

Acute Calcific Tendinitis of Longus Colli, a Rare but Masquerading Entity of the Neck: A Case Series Study and Brief Review

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Abstract

Introduction: Calcific tendinitis involves calcium deposition in the substance of the tendon at its insertion producing intolerable pain and other symptoms. Due to the odd presentation of symptoms, they are often mis-diagnosed or inappropriately treated. This phenomenon is most commonly seen affecting the shoulder region.

Calcific deposition occurring in the longus colli muscle is very rare and only a handful of cases has been reported in the orthopedic literature. The exact pathogenesis of this condition is still under debate. It is a self-limiting condition, characterized by neck pain and restriction of neck movements with mild elevation of acute-phase reactants.

Study: We are reporting four cases of acute calcific tendinitis of longus colli muscle presented to our hospital with progressive pain in the neck and restricted neck movements. Mean age group of the patients was between 50 and 75 years. Blood investigations were normal except for raised acute-phase reactants in two patients. Radiological evaluation showed increased soft tissue shadow in front of C1-C2 vertebra region anteriorly. Computed tomography (CT) of the cervical region was done without using contrast, which turns out to be beneficial in diagnosing all our cases. The axial sections of the CT scan showed the presence of calcific deposits at the insertion of superior oblique part of longus colli muscle. They were managed conservatively with anti-inflammatory medications and adequate rest. Remarkable recovery was noted within few days of treatment.

Conclusion: For any case with neck pain and limited neck motion, calcific tendinitis of longus colli muscle can be thought as a differential diagnosis even though their presentation is very rare so as to avoid unnecessary interventions.

Keywords: Calcific tendinitis, longus colli muscle, Pre-vertebral shadow.

Background

Calcific tendinitis or tendinopathy is an inflammatory condition caused by the precipitation of calcium in the intrasubstance of the tendon, inserted near to the joint [1]. It has a predilection for large joints with few exceptional small joint involvements. Among the large joints, shoulder joint is most commonly affected [2]. This inflammatory condition is considered to be a type of hydroxyapatite deposition disease which resolves gradually [3]. Calcific deposits in the longus colli muscle are not stumbled upon regularly in clinical practice, and chances of mis-diagnosing are quite high [4]. Calcific tendinitis occurring in unusual locations such as longus

colli tendons is not well described in literature. Erroneous judgment has brought redundant interventions in the past.

The aim of this study is to shed light upon the existence of acute calcific tendinopathy of longus colli muscle and a brief description on its management based on our experience of treating four cases, whom we managed conservatively and had an excellent outcome. Awareness of its existence is important to prevent unwanted medications and surgical interventions [5].

Methods

We are reporting four cases of acute-onset calcific tendinitis of longus colli muscle treated in our hospital during the 4 years (2012–2016). Patients presented to our OPD with complaints of acute-onset progressive neck pain and restricted neck movements. Of the four cases, three were male patients. Two patients were in their mid-fifties and the other two patients in their late sixties



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Figure 1: Cervical spine plain X-ray lateral view– (a) arrow indicates the increased soft tissue shadow anterior to C1-C2 vertebrae of case 1 and (b) same features in case 3.

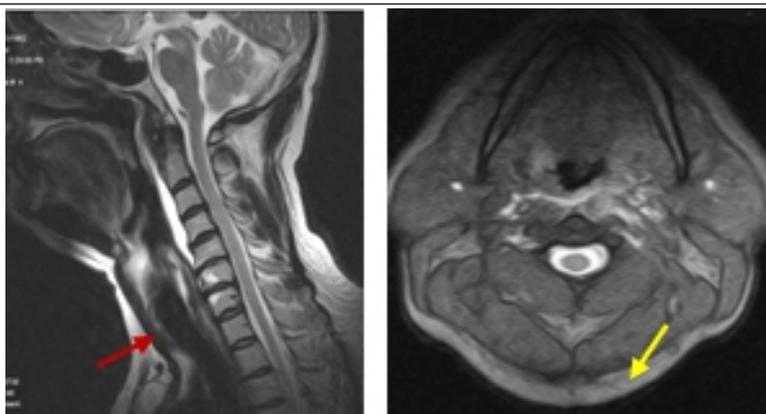


Figure 2: Magnetic resonance imaging images of case 2 showing (a) prevertebral fluid collection and (b) inflammatory edema in the left longus colli muscle T2 sagittal and axial T2 images.

(median age: 61 years). The average duration of the onset of symptoms was less than four 4 days. Patients were evaluated at the time of admission. There was no history suggestive of upper limb weakness or infection. There were no complaints of radiation of pain or tingling sensation to the upper limbs. No history suggestive of difficulty while swallowing . Two of the elderly patients were diagnosed to have type 2 diabetes mellitus and were on regular medication. One patient was a known case of coronary artery disease on medication and has undergone coronary artery bypass grafting 10 years ago.

On detailed clinical examination, three patients were afebrile and one patient had raised body temperature (99.6°F) with no cervical lymph adenopathy. There were no visible signs of inflammation or meningismus. Cervical spine was non-tender on palpation for two patients; others had tenderness on deep palpation. Significant paraspinous muscle spasm was present for all four cases. Neck range of movements was restricted for all the four patients in all directions but was unable to differentiate it from other causes of neck pain. Neurological examination of the two

patients was delayed due to acute pain and spasm and later rechecked after medications, which turned out to be of normal grade.

Routine blood tests were performed to rule out pathological causes. All blood parameters were normal except in two cases, where there was an elevation in the acute-phase reactant values.

Radiological evaluation was sought, the plain radiographs (Fig. 1) of the cervical spine showed a characteristic increase in the soft tissue shadow over C1-C2 region in all patients. Others features present in the radiographic images were decreased interbody distance between C5 and C6 vertebrae and the presence of osteophytes. shadow anterior to C1-C2 vertebrae of case 1 and (b) same features in case 3.

Magnetic resonance imaging (MRI) scan was performed to rule out (Fig. 2) other sinister lesions in the vertebra. T2-weighted sagittal (SAG) images showed pre-vertebral fluid collection extending from C1-C5 region and collection of inflammatory edema in the longus colli muscle in the corresponding axial T2 images.

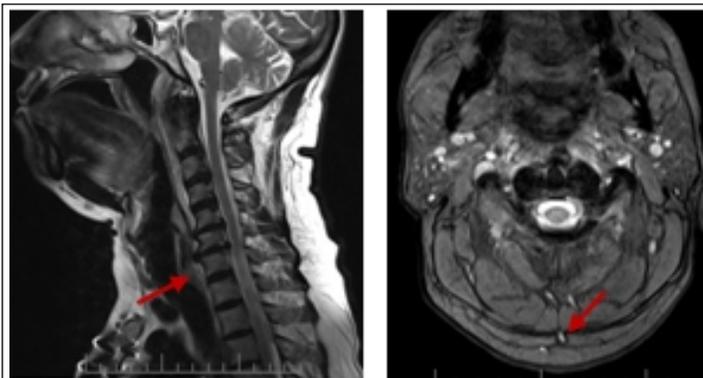


Figure 3: Magnetic resonance imaging T2 sagittal and T2 axial images of case 4. Arrow denotes inflammatory effusion at the level of C1-C2 vertebrae and the calcific deposits.

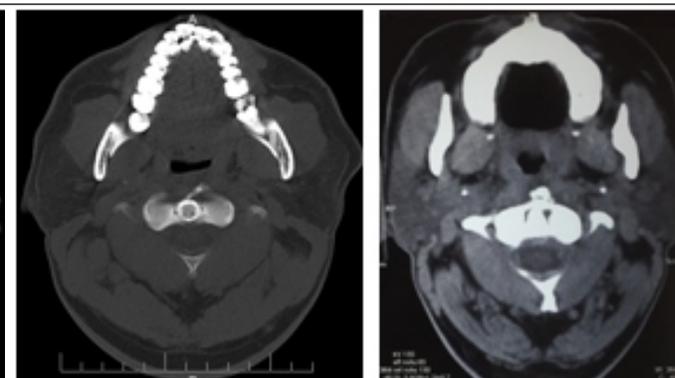


Figure 4: Computed tomography axial images – (a) and (b) arrows showing calcific deposition at the insertion of superior oblique longus colli muscle.

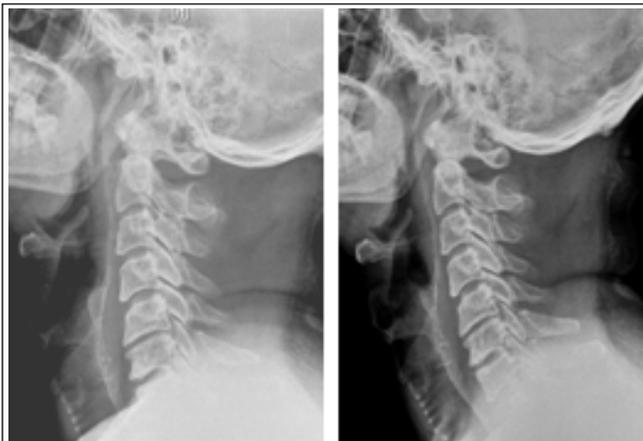


Figure 5: (a) Cervical spine plain X-ray lateral view shows decrease in soft tissue shadow taken at the end of the 2nd week, (b) plain X-ray taken at the end of 1 month.

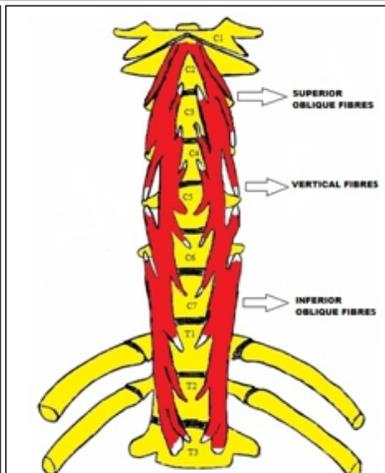


Figure 6: Schematic representation of longus colli muscle.

Computed tomography (CT) scan was used for correlation (Fig. 3); it detected focal amorphous calcification at the insertion of superior oblique part of longus colli muscle clinching the diagnosis of acute calcific tendinitis of longus colli muscle. Calcific deposits were clearly visualized in CT scan of all four patients.

Conservative management was opted, since all the patients had acute onset of symptoms. Anti-inflammatory medications such as non-steroidal anti-inflammatory drugs were given along with other supportive measures.

Results

All our cases had remarkable improvement following treatment. Patients were discharged from the hospital after 4 days of admission. All the patients were regularly followed up until complete remission of symptoms. Radiographs taken at an interval of 2 weeks and 30 days showed reduction in the soft tissue shadow at the C1-C2 cervical region.

Discussion

The longus colli muscle is a paired weak flexor of the neck separated from the cervical vertebra by the anterior longitudinal ligament and forms an important barrier to the retropharyngeal space [6]. This muscle has three portions– the superior oblique fibers, vertical fibers, and inferior oblique fibers, these together forms the main bulk of the longus colli muscle [6] (Fig.6).

The superior oblique fibers extend from the transverse process of C3-5 vertebra to the anterior tubercle of the

atlas [6,7](Fig.6). Vertical fibers span the vertebral bodies of upper thoracic vertebra anteriorly until inserts onto the upper cervical vertebra [6,7]. Lower oblique fibers arise anterior to T1-T3 vertebral body and inserts to transverse process of C5-C6 vertebra [6,7] (Fig.6).

Acute longus colli tendinitis is a type of calcific tendinopathy that arises secondary to calcium

hydroxyapatite deposits in the superior oblique fibers. Hartley, in 1964, described this condition producing severe neck pain [8], odyphagia, and neck movement restriction. Ring et al., in 1994, proved that this inflammatory condition is caused by the deposition of calcium hydroxyapatite crystal in the substance of the longus colli tendon [9].

Several authors have put forward different hypothesis about the aetiopathogenesis of longus colli tendinitis, but the true cause of this entity is still not well-known. Earlier hypothesis was in favour of multiple factors that contributed to the deposition of calcium hydroxyapatite crystals such as repetitive trauma, ischemia, and necrosis of the tendon [1,6].

Uthoff and Loehr described four stages in the process of calcification of rotator cuff tendon [10]. It begins with the pre-calcific phase, progresses to the calcific phase, resorptive phase, and finally post-calcific phase [1,10]. Clinical symptoms may vary during each stage. Rui et al. proposed that abnormal differentiation of tendon derived stem cells was the major contributing factor for ectopic calcium deposition [1,11]. Breakage of the hydroxyapatite crystals induces inflammatory changes in the tendon and causes accumulation of reactive fluid in the prevertebral space which produces the characteristic soft tissue shadow in the radiographs as well as in the MRI [6].

There is no sex predilection for this condition. Majority of our study were men., Mostly affects men and women belonging to the age groups from 21 to 80 years, but most often presents between the third and sixth decade [13]. In our study, two patients belonged to the age

group of 55–60 years and two patients of the age group of 65–70 years. Presentation of symptoms will vary, but characteristic triad includes acute-onset neck pain, stiffness, and odynophagia. Our patients on presentation did not have the same symptoms as mentioned in the triad. Sometimes, the patient history itself will suggest a recent exposure to upper respiratory tract infection [13]. Limitation of neck movement in all directions is a common finding in these individuals [6]. Blood investigations may show mild rise in acute-phase reactants and mild leukocytosis.

Initial workup should include a detailed examination of the oropharynx, auricular region, and cervical region to rule out other conditions mimicking this disease such as retropharyngeal abscess, neoplasm, meningitis, and vertebral abscess [6,7,9].

Imaging modalities normally requested are plain radiography, CT scan, and MRI. CT scan is considered to be the gold standard for detecting calcification of the longus colli tendon [6]. An axial section of the CT scan at the level of C1-C2 vertebrae is a must to see the amorphous calcium deposition [5,6,7,9]. Extend of prevertebral fluid collection can be easily noted and quantifiable in the T2-weighted SAG images of the MRI scan. Inflammatory changes in the longus colli muscle are also seen in the axial images. The absence of enhancement around the prevertebral effusion differentiates inflammatory from infectious pathology. Plain

radiographs will show the changes in soft tissue shadow at the cervical region, but the calcific deposits may not be visualized always.

It's a self-limiting disease which gradually resolves over a period of 2–3 weeks [13]. Management of this condition needs adequate rest, anti-inflammatory medications, and analgesics. If the pain does not subside, corticosteroids and opioids can be given [6]. Immobilization with soft cervical collar has been advised by few and its use is rarely required [5]. None of our patients required soft cervical collar. In recalcitrant cases of calcific tendinitis of rotator cuff and rectus femoris, some authors have described percutaneous CT/USG-guided steroid infiltration, but there are no reports supporting the same in longus colli tendinitis [10]. All our patients responded to anti-inflammatory medications and rest. They had excellent recovery within few days after treatment initiation. The sheer existence of this condition and the knowledge about of its management are vital in preventing unnecessary surgical and medical interventions.

Conclusion

Acute calcific tendinitis of longus colli is a rare type of calcific tendinopathy producing neck pain and stiffness which mimics life-threatening conditions of the neck. A sound clinical acumen is needed to diagnose and treat this condition so as to avoid unwanted surgical interventions.

References

1. Oliva F, Via AG, Maffulli N. Physiopathology of intratendinous calcific deposition. *BMC Med* 2012;10:95.
2. Oliva F, Via AG, Maffulli N. Calcific tendinopathy of the rotator cuff tendons. *Sports Med Arthrosc Rev* 2011;19:237-43.
3. McCarty DJ Jr., Gatter RA. Recurrent acute inflammation associated with focal apatite crystal deposition. *Arthritis Rheum* 1966;9:804-19.
4. Harnier S, Kuhn J, Harzheim A, Bewermeyer H, Limmroth V. Retropharyngeal tendinitis: A rare differential diagnosis of severe headaches and neck pain. *Headache* 2008;48:158-61.
5. Ade S, Tunguturi T, Mitchell A. Acute calcific longus colli tendinitis: An underdiagnosed cause of neck pain and dysphagia. *Neurol Bull* 2013;5:1-6.
6. Zibis AH, Giannis D, Malizos KN, Kitsioulis P, Arvanitis DL. Acute calcific tendinitis of the longus colli muscle: Case report and review of the literature. *Eur Spine J* 2013;22 Suppl 3:S434-8.
7. Offiah CE, Hall E. Acute calcific tendinitis of the longus colli muscle: Spectrum of CT appearances and anatomical correlation. *Br J Radiol* 2009;82:e117-21.
8. Hartley J. Acute cervical pain associated with retropharyngeal calcium deposit. A case report. *J Bone Joint Surg Am* 1964;46:1753-4.
9. Ring D, Vaccaro AR, Scuderi G, Pathria MN, Garfin SR. Acute calcific retropharyngeal tendinitis. Clinical presentation and pathological characterization. *J Bone Joint Surg Am* 1994;76:1636-42.
10. Uthoff HK, Loehr JW. Calcific tendinopathy of the rotator cuff: Pathogenesis, diagnosis, and management. *J Am Acad Orthop Surg* 1997;5:183-91.
11. Rui YF, Lui PP, Chan LS, Chan KM, Fu SC, Li G, et al. Does erroneous differentiation of tendon-derived stem cells

- contribute to the pathogenesis of calcifying tendinopathy? Chin Med J (Engl) 2011;124:606-10.
12. Eastwood JD, Hudgins PA, Malone D. Retropharyngeal effusion in acute calcific prevertebral tendinitis: Diagnosis with CT and MR imaging. AJNR Am J Neuroradiol 1998;19:1789-92.
13. Rodrigue E, Costa JP. An Unusual cause of neck pain: Acute calcific tendinitis of the longus colli. J Med Cases 2014;5:171-3.
14. Smith RV, Rinaldi J, Hood DR, Troost T. Hydroxyapatite deposition disease: An uncommon cause of acute odynophagia. Otolaryngol Head Neck Surg 1996;114:321-3.

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