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Neck Mass in Infancy – Case Report and Review of Literature

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Abstract: The differential diagnosis of a mass in the neck is broad, extensive, and includes both benign and malignant etiologies. Sometimes neck masses are caused by a cyst that has been present from birth but is noticed only after it has become inflamed or infected. Neck masses may also result from swelling due to a neck injury or benign tumors. Rarely, lymphoma, a thyroid tumor, or malignant tumor is the cause. Here, we report a case of one month old baby who presented with an asymptomatic lateral neck mass, later diagnosed as benign sternocleidomastoid tumor of infancy on FNAC. It proved to be a rapid and reliable diagnostic modality guiding for conservative management and avoiding surgery and thus prevents late complication of torticollis.
Keywords: Torticollis, sternocleidomastoid tumor, FNAC, neck mass, infant, fibromatosis colli.

INTRODUCTION

Benign and malignant solid neck masses in children include fibromatosis colli, inflammatory adenopathy, hemangioma, neurofibroma, teratoma, lymphoma, rhabdomyosarcoma, neuroblastoma, and metastatic adenopathy [1].

The sternocleidomastoid tumor of infancy, or fibromatosis colli, is a localized fibrous tissue mass within the sternocleidomastoid (SCM) muscle. If left untreated, long term complication will be an ipsilateral head tilt and contralateral chin rotation, which gives rise to a condition called as "torticollis." Fetal intrauterine malposition mainly breeches presentation, birth trauma like by forcep delivery, or vascular compromise has been proposed as possible etiologies for this benign, self-limiting condition. Associated problems may include congenital hip dysplasia, clubfoot, and Erb's palsy [2].

The diagnosis of fibromatosis colli often can be made on the basis of a thorough birth history and physical examination. However, additional studies may be helpful to confirm the clinician's impression. Ultrasonography and Fine-needle aspiration cytology (FNAC) is another important investigation. We report a case of sternomastoid tumor of infancy diagnosed by FNAC.

CASE REPORT

A one-month-old male child presented with firm intramuscular fusiform swelling on anterior aspect of neck on right side measuring 1.5x1.5 cm. The swelling was gradually increasing in size. The obstetric history of mother revealed that the baby was a breech presentation, mother had a prolonged labor and hence the baby was delivered by cesarean section. Post partum period was uneventful [Figure 1].

Ultrasound demonstrated a fusiform mass within the lower sternocleidomastoid muscle with heterogeneous echotexture. FNAC was performed and smears were stained with May-Grünwald-Giemsa stain. Microscopy showed moderately cellular smear composed of oval to spindle shaped fibroblastic cells scattered singly and in loose cohesive clusters. Cells were having plump oval to spindle nuclei with wispy cytoplasm [Figure 2]. Many naked stripped nuclei and muscle giant cells were seen. Background showed stroma with focal myxoid areas [Figure 3]. Based on above cytological finding, a diagnosis of sternocleidomastoid tumor of infancy was suggested, and the patient was managed conservatively.

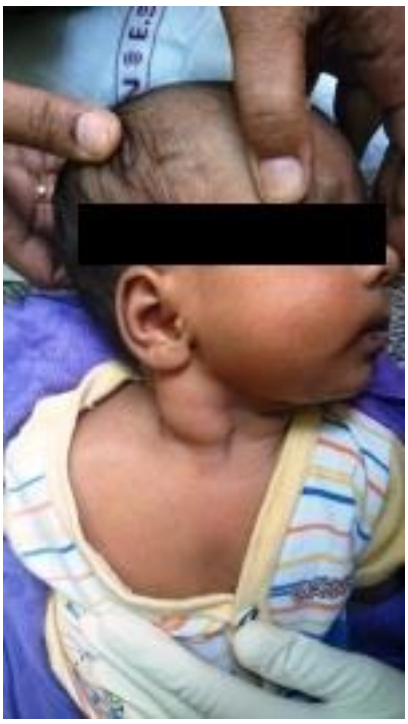

Fig-1: One month old baby boy with right lateral cervical mass

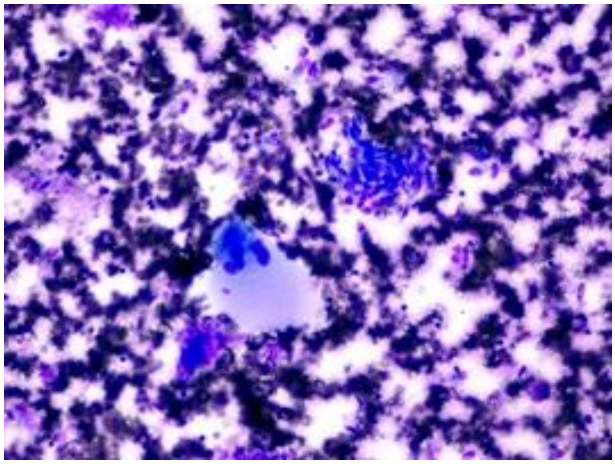

Fig-2: Photomicrograph shows cluster of fibroblasts along with skeletal muscle giant cell and stroma (H&E, 100x)

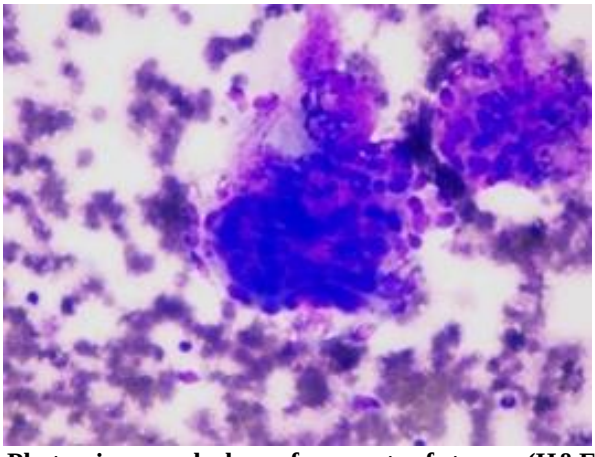

Fig-3: Photomicrograph shows fragments of stroma (H&E,400x)

DISCUSSION

Various possibilities of neck masses in infancy include inflammatory swellings, congenital cysts, neoplasms or traumatic lesions. Fibromatosis colli commonly occur in neonates. The pathogenesis involves proliferation of fibroblasts as a consequence of intramuscular hemmorhage. There is an increased risk in babies of primigravidae women with breech presentation and difficult delivery. Patients usually present at 2 to 4 weeks of age with a unilateral neck mass, with or without torticollis[3]. The mass disappears by 6 to 8 months of age in 80% of cases. Few of them may develop true muscular torticollis. Treatment is conservative and includes exercises to prevent contracture and permanent shortening of the SCM muscle. Unattended cases will lead to permanent fibrosis and contraction of the SCM muscle with progressive craniofacial growth asymmetry (nonsynostotic positional plagiocephaly), hence the urgency for prompt and appropriate intervention. In such cases, surgical release may be necessary if torticollis persist for more than a year [3].

Other fibroblastic lesions like nodular fasciitis, proliferating fibroblastic lesions and fibrosarcomas are differentiated from fibromatosis colli on the basis of cytomorphological features [4]. Reactive lymphadenitis is the most common non-neoplastic neck mass in children. The majority of children with uncomplicated cervical adenitis are treated medically and do not require any work up. If the patient doesn't improve even after administration of antibiotic therapy, patient should be further investigated [3].

Hemangioma of infancy is a benign tumor resulting from endothelial proliferation, which commonly presents in children less than 6 months of age, gradually increases over the next 2 years, and spontaneously resolves over the next 5 to 7 years. Neurofibromas are unencapsulated benign nerve sheath tumors of Schwann cell origin. There are two types of neurofibromas: Dermal and Plexiform. Plexiform occur early in life, as congenital defects and dermal occur in adolescents.

Teratomas are neoplasms composed of all 3 germ layers and originate from pleuripotential stem cells. They can occur at gonadal as well as extragonadal locations. In children sacrococcygeal teratomas are most common, but 5% to 18% occur in the cervical region. Most of these cases are diagnosed in infancy. Teratomas are very large and complex lesions containing both solid and cystic components. Most of these tumors are benign.

Lymphomas (Hodgkin's and non-Hodgkin's lymphoma) account for approximately 50% of head and neck malignancies in children. Imaging characteristics cannot distinguish between the two types. Patients may present with unilateral or bilateral disease. Involved nodes have a similar appearance to inflammatory and metastatic nodes from other primary malignancies. However, lymphomatous nodes are frequently larger and more extensive than inflammatory adenopathy. Rhabdomyosarcoma is the most common childhood soft-tissue sarcoma. It involves the head and neck in up to 40% of patients. MRI is the primary diagnostic modality followed and confirmed with biopsy and immunohistochemical markers.

Neuroblastoma is the most common malignant tumor in infants. Primary lesions are usually found in the adrenal gland and retroperitoneum. Neuroblastoma presenting as neck masses are usually metastatic enlarged lymph nodes but less than 5% cases can be the primary lesions. Symptoms other than a palpable neck mass include feeding difficulties, airway symptoms, or opsomyoclonus (opsoclonus, myoclonus, and cerebellar ataxia), which is thought to be a paraneoplastic syndrome.

Thyroglossal duct cyst and dermoid cyst are the primary differentials of midline neck swellings. When laterally located, branchial apparatus cysts and lymphatic malformations should be considered. Based on location, clinical examination and nature of aspirate, most of the cystic swellings can be ruled out [5].

CONCLUSION

FNAC is a safe, minimally invasive, rapid and reliable diagnostic modality for diagnosing sternocleidomastoid tumor of infancy. The typical clinical setting and characteristic cytological findings are definitive of diagnosis. Most solid neck masses in children are benign, including fibromatosis colli, inflammatory adenopathy, and hemangioma of infancy, neurofibroma, and benign teratoma. Using the clinical history, physical examination and imaging characteristics, most of these can be diagnosed with some certainty. Malignant lesions include lymphoma, rhabdomyosarcoma, neuroblastoma, and, rarely, metastatic adenopathy. Although it may be more difficult to make a definitive diagnosis in these children, with the above-mentioned imaging characteristics and clinical history, a definitive diagnosis should be achievable.

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