Case Report

Sternocleidomastoid tumor – rare infantile neck mass diagnosed by fine-needle aspiration cytology: Report of two cases

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ABSTRACT

Sternocleidomastoid tumor, also known as fibromatosis colli, is a rare form of fibromatosis in infants which is a rare, benign, and self-limiting tumor of infancy presenting as a well-circumscribed, hard, immobile, and fusiform swelling in the lower or middle portion of the sternocleidomastoid muscle. Birth injury associated with difficult labor is the most favored hypothesis. We describe using two cases as an example how this condition can be diagnosed by careful clinical history taking and fine-needle aspiration cytology so to avoid the surgical intervention. Here, we highlighted the cytological features of the sternocleidomastoid tumor so that it can be easily differentiated from congenital, inflammatory, and neoplastic masses in the neck in an infant.

Key words: Birth injury, fibromatosis colli, fine-needle aspiration cytology, sternocleidomastoid tumor

INTRODUCTION

A sternocleidomastoid tumor is a rare form of fibromatosis in infants which is a rare, benign, and self-limiting tumor of infancy. It is the most common cause of mass in the cervical region during infancy and neonatal torticollis.[1] It usually presents as a well-circumscribed, hard, immobile, and fusiform swelling in the lower or middle portion of the sternocleidomastoid muscle, which appears at 2–4 years of age.[2] The pathogenesis is an ongoing debate, but birth injury is supposed to play an important role in the pathogenesis. Recognized risk factors are breech delivery, primiparous birth, and instrumental extraction.[3] The treatment is conservative. Spontaneous regression occurs in weeks to months. Surgical intervention becomes necessary in refractory cases. Diagnosis can be made by fine-needle aspiration cytology (FNAC) and radiology. FNAC is a cheap, rapid, less invasive, and safe method of providing a confirmatory diagnosis of neck masses in infants.[4] The sternocleidomastoid tumor must be differentiated from neck masses of other etiologies in an infant which includes congenital, inflammatory, and neoplastic conditions and other forms of infantile fibromatosis.[5] Here, we report two cases in a 27-day-old and 45-day-old child diagnosed by FNAC and treated conservatively.

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CASE REPORTS

Case 1

A 27-day-old male child presented with a well-circumscribed, immobile, firm to hard, fusiform swelling measuring 3 cm × 2 cm on the anterior aspect of right sternocleidomastoid muscle since birth [Figure 1]. History of progressive increase in size and breech delivery was given by the mother. Feeding and sleeping was normal. On examination, restricted movements were noticed on the affected site. He also had congenital torticollis with her chin and face

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turned to the left side. There was no evidence of other congenital anomalies and family history of similar lesions. Other laboratory investigations are normal. FNAC was advised with clinical diagnosis of malignancy. FNAC was performed using 23-gauge needle. Aspirated material was fixed with 95% alcohol, and May-Grunwald-Giemsa stain was done. Smears were moderately cellular and showed predominantly spindle cells scattered singly with plump nuclei and eosinophilic cytoplasm in a hemorrhagic background [Figure 2]. Regenerating multinucleate muscle cells are seen at places. No evidence of inflammatory cells or necrosis was seen in the background [Figure 3]. Based on the clinical and cytological examination, a diagnosis of sternocleidomastoid tumor was made. The patient was managed conservatively and referred to the physiotherapy department. The swelling subsided over a period.

Case 2

A 45-day-old child presented with an ill-defined, immobile, firm swelling measuring 2 cm × 2 cm on the anterior aspect of right sternocleidomastoid muscle, noticed by the mother 15 days back. No evidence of difficult labor or restricted movements was present. Clinical diagnosis of sternocleidomastoid tumor was made. FNAC was done. Microscopy revealed similar findings. The findings were consistent with the clinical diagnosis of sternocleidomastoid tumor. The patient was managed conservatively without any surgical interventions.

DISCUSSION

Sternocleidomastoid tumor also known as Fibromatosis colli or pseudotumor of infancy or congenital muscular torticollis, is a rare congenital fibroblastic lesion present in approximately 0.4% of the live births.[1] In 2002, the World Health Organization categorized it as a benign fibroblastic proliferation in the classification of soft tissue tumors. It usually affects male patient appears shortly after birth generally before 1 year of age as a firm, painless, fusiform mass, 2–3 cm in diameter in the mid or lower portion of the right sternocleidomastoid muscle.[2] It is the most common cause of congenital muscular torticollis accounting for 15–20% of all cases.[6]

The etiopathogenesis is not understood. Various theories have been postulated which include fetal malposition, birth injury, vascular compression causing ischemic necrosis, infections, and the presence of endogenous factors. Birth injury associated with difficult labor or assisted delivery, i.e., breech or forceps delivery is often cited as a possible cause of this tumor and the most favored theory.[7] Another theory states that it is a peculiar hamartomatous process unrelated to birth trauma or vascular impairment. In the present scenario, history of perinatal trauma was obtained only in one case.

Sternocleidomastoid tumor is associated with many congenital musculoskeletal defects such as metatarsus adducts, development dysplasia of hip, and talipes equinovarus.[6]

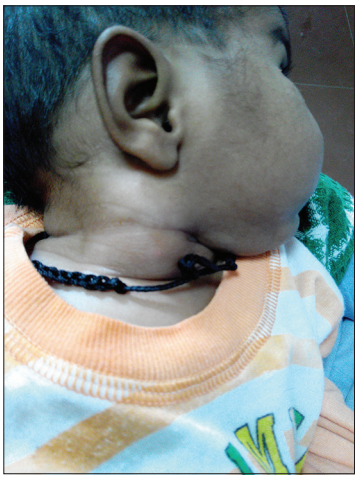

Figure 1: Immobile, hard swelling on the anterior aspect of right sternocleidomastoid tumor

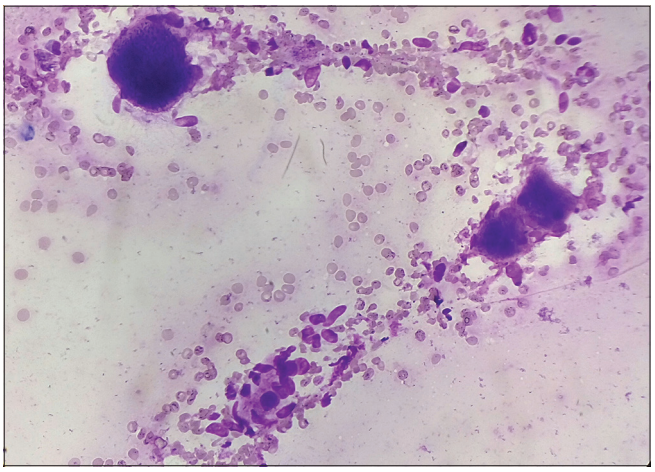

Figure 2: Plump and normal fibroblast scattered singly and in clusters (×200, May-Grunwald-Giemsa)

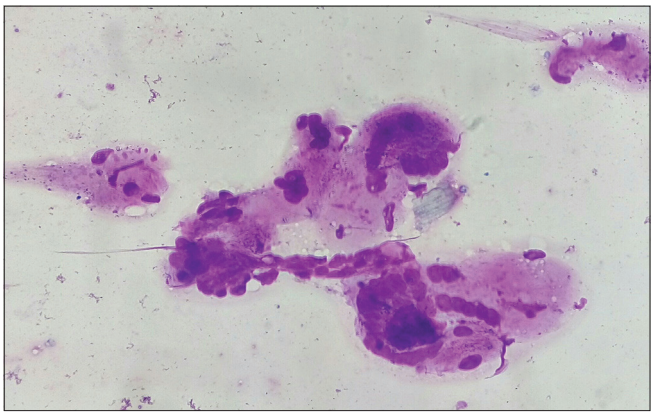

Figure 3: Regenerating multinucleate muscle giant cell (×400, May-Grunwald-Giemsa)

Sternocleidomastoid tumor has a characteristic clinical history and presentation pertaining to age, sex, birth trauma, location, and size of tumor. Differential diagnosis includes congenital lesions such as branchial cyst and thyroglossal cyst; inflammatory lesions such as tuberculous lymphadenitis and neoplastic conditions, which include benign neoplastic conditions such as cystic hygroma, hemangioma, and malignant tumors such as neuroblastoma, lymphoma, and rhabdomyosarcoma.[5] FNAC is a rapid, reliable, cheap, and less invasive diagnostic procedure and helps in the diagnosis of sternocleidomastoid tumor as also to rule out the above conditions. Radiological imaging modalities aid in the diagnosis. Cytomorphological features consist of bland appearing and plump fibroblast scattered singly and in clusters along with degenerative, atrophic skeletal muscles, and regenerating multinucleated muscle fibers in a clean background are characteristic.[5,7,8] There is no evidence of inflammation and hemorrhage in the background.

Other benign fibrous proliferations of infancy which simulate sternocleidomastoid tumor can be differentiated on the basis of clinical features such as age, site, and infiltrative pattern and cytologically by the presence of collagen fragments and spindly nuclei.[9]

Sternocleidomastoid tumor can be differentiated from nodular fasciitis cytologically by the presence of pleomorphism in the proliferating fibroblasts along with many bi- and multi-nucleate forms in a myxoid background.[10] Congenital/infantile fibrosarcoma is a rare tumor which appears at birth or within 3 months of life in the head and neck region must be differentiated from it.

Sternocleidomastoid tumor is a self-limiting condition and responds to conservative management. Spontaneous regression occurs in weeks to months. Surgical intervention is required in refractory cases and in children of more than 1 year.[11]

CONCLUSION

The characteristic clinical presentation and history of the sternocleidomastoid tumor along with cytologic findings may lead to correct diagnosis. Surgical biopsy of the lesion may therefore be avoided, and the patient can be managed conservatively if a high index of awareness is present in the cytologist.

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Conflicts of interest

There are no conflicts of interest.

REFERENCES

1. Porter SB, Blount BW. Pseudotumor of infancy and congenital muscular torticollis. Am Fam Physician 1995;52:1731-6.
2. Chandler FA, Altenberg A. Congenital muscular torticollis. JAMA 1944;125:476-83.
3. Goldblum JR, Weiss SW, editors. Fibrous tumors of infancy and childhood. In: Enzeinger and Weiss's Soft Tissue Tumors. 4th ed. St. Louis: Mosby; 2001. p. 273-5.
4. Pereira S, Tani E, Skoog L. Diagnosis of fibromatosis colli by fine needle aspiration (FNA) cytology. Cytopathology 1999;10:25-9.
5. Sharma S, Mishra K, Khanna G. Fibromatosis colli in infants. A cytologic study of eight cases. Acta Cytol 2003;47:359-62.
6. Dunn PM. Congenital sternomastoid torticollis: An intrauterine postural deformity. Arch Dis Child 1974;49:824-5.
7. Rajalakshmi V, Selvambigai G, Jaiganesh. Cytomorphology of fibromatosis colli. J Cytol 2009;26:41-2.
8. Apple SK, Nieberg RK, Hirschowitz SL. Fine needle aspiration diagnosis of fibromatosis colli: A report of three cases. Acta Cytol 1997;41 4 Suppl:1373-6.
9. Akerman M. Soft tissues. In: Orell SR, Sterrett GF, Whitaker D, editors. Fine Needle Aspiration Cytology. 4th ed. Philadelphia: Elsevier Churchill Livingstone; 2005. p. 414.
10. Dahl I, Akerman M. Nodular fasciitis a correlative cytologic and histologic study of 13 cases. Acta Cytol 1981;25:215-23.
11. Raab SS, Silverman JF, McLeod DL, Benning TL, Geisinger KR. Fine needle aspiration biopsy of fibromatoses colli. Acta Cytol 1993;37:323-8.