Case Report

Bilateral sternocleidomastoid pseudotumors—a case report and literature review

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ABSTRACT

Sternocleidomastoid (SCM) pseudotumors, also known as fibromatosis colli or congenital torticollis, are painless benign neck lumps found in newborns. Whilst unilateral cases are relatively common, bilateral SCM pseudotumors are a rare phenomenon with only a handful of cases reported internationally. We present the case of a 5-week-old infant who was brought to the emergency department with painless, bilateral, palpable anterior neck masses following a slightly traumatic but otherwise uncomplicated spontaneous delivery. An ultrasound scan of his neck revealed well-defined soft tissue lesions within both of the SCM muscles. He was subsequently diagnosed with bilateral SCM pseudotumors. This case emphasizes the importance of considering this entity as a differential diagnosis in infants presenting with bilateral palpable neck masses.

Keywords:
Bilateral
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Torticollis
Pediatric

INTRODUCTION

Sternocleidomastoid (SCM) pseudotumors are benign, painless neck lumps found in newborns and infants. They usually present unilaterally (commonly right-sided) and are associated with birth trauma. They are formed from the proliferation of fibrous stroma within the SCM muscle. SCM pseudotumors are often self-resolving if identified early and if prompt physiotherapy is initiated. Invasive or surgical intervention is usually only required in the event of a delayed diagnosis [1].

Bilateral SCM pseudotumors are extremely rare with only 5 cases reported in the literature to date [2-5]. We present the case of a 5-week-old infant presenting with painless, bilateral, palpable anterior neck masses, which were initially thought to be due to bilateral cervical lymphadenopathy. A diagnosis of bilateral SCM pseudotumors was made after ultrasound (US) examination of the neck.

CASE REPORT

A 5-week-old male infant presented to the pediatric emergency department with bilateral, painless, palpable anterior neck lumps which were reported by his mother. No history of
fever or night sweats was reported. The patient was feeding well and gaining adequate weight, however remained below the 10th centile. He was born to nonconsanguineous parents at 37 weeks gestation via spontaneous vertex vaginal delivery, complicated only by a degree of intraoperative trauma. At birth, the patient weighed 2.418 kg (below 10th centile for gestational age) and had a head circumference of 32.5 cm. Initially, the patient was kept in hospital for 4 days postdelivery due to concerns regarding inadequate weight gain and poor feeding. He was safely discharged within days after a normal breastfeeding regimen was established. The patient had 1 sibling (from the same parents) who had been diagnosed with type 1 diabetes mellitus. In addition, there was a family history of familial multiple lipomatosis.

On examination, the infant’s neck was slightly flexed. The bilateral lumps were noted to be firm and appeared to be overlying and inseparable from the SCM muscles. They were also nontender, noncaloric, and they are not associated with cutaneous discoloration. The lumps measured approximately 4 × 3 cm on the right-side and 3 × 2 cm on the left-side. Clinical examination was otherwise unremarkable with no enlarged lymph nodes palpable elsewhere.

His vital signs on presentation were: respiratory rate 46, oxygen saturations 99% on room air, capillary refill time <2 seconds, heart rate 173 beats per minute, and temperature 37.1°C.

A full blood count on presentation showed; hemoglobin 119 g/dL (120-180), white cell count 6.8 × 10^3/mL (4-10.5), neutrophils 6.78 × 10^9/L (2-7.5), lymphocytes 3.4 × 10^9/L (0.8-5), platelets 338 × 10^9/L (150-450), mean cell volume 95.8 fl (80-100).

C-reactive protein was 1.0 mg/L (<5) and lactate 1.1 mmol/L (<2).

Urea and electrolytes showed; sodium 138 mEq/L (135-145), potassium 5.7 mEq/L (3.5-5.0), creatinine 18 μmol/L (53-106), calcium 2.74 mmol/L (2.2-2.7), phosphate 2.06 mg/dL (1.45-2.1).

Liver function tests showed; bilirubin 18 mg/dL (1-12), alanine aminotransferase 44 U/L (7-56), aspartate aminotransferase 54 U/L (5-40), alkaline phosphatase 529 U/L (44-147), albumin 37 g/L (34-54).

A chest radiograph was unremarkable with normal cardiomedistal contours and clear lungs. In light of the above history and clinical examination, bilateral cervical lymphadenopathy was the leading differential.

The following day, an US examination of his neck was performed which demonstrated well-defined, isoechoic, intramuscular focal soft tissue lesions within the SCM muscles bilaterally. In the right SCM muscle, the lesion measured 2.6 × 1.4 cm and in the left measured 2.3 × 1.1 cm (Fig. 1). These lesions were relatively hypovascular in nature on color Doppler. There were no enlarged cervical or supraclavicular lymph nodes. Features were consistent with bilateral SCM pseudotumors.

Following this discovery, his parents were reassured and the patient was discharged. He was followed up in the community and received physiotherapy. We are pleased to report that he has made a complete recovery and no longer has any limitations of movement in his neck.

**Discussion**

SCM pseudotumors are a benign condition of infancy, classically presenting within 8 weeks of birth with an average age of presentation of 24 days [1]. A pseudotumor is commonly seen as a unilateral, slow-growing firm mass in the neck; with 75% being on the right side. The reported incidence is 0.4%-1.3% of live births, with a bilateral presentation being extremely rare [6]. After an extensive literature search, only 5 previous published cases of bilateral SCM pseudotumors were identified [2-5].

The etiology of SCM pseudotumor is not yet fully understood. It has been postulated that the mass itself is a remnant hematoma; a result of trauma to the SCM muscle during intrauterine breech, difficult labor, and delivery [7]. Support-
ing this theory is the fact that the incidence of intrauterine restriction and forcep deliveries is significantly higher in children presenting with pseudotumor [7]. In one study, more than half the patients presenting with a pseudotumor had a history of difficult labor [8]. However, it is peculiar that features of hematoma are not seen at birth. Typically, there are no signs of trauma, overlying skin changes or discoloration observed in patients at birth who later present with a pseudotumor [7]. Moreover, there is refuting histological and radiological evidence of this. Cytological analyses describe pseudotumor composition to be of benign fibroblasts, multinucleated giant cells, and atrophic muscle fibers without the presence of hemosiderin [9]. US scans reveal these masses to have hypoechoic margins and to move synchronously with the SCM muscle [10]. This is unlike acute and chronic hematomas which can be heterogeneous hypoechoic with a thick hyperechoic rim and often demonstrate a fluid-debris level [11]. Furthermore, there are several cases of pseudotumor reported in caesarean section births, undermining the traumatic hematoma theory [12]. More recently, intrauterine compartment syndrome, pressure necrosis, and primary proliferation of the SCM muscle during its embryogenesis have been suggested in pseudotumor etiogenesis [13,14]. This condition has been associated with developmental dysplasia of the hip, leading some studies to recommend screening for developmental dysplasia of the hip in all patients presenting with SCM pseudotumors and vice versa [1,15].

In this case report, we describe the rare phenomenon of bilateral SCM pseudotumors, which were initially diagnosed as bilateral cervical lymphadenopathy. Differential diagnoses to exclude for bilateral neck swelling in a child under 8 weeks include reactive lymphadenopathies and cat scratch disease; both of which normally present with systemic features including fever and night sweats. Nonreactive causes to be considered include solid tumors such as rhabdomyosarcoma, Burkitt’s lymphoma, teratomas, and vascular malformations [9], all of which commonly have a unilateral presence. The presence of neck lumps and the absence of systemic systems in a patient with a history of traumatic birth is strongly suggestive of SCM pseudotumors [16].

Diagnosing this condition early is crucial as studies demonstrate a strong correlation with early physiotherapy and a better prognosis. However, if identified after 12 months or left untreated until this point, patients may require surgical intervention [14,17,22]. The most common surgical intervention involves sectioning of the SCM tendon (tenotomy) or lengthening of the affected muscle. Recently, an endoscopic approach releasing the SCM muscle demonstrated similar outcomes to open tenotomy with additional cosmetic advantages [18]. US imaging is the most effective modality for diagnosis, with up to 100% sensitivity rates reported in the literature [19,20]. MRI has a lower diagnostic sensitivity however can provide useful ancillary information regarding soft tissue characteristics, muscle fiber involvement and inflammation [19,20]. Typical appearances on US are of a thickened SCM muscle with a fusiform shaped internal mass [16]. Fine needle aspiration with cytological analysis can be performed if there is any diagnostic doubt. Typically, this will demonstrate multinucleated giant myocytes on a background of scattered spindle cells [21].

It is necessary to reassure parents that this is a benign condition that resolves either spontaneously or with physiotherapy within the first year of life if it is detected early and treated promptly. This case highlights the rarity of this condition, however emphasizes the importance for clinicians and radiologists to have this as a differential diagnosis in an infant who presents with painless bilateral neck lumps.

**Patient consent statement**

The authors of this manuscript have obtained written, informed consent from the patient’s parents to write up the case report and for the use of images pertinent to the case. We have ensured anonymity of all clinical and graphical data used.

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