Infant Neck Knots Unveiled: Diagnosing Fibromatosis Colli with Point of Care Ultrasound

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Neck masses are a common yet challenging presentation in pediatric patients. They may be caused by congenital, inflammatory, neoplastic, or vascular issues. The diverse nature of these masses can make definitive diagnosis difficult for clinicians. Several classification systems exist to categorize neck masses, considering factors such as age at presentation, anatomical location, imaging characteristics, and underlying etiology [1].

These masses often reflect benign infectious, inflammatory, or congenital etiologies. However, in certain cases, lymphadenopathy or other neck masses may indicate an underlying malignancy, thereby serving as a significant source of anxiety for patients and their families.

Fibromatosis colli (FMC) is characterized by a diffuse enlargement of the sternocleidomastoid muscle (SCM), usually in infancy. FMC, initially described as SCM tumors of childhood, is detected in 0.4% of live births but is among the most frequent perinatal neck masses [2].

Many postulates have been presented for the exact etiology of FMC. The most accepted reason is birth trauma in primipara and with infants born after prolonged or difficult labor. It is a benign fibroblastic lesion of the SCM presenting as a firm, fusiform, non-tender neck mass of 1–3 cm in greatest dimension in the perinatal period. Males are more commonly affected, and the right SCM muscle is more commonly involved.

Soft tissue ultrasound of the neck is the imaging modality of choice. It is non-invasive, reliable with a sensitivity of 100% reported in the literature, but not always accessible to the pediatric emergency department (PED) physician. On ultrasound, FMC presents as a fusiform swelling 2–3 cm in maximal diameter located in the lower two-thirds of the SCM, whose movements are synchronous with the SCM, with no surrounding inflammatory changes [3]. The swelling lacks the oval morphology and hyperechoic hilum of lymph nodes or the anechoic or hypoechoic formation located within a cystic lesion. Color Doppler does not exhibit any vasculature within the lesion in contrast to vascularized formations, which helps differentiate from a venous malformation or from a lymphangioma.

FMC is usually managed conservatively, with spontaneous resolution after 3–4 months. Extreme cases may be treated with physiotherapy.

There is growing evidence supporting the use of point-of-care ultrasound (POCUS) by PED physicians in a variety of diagnostic applications. Emergency department POCUS can decrease the length of stay and improve resource use [4].

The literature describing PED POCUS for neck masses is sparse [5]. To the best of our knowledge FMC has not been described. In this case series, we present five patients who had FMC diagnosed by a physician in the PED using POCUS, which helped expedite further care and management.

TECHNIQUE

In all cases, images in the series were obtained using a high-frequency linear transducer on a Z.One Pro Zonare ultrasound machine with a L14-5W transducer (Mindray, USA) or a Venue Go™ R3 with L12 transducer (GE HealthCare, USA). SCM was assessed in both longitudinal (long-axis) and transverse (short-axis) views and compared to contralateral side for differences in size and echotexture. No color flow was detected, indicating absent internal vascularity.

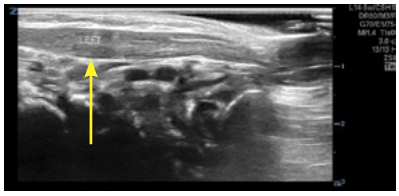
PATIENT DESCRIPTION

All five cases presented with similar clinical findings as their primary complaint:

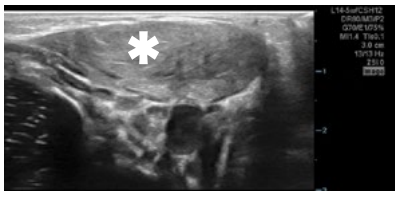
- Case 1: A 5-week-old girl with a 1-day history of right-sided neck swelling
- Case 2: A 7-week-old girl with a 14-day history of right-sided neck swelling
- Case 3: A 2-week-old girl with a 1-day history of left-sided neck swelling
- Case 4: A 2.5-week-old girl with a 1-day history of left-sided neck swelling
- Case 5: A 4-week-old boy with a 2-day history of left-sided neck swelling

Figure 1. Images of the same child comparing normal neck to abnormal long axis

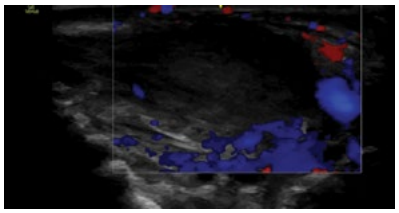
[A] Arrow shows normal sternocleidomastoid muscle



[B] Fusiform swelling of 3 × 1.5 cm located within the sternocleidomastoid muscle, asterisk shows fibromatosis colli



[C] Color doppler demonstrating absent flow within the swelling



All infants were previously healthy, with no significant antenatal history. None had history of trauma, fever, or irritability. They were feeding well and displaying normal behavior. Vital signs were within normal limits. Physical examination in each case revealed a lateral neck swelling that was non-tender, with no overlying erythema or warmth. They all exhibited slight torticollis and limited range of motion on the affected side.

POCUS performed by PED physicians demonstrated thickening of the SCM, with heterogeneous hypoechoic areas or a fibrous mass with no color flow, suggesting fibromatosis colli (FMC) [Figure 1].

The patients were discharged with parental reassurance and advised to undergo outpatient radiology ultrasound (RADUS). We instructed parents to encourage the infant to turn their head in both directions to prevent positional plagiocephaly. In four cases, RADUS within 3 weeks confirmed the diagnosis of FMC. In the fifth case, although RADUS was never performed, telephone follow-up revealed complete resolution of the neck swelling by 4 months after the initial emergency department visit.

In all cases parental anxiety was significantly diminished.

COMMENT

In this case series, we highlight the ability of PED physicians to diagnose FMC using POCUS. POCUS, as a noninvasive and readily accessible imaging modality, can expedite diagnosis and optimize patient care across diverse clinical settings. Prompt diagnosis of fibromatosis colli is important, as prolonged positional facial asymmetry can lead to further impairments. By facilitating earlier identification and management, POCUS can improve quality of care, reduce the need for interdepartmental transfers, and potentially shorten hospital stay. In facilities without immediate access to radiology services, POCUS may also prevent unnecessary referrals to external imaging centers. Furthermore, it can diminish the requirement for additional diagnostic tests and alleviate parental anxiety by providing rapid and accessible imaging, including in community-based practices.

The differential diagnoses for neck masses in infants is broad, encompassing conditions such as cervical lymphadenitis, brachial cleft cysts, cystic hygromas, and, in rarer cases, malignant etiology such as rhabdomyosarcoma, lymphoma, or neuroblastoma. Each of these pathologies exhibits distinct sonographic features [3] such as fluid content, vascular patterns, and tissue composition, which can often be assessed at the bedside using POCUS. By providing real-time imaging and facilitating rapid differentiation between potential etiologies, POCUS helps guide timely and appropriate management.

To the best of our knowledge, this case series is the first to explicitly describe FMC identified on PED POCUS. We found one published report that includes a case of POCUS-diagnosed FMC within a series demonstrating the reliability of POCUS for pediatric neck masses. There, the authors showed excellent levels of agreement between

the POCUS diagnoses and final diagnoses for children presenting with neck masses [5].

CONCLUSIONS

This limited case series demonstrates the utility of PED POCUS performed in diagnosing FMC. Early diagnosis with POCUS may lower parental anxiety and reduce unnecessary evaluations. As POCUS becomes more widely adopted, diagnosing FMC in pediatric outpatient or community-based settings should become increasingly prevalent.

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References

1. Torsiglieri AJ Jr, Tom LW, Ross AJ 3rd, Wetmore RF, Handler SD, Potsic WP. Pediatric neck masses: guidelines for evaluation. *Int J Pediatr Otorhinolaryngol* 1988; 16 (3): 199-210.
2. Thomsen JR, Koltai PJ. Sternomastoid tumor of infancy. *Ann Otol Rhinol Laryngol* 1989; 98 (12 Pt 1): 955-9.
3. Caprio MG, Di Serafino M, Pontillo G, et al. Paediatric neck ultrasonography: a pictorial essay. *J Ultrasound* 2019; 22 (2): 215-26. Erratum in *J Ultrasound* 2019; 22 (1): 107.
4. Oto B, Baeten R, Chen L, et al. Best practices for point of care ultrasound: an interdisciplinary expert consensus. *POCUS J* 2024; 9 (1): 95-108.
5. Friedman N, Tseng F, Savic R, et al. Reliability of neck mass point-of-care ultrasound by pediatric emergency physicians. *J Ultrasound Med* 2019; 38 (11): 2893-900.

Capsule

IgA-driven neutrophil activation underlies severe dengue disease after primary Zika virus infection in humans

The four dengue virus serotypes (DENV1-4) and the related Zika flavivirus (ZIKV) are major public health concerns worldwide. Primary immunity against ZIKV increases the risk of a subsequent severe DENV2 infection, presenting a significant challenge for developing safe and effective ZIKV vaccines. However, the mechanisms driving this phenomenon remain unclear. Leveraging a long-standing pediatric dengue cohort study in Nicaragua, **Cardona-Ospina** and colleagues showed that anti-NS1 immunoglobulin A (IgA) antibodies in plasma, elicited after a primary ZIKV infection, drive neutrophil activation and correlate with increased risk of subsequent severe DENV2 disease. Depletion experiments combined with ex vivo functional NETosis assays confirmed that anti-NS1 IgA antibodies drive neutrophil activation in dengue hemorrhagic fever and dengue shock syndrome (DHF–DSS). Moreover, increased neutrophil degranulation in paired plasma samples, obtained during the acute DENV2 infection from the same individuals, correlated with IgA binding to DENV2 NS1 and preceded the development of vascular leakage. This finding was corroborated in an orthogonal hospital-based study. Thus, anti-NS1 IgA in plasma enhances neutrophil activation in severe dengue disease, with implications for prognostics, therapeutics and vaccines.

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Capsule

Skin-derived myeloid precursors and joint-resident fibroblasts spread psoriatic disease from skin to joints

Psoriatic disease initially affects the skin and later extends to the joints. **Raimondo** and colleagues showed a two-step process that orchestrates the spread of inflammation from the skin to the joints. Induction of psoriatic skin disease in photoconvertible mice, followed by sequencing and computational characterization of skin-derived cells in the joints, was used to identify a population of $CD2^{+}MHC\text{-}II^{+}CCR2^{+}$ myeloid precursors that builds a skin-derived myeloid cell compartment in the joints. Single-cell cross-species reference mapping and mitochondrial variant tracing showed an orthologous human cell population. Interactome analysis of the joints showed that in a second step, resident regulatory $CD200^{+}$ fibroblasts regulate the priming of $CD2^{+}MHC\text{-}II^{+}CCR2^{+}$ myeloid precursors, which subsequently control IL-17 expression in T cells. Hence, the spread of inflammation requires a distinct migratory myeloid precursor population and a permissive local tissue environment, similar to tumor metastasis.

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