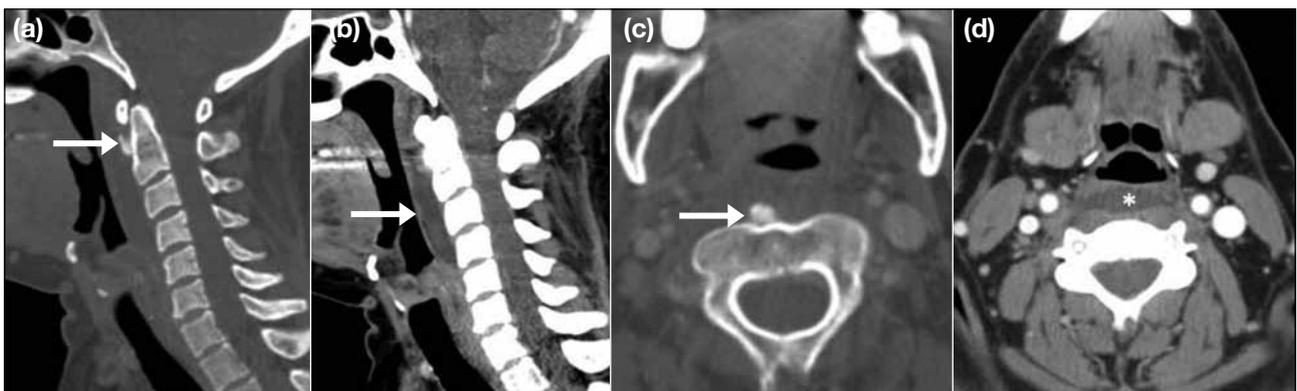


Figure 2. Computed tomography of the neck: Sagittal images show (a) amorphous calcific density at the C1 to C2 level in the right longus colli tendon (arrow), and (b) prevertebral fluid extending from the C2 to C4 vertebral levels (arrow), (c) an axial image shows amorphous calcific density at the C1 to C2 level in the right longus colli tendon (arrow), and (d) a post-contrast axial image shows prevertebral fluid collection without rim enhancement (asterisk).



Figure 3. Non-contrast computed tomography images of the neck show (a and b) amorphous calcification in the superior aspect of the right longus colli tendon inferior to the anterior arch of C1 with enlargement of the muscle (arrow), and (c) mild prevertebral fluid collection (asterisk).

NSAIDs. No follow-up imaging was performed. The patient became afebrile and reported improvement in neck mobility within 1 week.

Patient 3

A 31-year-old woman presented with neck pain and stiffness. She also reported a history of fall from a staircase a week prior to presentation, which confounded the clinical picture. Her white blood cell count and other routine blood investigations were normal. At clinical examination, she did not have any focal tenderness. However, her neck movement was severely limited. There was no palpable lymph node or mass. CT of the cervical spine demonstrated amorphous-appearing calcifications at the superior aspect of the longus colli muscle anteroinferior to the arch of the C1 vertebra, with thickening of the muscle and prevertebral space fluid (Figure 3). There was no osseous destruction, erosion, or lymphadenopathy to suggest an infectious process. No fracture or subluxation was seen. The patient was given a short course of NSAIDs, to which she responded over a few weeks.

In all three patients, a diagnosis of acute calcific tendinitis of the longus colli was made based on the pathognomonic CT findings of calcifications at the superior aspect of the longus colli muscle tendons and reactive prevertebral fluid.¹ The patients were successfully managed conservatively with NSAIDs without any other intervention. No additional imaging was considered necessary.

DISCUSSION

Acute calcific tendinitis of the longus colli is also

known as acute prevertebral calcific tendinitis. This entity was first reported by Hartley in 1964.² The term retropharyngeal calcific tendinitis has also been used to describe this condition although, technically, the longus colli muscles are in the prevertebral space, which is separated from the retropharyngeal space by the deep layer of the deep cervical fascia (Figure 4). The longus colli is a paired neck muscle on the anterior surface of the spine comprising the vertical, inferior oblique, and superior oblique portions. The muscles lie

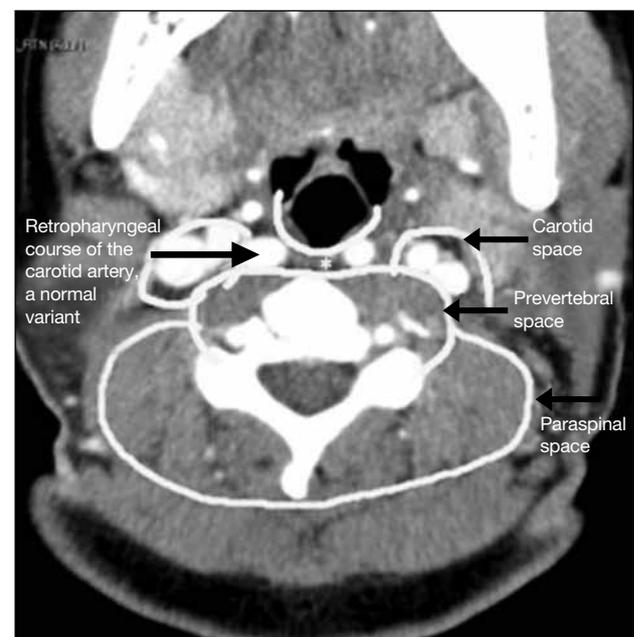


Figure 4. An axial computed tomography image of the neck illustrates the prevertebral and paraspinous compartments of the perivertebral space, separated from the retropharyngeal space (asterisk).

between the atlas and the third thoracic vertebra and are narrow at both ends. The longus colli, along with the longus capitis muscles, occupy a considerable portion of the prevertebral space (Figure 5). The longus colli muscles help in flexion and mild rotation of the neck. The superior oblique portion of these muscles arises from the anterior tubercles of the transverse processes of the C3 to C5 vertebrae and inserts into the anterior tubercle of the anterior arch of C1. The superior oblique muscle and tendon fibres usually become inflamed in longus colli tendinitis, an uncommon cause of acute cervical pain.³ Rarely, calcification may be located in a more inferior location in the vertical fibres of the longus colli muscle at the C4 to C5 or C5 to C6 levels.^{4,5} The inflammation occurs because of deposition of calcium hydroxyapatite crystals in the tendon, which incites an inflammatory response. Although the pathogenesis of the crystal deposition is not clear, several theories have been proposed, including recurrent trauma leading to tendon degeneration, ischaemia leading to alkaline pH, and genetic and metabolic factors.^{3,6} The clinical presentation mimics other more serious entities by virtue of the location of the inflammation and clinical symptoms, which may be quite dramatic and include swelling, neck pain, odynophagia, and limited range of motion.⁷ The pain induced by calcium hydroxyapatite deposition is possibly due to an inflammatory response caused by acute dispersion of crystals into the soft tissues with resultant soft tissue swelling.³ Recognition

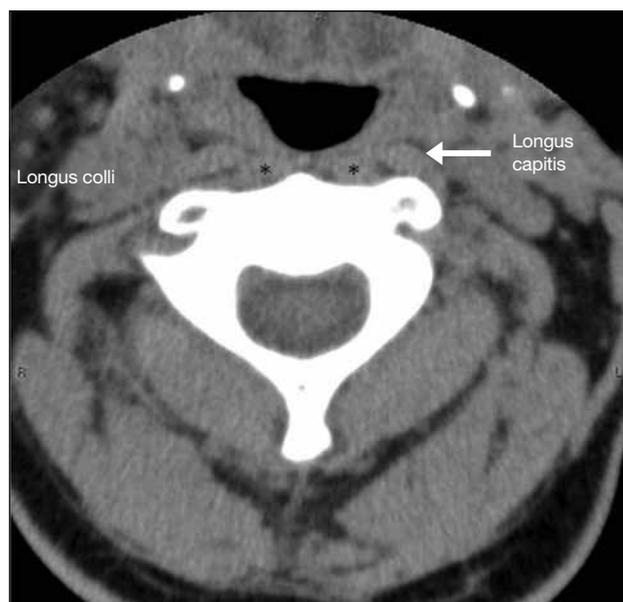


Figure 5. An axial computed tomography image of the neck shows the longus capitis (arrow) and longus colli muscles (asterisks) at the C2 level.

of the following findings on CT can help to make the diagnosis of acute prevertebral calcific tendinitis and differentiate this condition from the more serious conditions of retropharyngeal abscess or infectious spondylitis / discitis^{1,7,8}:

- (1) the pathognomonic finding of amorphous calcification in the longus colli tendon anterior to the C1 to C2 level on CT, associated with diffuse swelling of the muscle;
- (2) prevertebral fluid that smoothly expands the space in all directions without an enhancing wall, differentiating it from an abscess; and
- (3) absence of suppurative retropharyngeal space lymph nodes or osseous erosions, fracture, or disc abnormality, thereby excluding other causes of prevertebral fluid.

Calcifications can sometimes be detected on lateral radiograph of the spine with prevertebral soft tissue thickening. Magnetic resonance imaging (MRI) can demonstrate muscle oedema as increased signal in the prevertebral space on fluid-sensitive sequences.^{7,8} A single report of effusion in both lateral atlanto-axial joints is also described,⁹ but this was not seen in these patients. Calcific tendinitis of the longus colli may also present with vertebral inflammation in addition to that of the longus colli.^{10,11} Vertebral oedema on MRI in the appropriate setting and in the presence of calcification of the longus colli tendon should alert clinicians to the diagnosis of prevertebral calcific tendinitis. Treatment of prevertebral calcific tendinitis is usually NSAIDs and supportive therapy to expedite resolution of symptoms. Prevertebral calcific tendinitis is a self-limiting condition that usually resolves spontaneously.¹⁰⁻¹²

Differential Diagnosis

The presence of prevertebral fluid on CT in a trauma patient should be viewed with suspicion and a careful search for a subtle vertebral fracture or ligamentous injury should be performed. An example is that of an elderly man presenting with a history of falls and limb weakness, in whom CT examination revealed ill-defined prevertebral fluid in the neck. The clue to the diagnosis was the anteriorly widened C5 to C6 disc space suggesting anterior longitudinal ligament disruption, which was confirmed by MRI (Figure 6). Prevertebral fluid may be seen in inflammatory or infectious conditions of the neck. The source of the prevertebral fluid in this patient was right submandibular gland infection and diffuse inflammation of the neck and floor of the mouth, a picture compatible

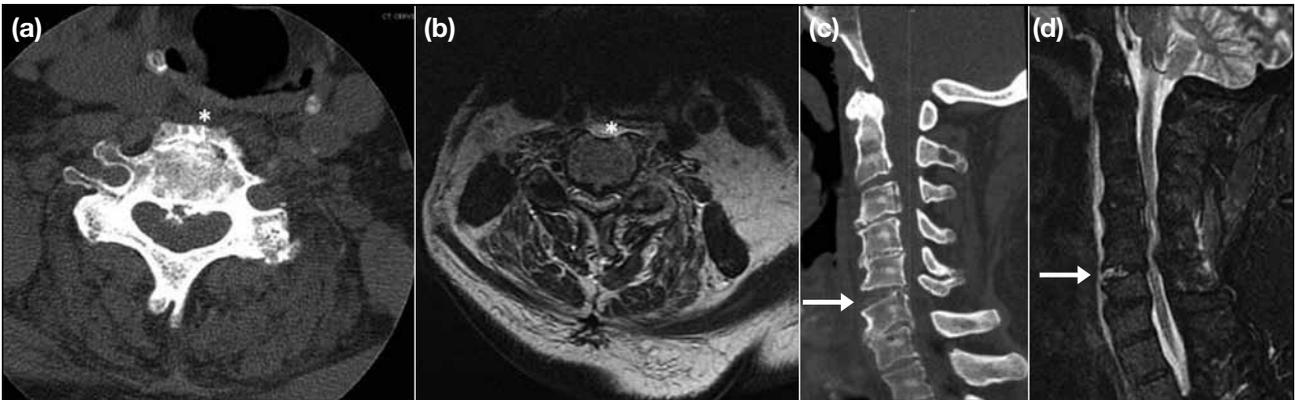


Figure 6. Imaging of the neck showing (a and b) prevertebral fluid (asterisks) on axial computed tomography and T2-weighted fast-spin echo magnetic resonance imaging, respectively, and (c and d) widened C5 to C6 intervertebral space anteriorly with hyperintensity on fluid-sensitive sagittal magnetic resonance imaging (arrows), indicating disruption of the anterior longitudinal ligament.



Figure 7. A computed tomography image of the neck shows prevertebral fluid (asterisk) in a patient with right submandibular sialadenitis (arrow) and diffuse oedema of the oropharynx.

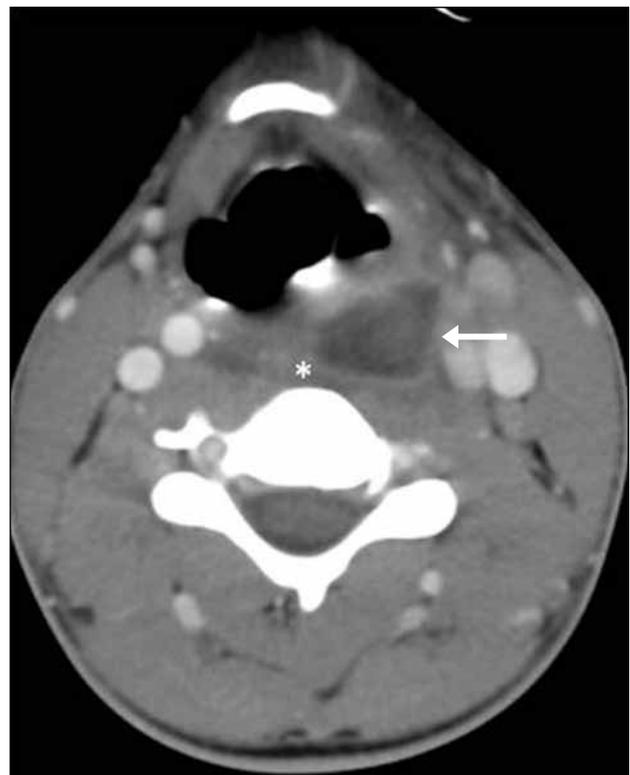


Figure 8. A computed tomography image of the neck shows a rim-enhancing retropharyngeal fluid collection, consistent with a retropharyngeal abscess (arrow). Reactive fluid is seen in the prevertebral space (asterisk).

with a clinical diagnosis of Ludwig’s angina (Figure 7). Another example is a retropharyngeal abscess which demonstrates an enhancing wall, as seen in Figure 8, in a 16-year-old male patient with sore throat, fever,

and leukocytosis. The enhancing wall differentiates an abscess from the finding of ill-defined prevertebral fluid, recognition of which helps in making the diagnosis of an infectious process.

CONCLUSION

Fluid in the prevertebral space without a discrete enhancing wall and in the absence of other findings of lymphadenopathy, discitis, or trauma, should alert clinicians to the possibility of acute calcific prevertebral tendinitis. Recognition of the typical amorphous calcium deposits in the longus colli tendon should confirm the diagnosis and avert any further unnecessary examination or intervention. Supportive therapy, including a short course of NSAIDs, is generally adequate to hasten recovery from this unusually self-limiting benign entity.

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