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Case Series

Fibromatosis colli: a case series of three infants

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ABSTRACT

Fibromatosis colli is a rare, benign fibrous lesion of the sternocleidomastoid muscle in infancy. It typically presents as a firm; non-tender neck swelling within the first few weeks of life and is strongly associated with birth trauma. We report a series of three infants with fibromatosis colli, emphasizing the role of clinical evaluation, ultrasonography, and fine-needle aspiration cytology (FNAC) in diagnosis, with physiotherapy as the mainstay of management. A four-week-old male presented with a left cervical swelling following breech delivery. Ultrasound showed fusiform thickening of the left sternocleidomastoid, and FNAC confirmed fibromatosis colli. He was managed conservatively with physiotherapy. A six-week-old female presented with right-sided neck swelling after a forceps-assisted delivery. Ultrasound revealed an ellipsoid enlargement of the right sternocleidomastoid, and FNAC showed spindle fibroblastic cells. She responded well to physiotherapy with near-complete resolution at three months. A three-week-old male had bilateral sternocleidomastoid thickening with restricted neck movement after prolonged labor. Ultrasound confirmed bilateral fusiform thickening, and FNAC ruled out malignancy. Physiotherapy led to gradual improvement over 4 months. Early recognition of fibromatosis colli is crucial to avoid unnecessary investigations and parental anxiety. Timely physiotherapy results in spontaneous regression in most cases, while surgery is reserved only for refractory cases.

Keywords: Fibromatosis colli, Congenital torticollis, Sternocleidomastoid pseudotumor, Birth trauma, Infant neck swelling

INTRODUCTION

Fibromatosis colli, also termed sternocleidomastoid muscle tumor of infancy, congenital muscular torticollis, or pseudotumor of infancy, is a benign fibroblastic proliferation within the sternocleidomastoid muscle. It usually presents in the first few weeks of life as a firm, non-tender cervical swelling and is often associated with difficult or assisted deliveries.[1,2] The incidence ranges from 0.4-1.3% of live births, with a right-sided predominance and rare bilateral cases.[2-4]

Typical onset occurs at 2-4 weeks of age, presenting as a firm, painless, fusiform intramuscular mass with varying degrees of head tilt and restricted rotation.[5,6] Ultrasound imaging is the diagnostic modality of choice, demonstrating fusiform thickening with preserved fibrillar architecture and typically no abnormal vascularity.[7,8] FNAC confirms the benign myofibroblastic process and excludes rhabdomyosarcoma, lymphoma, or other infantile fibromatoses.[9,10] Conservative management-parental education, stretching, and physiotherapy-is standard, with resolution in most cases within 3-6 months.[3,6,12,13] Surgical release is reserved for refractory deformity beyond late infancy.[13]

We present three cases of fibromatosis colli managed conservatively and contextualize them with current evidence.

CASE SERIES

In this case series, three infants presented with fibromatosis colli during early infancy (all <6 months old, consistent with the typical presentation age). Each infant had a firm, fusiform neck mass along the sternocleidomastoid (SCM) muscle. Key clinical details for each case are given below.

Case 1

A 40-day-old male infant was referred for a firm left-sided neck swelling and head tilt. He was born at term by forceps-assisted vaginal delivery for breech presentation (a recognized risk factor for fibromatosis colli). The parents first noted the mass at about 2-3 weeks of age. On examination, there was a 3×2 cm fusiform, non-tender swelling in the lower third of the left SCM. The overlying skin was normal and a mild ipsilateral head tilt with restricted neck rotation was present; no lymphadenopathy or other abnormalities were seen.

Ultrasonography demonstrated fusiform enlargement of left SCM with heterogeneous echotexture and preserved muscle fascicles, without lymphadenopathy, cystic change, or calcification. These sonographic features supported the diagnosis of fibromatosis colli. FNAC was then performed under ultrasound guidance. Cytologic smears (stained with H and E and Giemsa) showed benign-appearing spindle-shaped fibroblasts and atrophic skeletal muscle fibers, along with characteristic multinucleated regenerating muscle cells. No granulomas or malignant cells found. These findings confirmed fibromatosis colli.

Infant was managed conservatively with physiotherapy. He underwent daily passive stretching exercises of left SCM, positional therapy (encouraging contralateral head rotation), and tummy-time repositioning. Parents were instructed in a home physiotherapy program. The mass gradually regressed. At 6-week follow-up the swelling was visibly smaller and neck range-of-motion had improved; by 6 months of age the SCM was nearly symmetric and head posture was normal.

Case 2

A 3-week-old male infant presented with a right-sided neck mass detected at about 2 weeks of life. Pregnancy and delivery were unremarkable (vaginal delivery without instrumentation). On exam the right anterior neck had a firm, immobile 2×1 cm fusiform swelling along SCM. No ipsilateral head tilt or craniofacial asymmetry was noted.

An initial ultrasound was interpreted as possible lymphadenopathy, so FNAC was obtained. FNAC yielded moderately cellular aspirates of bland spindle-shaped fibroblastic cells and scattered multinucleated muscle giant cells. These cytologic features were diagnostic of fibromatosis colli. Conservative management was instituted. Child received gentle passive stretching of right SCM and was positioned with supervised prone ("tummy") time. Parents were educated in proper stretching techniques. By 3 months of age the swelling was barely palpable and head posture had normalized.

Case 3

A 4-month-old male infant was evaluated for a right neck mass and torticollis. The mass had been noted at about 3 months of age. He was born at term by cesarean section for fetal distress. The infant had developed a compensatory head tilt to the left side, and by 4 months mild right-sided plagiocephaly was evident. Examination revealed a firm 4×2 cm fusiform mass in the lower right SCM, with limited passive neck extension. Cervical ultrasound showed fusiform enlargement of the right SCM with heterogeneous echogenicity and maintained continuity of muscle fibers. Color Doppler demonstrated no abnormal internal vascularity. FNAC showed benign spindle fibroblasts admixed with atrophic and regenerating muscle fibers, including multinucleated muscle cells. These features confirmed fibromatosis colli.

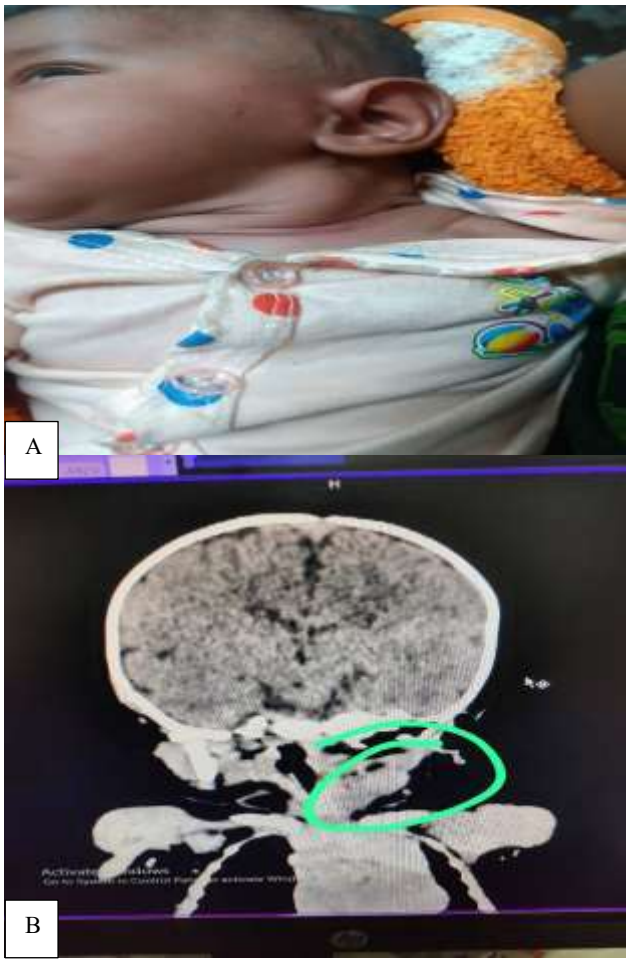

Figure 1 (A and B): A-Neck deviation and swelling along the left sternocleidomastoid. B-CT (computed tomography) scan of neck showing fusiform enlargement of the left sternocleidomastoid muscle without infiltration of adjacent structures.

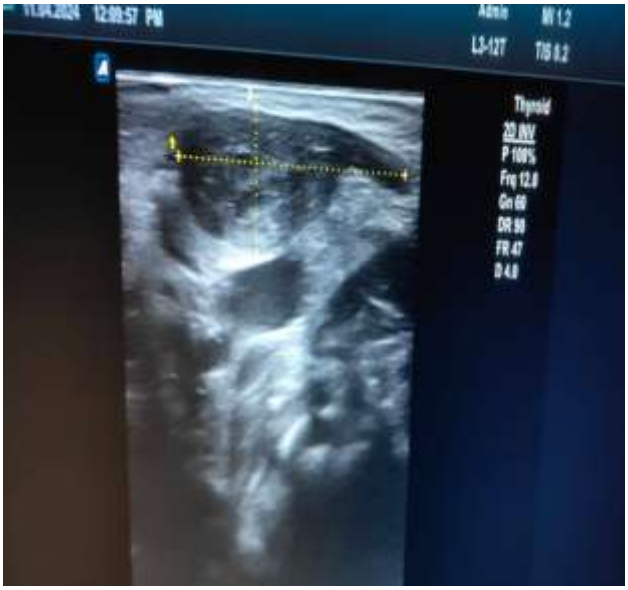

Figure 2: Ultrasonography of the left sternocleidomastoid muscle showing fusiform thickening in a four-week-old male infant.

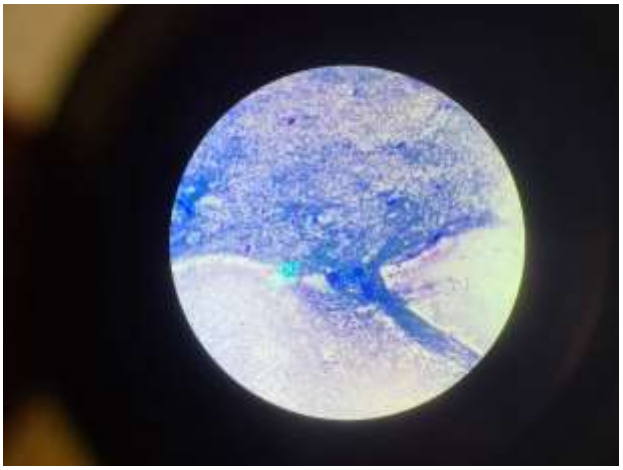

Figure 3: FNAC smear demonstrating multinucleated muscle giant cells consistent with fibromatosis colli.

Management consisted of stretching exercises, rotational range-of-motion therapy, and positional adjustments. Over the next 8 weeks, the neck muscle tightness improved and the plagiocephaly diminished. By 7 months of age the SCM mass had significantly regressed and the infant's head alignment was essentially normal.

DISCUSSION

Epidemiology and etiopathogenesis

Fibromatosis colli likely represents a localized fibrotic response to perinatal muscle injury from difficult or instrumental deliveries, malposition, or ischemia, leading to fibroblast proliferation within the sternocleidomastoid muscle.[1,2,5,6] Venous outflow obstruction has also been proposed as a contributing mechanism. The right-sided predominance may reflect intrauterine positioning, though bilateral disease is increasingly documented.[2,4,14]

Clinical features and differential diagnosis

Infants typically present at 2-8 weeks of age with a firm, non-tender sternocleidomastoid muscle mass and torticollis. If untreated, secondary plagiocephaly may develop.[5,6,15] Differential diagnoses include infantile fibromatosis, rhabdomyosarcoma, neuroblastoma metastasis, lymphadenitis, branchial cyst, and vascular malformations.[9,10,16] FNAC is particularly useful when imaging is atypical or malignancy must be excluded.[9-11,16]

Imaging

Ultrasound remains the first-line investigation, demonstrating fusiform sternocleidomastoid muscle enlargement with preserved echofibrillar structure and absence of abnormal vascularity.[7,8,14] Magnetic resonance imaging is reserved for atypical presentations or when broader neck pathology is suspected.[6] Point-of-care ultrasound can aid bedside diagnosis in neonatal and emergency settings.[15] All our cases demonstrated characteristic ultrasound features, allowing outpatient management.

Cytopathology

Fine-needle aspiration cytology smears show benign spindle fibroblasts, atrophic skeletal muscle fibers, and multinucleated regenerating muscle giant cells in a clean background-features diagnostic of a reparative myofibroblastic process.[9-11,17] Two of our cases demonstrated these typical findings, reinforcing confidence in conservative therapy.

Management

Conservative treatment remains the mainstay. Early physiotherapy with caregiver-directed positioning and passive stretching accelerates recovery and improves head control.[6,13,18] Most cases resolve within 3-6 months, occasionally by 3 months.[3,12] Contemporary congenital muscular torticollis literature supports varied stretching paradigms and emphasizes caregiver education.[13,18]

Surgical sternocleidomastoid muscle lengthening or release is reserved for persistent craniofacial asymmetry or restricted motion after well-delivered therapy-typically after late infancy.[6,13,18] Ongoing follow-up should include assessment for plagiocephaly and screening for developmental hip dysplasia due to associated risk in congenital muscular torticollis populations.[15,18]

The small sample size and short follow-up period limit this series, precluding documentation of complete histologic resolution. However, outcomes align with global experience and current best practices.

CONCLUSION

Fibromatosis colli should be considered foremost in neonates presenting with sternocleidomastoid muscle masses and torticollis, particularly following difficult or instrumental deliveries. High-quality ultrasound confirms diagnosis, while fine-needle aspiration cytology assists in excluding malignancy. Early, parent-led physiotherapy yields excellent outcomes, with surgical intervention rarely necessary.

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