ISSN- O: 2458 - 868X, ISSN–P: 2458 – 8687
Index Copernicus Value: 68 . 16
PubMed - National Library of Medicine - ID: 101731606

International Journal of Medical Science and Innovative Research (IJMSIR)
IJMSIR : A Medical Publication Hub
Available Online at: www.ijmsir.com
Volume – 4, Issue – 3, June - 2019, Page No. : 114 – 117

Cytodiagnosis of Infantile Fibromatosis Colli

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Type of Publication: Case Report

Conflicts of Interest: Nil

Abstract

Mean age of diagnosis of fibromatosis colli in early infancy is about 2 weeks. Child presents with torticollis and firm to hard nodular swelling over the sternomastoid muscle. We present a case in an infant, with a clinical suspicion of lymphadenopathy, while on performing fine needle aspiration; diagnosis of infantile fibromatosis colli was suggested. Fine needle aspiration cytology is a rapid, non-invasive, safe and economical diagnostic modality for diagnosing fibromatosis colli. It also helps to differentiate this benign self-limiting disease from other diseases; thus, saving the patient from unnecessary surgical intervention.

Keywords: fibromatosis colli, fine needle aspiration, sternomastoid, torticollis.

Introduction

Fibromatosis colli also known as strenomastoid pseudotumour of infancy is detected in early infancy, with a mean age of about 2 weeks. This disorder is considered as a congenital fibrotic process. Clinically it presents with torticollis and a firm to hard, fixed fusiform to nodular swelling on lateral side of the neck over the sternomastoid muscle.[1] Characteristically, head may be tilted ipsilaterally along with contra lateral rotation of chin. Injury to the neck musculature at the time of birth is considered as an important etiologic factor.[2] Clinical diagnosis can be confirmed with the help of non-invasive methods like radiology and fine needle aspiration cytology. Invasive methods for diagnosis and treatment during first year, must be avoided.[3]

Case Report

A 6-week-old male child presented with torticollis of 3 days duration, which was noticed by parents. On clinical examination, a firm, fusiform swelling measuring 1.5x1 cm was noted in left mid cervical region above the sternocleidomastoid muscle. No co-morbidity was present. No history of trauma at birth or prolonged labour was provided. Neither any other congenital anomaly was present. Clinical examination of central nervous system, respiratory system, cardiovascular system and gastrointestinal system was unremarkable. Clinical differential diagnosis of lymph node enlargement and torticollis was considered. Fine needle aspiration cytology was performed. Scant amount of blood mixed fluid was aspirated. Smears were stained with May-Grünwald-Giemsa stain. Cytosmears prepared show singly scattered

spindle to oval fibroblasts and occasional muscle giant cells. Cells were singly scattered and arranged in loose clusters. Individual cells were spindle to oval in shape with eosinophilic cytoplasm. Cell had oval to elongated nuclei, fine nuclear chromatin and small nucleoli was seen. Background showed few scattered red blood cells (fig 1-2). Diagnosis of fibromatosis coli was made. On close follow up of the patient, it was seen that the swelling started to reduce after 2 weeks of physiotherapy and completely subsided after 3 months with neck movement returning to normal.

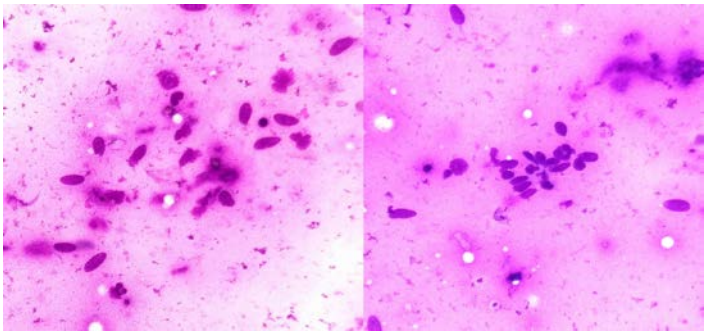

Fig-1: Photomicrographs showing spindle to oval fibroblasts (MGG, 100x)

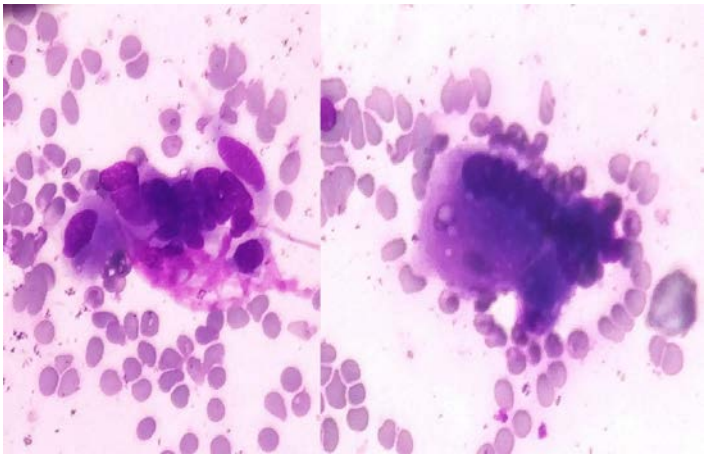

Fig-2: Photomicrographs showing muscle giant cells, background shows red blood cells (MGG, 400x)

Discussion

Fibromatosis colli also known as sternomastoid pseudotumor of infancy is detected in early infancy. It is a benign tumor of the sternomastoid muscle. It generally presents shortly after birth and before 1 year of age (mean age 2 weeks). The incidence of this lesion is approximately 0.4% amongst all new born. [4] This disorder is considered as a congenital fibrotic process. Clinically it presents with torticollis and a firm to hard, fixed fusiform to nodular swelling on lateral side of the neck over the sternomastoid muscle. [1] Characteristically, head may be tilted ipsilaterally along with contra lateral rotation of chin. Injury to the neck musculature at the time of birth is considered as an important etiologic factor. Clinical diagnosis can be confirmed with the help of non-invasive methods like radiology and fine needle aspiration cytology. Invasive methods for diagnosis and treatment during first year, must be avoided. [3]

Multiple theories are proposed to explain the pathogenesis of this lesion and include fetal malposition, trauma during birth, infections, and pressure necrosis of the sternomastoid muscle due to vascular compression during delivery. Associations with breech presentation, forceps or instrumental delivery techniques, primiparous birth and difficult labour are well recognized. [5, 6]

Increased incidence of musculoskeletal abnormalities like developmental hip dysplasia (2.4 – 10%), talipes equinovarus and metatarsus adductus are also noted in these patients.[7]

Fibromatosis colli is diagnosed during clinical examination of a child due to its classical presentation. Clinically it can be confused with thyroglossal cysts, branchial cyst, tuberculous lymph node, hemangioma, neuroblastoma, lymphoma and rhabdomyosarcoma. Computed tomography and ultrasonography are helpful in identifying the location and extent of the lesion. In present cases the selling was superficial and easily palpable. However, biopsy or surgical excision must be reserved for difficult cases only.[1]

Cytomorphological features of fibromatosis colli show scant to moderate amount of cellularity, composed of variable sized muscle fragments showing feature of degeneration and atrophy. Cells are singly scattered or are arranged in loosely cohesive clusters of variable sizes with strands of collagen. Individual cells are spindle to oval in shape having fine cytoplasm. These cells have oval to elongated nuclei, fine nuclear chromatin and small nucleoli. A few stripped or naked nuclei and multinucleated muscle giant cells may also be seen. [8] Table-1 compares findings of present case with previously reported cases.

Table 1: Comparison with previous reported cases

Study	Cytological findings
Rajlakshmi et al., 2009 [9]	Spindle cells in sheets, atrophic muscle fibres and regenerating muscle giant cells.
Chakrabarti et al., 2010 [10]	Plump to normal fibroblasts, atrophic muscle fibres and multinucleated muscle cells.
Baisakh et al., 2012 [11]	Clusters of spindle shaped fibroblast with wispy Cytoplasm and multinucleated muscle giant cells
Khan et al., 2014 [12]	Proliferating fibroblasts, scattered bare nuclei and muscle giant cells
Present Study	Singly scattered spindle to oval fibroblasts and muscle giant cells

Cytological differential diagnosis of fibromatosis colli includes nodular fasciitis and calcifying aponeurotic fibrosis.[9] Nodular fasciitis is differentiated based on the absence of proliferating fibroblasts and inflammatory cells. Calcifying aponeurotic fibrosis usually affects older individuals with involvement of hand and feet. Calcific stippling is also evident on radiography.[9] Malignant conditions like lymphoma and sarcoma show marked cellularity and prominent cytological atypia and thus can be easily differentiated.[9]

Consent

Written informed consent was taken from the parents of the patients before undergoing aspiration and also for the purpose of publication of this case report.

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