



Pathways in the diagnosis of prevertebral tendinitis

R. Vollmann^{a,*}, G. Hammer^{b,1}, J. Simbrunner^{a,2}

^a Medical University Graz, Department of Radiology, Auenbruggerplatz 9, 8036 Graz, Austria

^b Medical University Graz, Department of Otorhinolaryngology, Auenbruggerplatz 20, 8036 Graz, Austria

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ABSTRACT

Introduction: The prevertebral tendinitis is an inflammatory process, which affects the cervicothoracic prevertebral muscles. This extremely rare entity was first described by Hartley and Fahlgren in 1964 and until now there are just some case reports dealing with this process.

Unfortunately it is quite easy to misdiagnose or mistake the prevertebral tendinitis as an abscess, because of the imaging features.

The aim of this case series is to offer guidelines in the diagnosis of this rare disease to prevent unnecessary surgery.

Material and methods: Six patients with already by imaging or retrospectively after surgery by pathologic report diagnosed prevertebral tendinitis were included in this study. None of these patients suffered from a chronically inflammatory disease.

Three patients just received contrast enhanced computed tomography (CT) and another group of three patients received magnetic resonance imaging (MRI). In two out of three MRI examinations, we additionally performed diffusion weighted images and calculated the apparent diffusion coefficient (ADC) map.

The laboratory reports obtained on the day of the computed tomography (CT) or magnetic resonance imaging (MRI) examinations were reviewed for C-reactive protein (CRP) and white blood cell count (WBCC).

Results: All patients revealed a prevertebral cervical effusion. Five out of six patients showed amorphous calcifications in the tendon of the prevertebral muscles. In one case calcifications could not be identified at all because of very strong beam hardening artefacts caused by dental prothesis.

The CRP values were increased in all patients (mean value 44.9 mg/l; SD ± 28.3). However, WBCC remained normal (mean value 8.4 G/l; SD ± 2.7).

Only for the two patients who received DWI it was possible to assess the quality of the prevertebral fluid accumulation and to detect the benign prevertebral effusion, which is typical for the retropharyngeal tendinitis.

Conclusion: According to the experience with our patients the best imaging feature is MRI with DWI and ADC map to reveal the benign prevertebral effusion and confirm the diagnosis of prevertebral tendinitis.

In some cases MRI might not be available. Here we recommend CT scans to detect typical prevertebral calcifications. Especially a slight elevation of CRP and normal WBCC make the prevertebral tendinitis more likely.

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1. Introduction

Acute calcific tendinitis of the longus colli muscle is an extremely rare self-limiting inflammatory disease. It was first

described by Hartley and Fahlgren in 1964 [1] and now goes under a number of synonyms like prevertebral or retropharyngeal tendinitis. We prefer the name prevertebral tendinitis because of the anatomic localization of inflammatory changes. Calcium hydroxyapatite deposition in the longus colli tendon is postulated to induce acute inflammation of the longus colli muscle tendon insertion [2].

Unfortunately it is quite easy to misdiagnose or mistake this rare entity as an abscess, because of the imaging features.

The aim of this case series is to offer guidelines in the diagnosis of this rare disease and to prevent unnecessary surgery.

* Corresponding author. Tel.: +43 316 385 80472; fax: +43 316 385 13848.

E-mail addresses: robert.vollmann@meduni-graz.at (R. Vollmann), georg.hammer@meduni-graz.at (G. Hammer), josef.simbrunner@meduni-graz.at (J. Simbrunner).

¹ Tel.: +43 316 385 81348; fax: +43 316 385 13549.

² Tel.: +43 316 385 80422; fax: +43 316 385 13848.

2. Materials and methods

Six patients with already by imaging or retrospectively diagnosed retropharyngeal tendinitis were included in this study. There were three male and three female patients with a mean age of 46.3 years (SD \pm 14.15). None of these patients suffered from a chronically inflammatory or malignant disease.

Three patients just received contrast enhanced computed tomography (CT) and another group of three patients received magnetic resonance imaging (MRI). In two out of three MRI examinations, we additionally performed diffusion weighted images and calculated the apparent diffusion coefficient (ADC) map.

One patient also received a follow up MRI study 5 days after anti-phlogistic treatment.

This retrospective study was approved by the institutional review board.

The laboratory reports obtained on the day of the computed tomography (CT) or magnetic resonance imaging (MRI) examinations were reviewed for C-reactive protein (CRP) and white blood cell count (WBCC). We did choose these parameters because they are included in routine laboratory blood sample and were available for every patient. At our institution, the normal value of CRP is <8 mg/l and the normal value of WBCC is <9500 cells/MCL.

Written informed consent for neck CT or MRI with contrast agent administration was obtained from all patients before the procedure.

We performed MRI examinations with 1.5T system (Siemens Magnetom Espree). The imaging protocol included a DW single-shot spin echo echoplanar sequence acquired in the anterior commissure–posterior commissure (diffusion gradient b values of 500 and 1000 s/mm², repetition time [TR] 5000 ms, echo time [TE] 114 ms, slice thickness 6 mm with no gap, matrix of 192 \times 100 pixels, and field of view of 230 mm); fluid-attenuated inversion recovery (FLAIR; TR/TE 9770/99 ms, inversion time 2200 ms); and T2-weighted turbo spin echo sequences (TR/TE 4500/85 ms). For diffusion weighted MRI, the diffusion gradients were successively and separately applied in 3 orthogonal directions for a total acquisition time of 97 s. Trace images were then generated and apparent diffusion coefficient (ADC) maps calculated with a dedicated software tool (Syngo; Siemens).

CT studies (collimation: 64 mm \times 0.6 mm; pitch: 1.05; section thickness: 5 mm; increment: 3 mm) from the maxilla to the aortic arch were performed with a 64-slice CT-scanner (Somatom Sensation 64, Siemens, Erlangen, Germany) before and after administration of intravenous contrast agent (50 ml Iopromide, Bayer HealthCare, Leverkusen, Germany) by a power injector (Ulrich Medical, Ulm, Germany) at a rate of 3 ml/s and a scanning delay of 40 s after the start of the injection. A saline flush of 50 ml was admitted after the contrast agent injection at the same rate.

3. Results

In two out of three patients, who received CT examinations, the prevertebral inflammatory changes were misdiagnosed as an abscess. This diagnosis was corrected retrospectively after surgery by pathologic report.

All patients revealed a prevertebral effusion (Figs. 1 and 2). According to the pathologic report, we could offer in two cases after surgery, this fluid accumulation consists of serous and fibrinous components.

Five out of six patients showed amorphous calcifications (Figs. 3 and 4) in the tendon of the longus colli muscle. In one case calcifications could not be identified at all because of very strong beam hardening artefacts caused by dental prosthesis.

Furthermore all patients showed an asymmetric swelling of the longus colli muscle (Fig. 5).

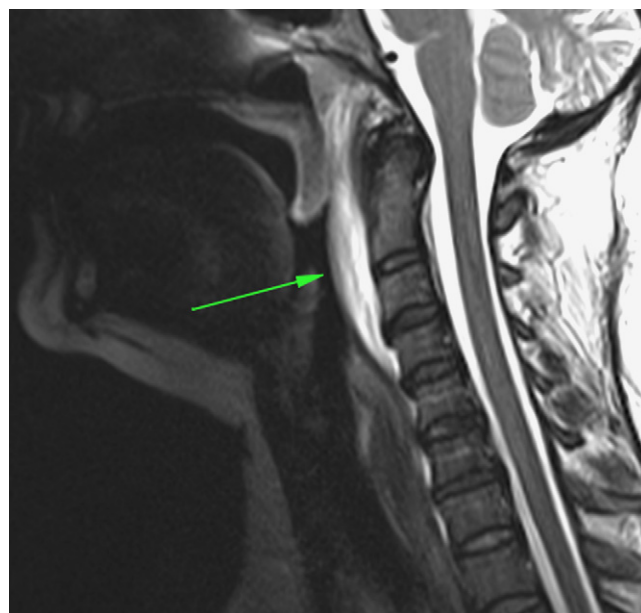


Fig. 1. T2 weighted MRI sequences (sagittal view) reveal a hyperintense swelling of the prevertebral space (arrow).

The CRP values were increased in all patients (mean value 44.9 mg/l; SD \pm 28.3). However, the WBCC remained normal (mean value 8.4 G/l; SD \pm 2.7).

Only for the two patients who received DWI it was possible to assess the quality of the prevertebral fluid accumulation and to detect the benign retropharyngeal effusion, which is typical for the prevertebral tendinitis.

We also performed a follow up MRI for one patient after anti-phlogistic therapy 5 days later. In this examination the pre-



Fig. 2. Contrast enhanced CT shows a hypodense liquid formation in the prevertebral space (arrow).

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