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Case Report: Angioleiomyoma in a 12-Year-Old Boy

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ABSTRACT

Introduction: This was a unique case of solid subtype angioleiomyoma located in the right posterior neck triangle of a 12-year-old boy, emphasizing the differential diagnoses and the diagnostic journey.
Objective: This report aimed to study the importance of differential diagnosis of pediatric neck lumps.
Methods: Clinical examination, imaging (ultrasound and CT scan), and histological evaluations were employed.
Results: Despite initial assumptions surrounding the nature of the lump, histological examination following an excisional biopsy confirmed it as a solid subtype angioleiomyoma.
Conclusion: The report stressed on the importance of including angioleiomyoma in the differential diagnosis for pediatric neck lumps and the significance of histological examination in achieving a definitive diagnosis.
Keywords: Angioleiomyomas, pediatrics, neck lump

INTRODUCTION

Angioleiomyomas are benign tumors that originate from smooth muscles. There are four recognized subtypes: leiomyoma, angioleiomyoma, epithelioid leiomyoma, and mesectodermal leiomyoma. The World Health Organization (WHO) defines a vascular leiomyoma, or angioleiomyoma, as a benign dermal or subcutaneous tumor. This tumor is characterized by well-differentiated smooth muscle cells organized around a network of vascular channels [1].

Histologically, angioleiomyomas can be divided into three distinct subtypes:

Venous: Featured as venous lamina of varying sizes with a pronounced muscular wall. This wall is interspersed with loosely arranged intervascular smooth muscle bundles.

Cavernous: Comprised of either thick or thin-walled, dilated vascular channels. These channels are set between a limited numbers of smooth muscle bundles.
Solid: Dominated by tightly compacted smooth muscle cells that are arranged in variably intersecting bundles, interspersed with slit-like vascular channels.

Mostly individuals commonly diagnosed with angioleiomyomas are aged between 40 and 60 years. These tumors typically manifest as firm, small, and slow-growing lumps. Notably, cavernous and venous subtypes appear more frequently in males, while the solid variant is predominant in females. A primary symptom is a painful lump, the discomfort from which may intensify due to factors such as cold, wind exposure, pregnancy and pressure, or menstruation.

In terms of prevalence, angioleiomyomas account for about 4-5% of all benign soft tissue tumors. A significant 89% of these are located in the extremities, particularly below the knee. Those occurring in the head and neck regions are comparatively rare, constituting approximately 8.5% of all angioleiomyomas [2].

CASE REPORT

A 12-year-old boy presented with right lateral neck lump of 5 months duration, painless, increased gradually in size over the first few months then became static last month, with no other associated symptoms and no lumps elsewhere in his neck or body. No significant past medical history.

On examination, there was 3 X 2 cm lump in the right posterior triangle, oval in shape, with normal overlying and surrounding skin, non-tender, normal temperature, smooth surface, firm, well defined edges, relatively mobile, not attached to skin or sternocleidomastoid muscle, not pulsatile or compressible and not fluctuant but was transilluminant. No enlarged lymph nodes or other lumps in the neck.

Routine blood tests showed no abnormality and thorough ear, nose, and throat examination was normal. A neck ultrasound scan revealed that the lump was an enlarged lymph node about 1.5 X 0.9 cm with few internal calcifications in addition to multiple enlarged cervical lymph nodes, the largest measured 2.8 X 0.7 cm (Figure 1).

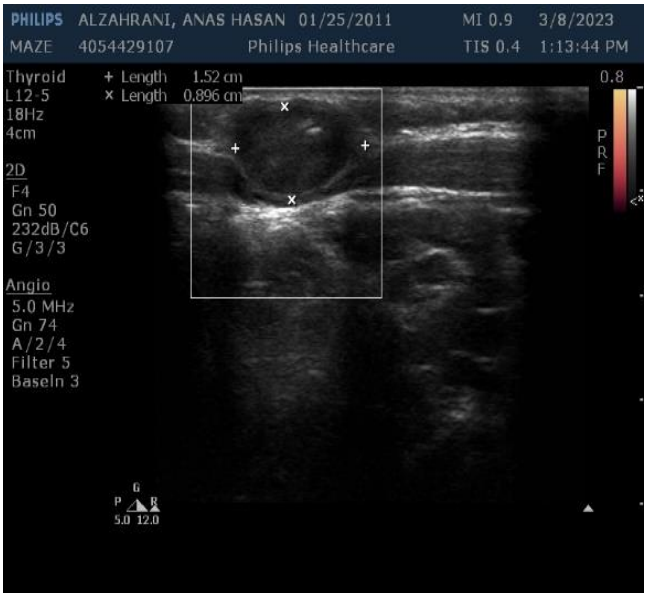

Figure (1): An ultrasound scan of the neck.

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A computed tomography scan (CT) of the neck revealed a well-defined rather rounded lesion at the right side of the neck superficially related to the right sternocleidomastoid muscle and completely separated from it. It was also closely related to a doubled right external jugular vein, it measured about 1.4 X 1.8 cm. The lump showed homogenous appearance with few calcified foci and on contrast injection it showed venous like enhancement. The CT differential diagnosis was either a highly vascular lymph node or a venous malformation (Figure 2).

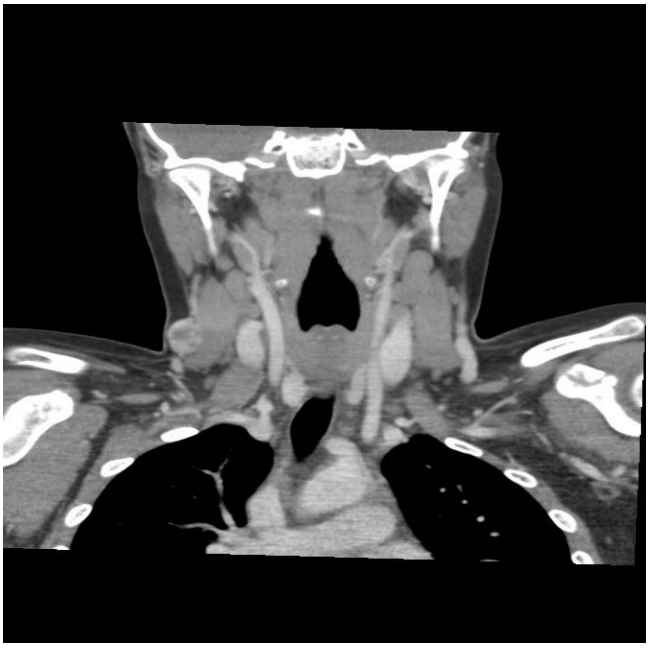

Figure (2): A computed tomography scan (CT) of the neck.

A fine needle aspiration cytology revealed a benign vascularized tissue.

Because the results of radiological and cytological investigations were non-conclusive, the patient underwent an excisional biopsy, where the operative findings were that of a well circumscribed oval soft tissue mass, posterior to posterior border of sternocleidomastoid and just over the right external jugular vein. It was completely excised (figure 3).

Histological analysis revealed a circumscribed nodule that was composed of smooth muscle bundles orientated in a various plane. Many thin-walled slit-like blood vessels surrounded by smooth muscle cells with perinuclear vacuolization, with focal areas of calcification.

No lymphoid tissue was seen. The specimen was then submitted to immunohistochemical analysis using SMA+, desmin+, CD34+ (blood vessels), which determined that the lump was angioleiomyoma. The patient was reviewed 3 and 6 months post-operatively and was in a good condition, healed scar with no complications and signs of residual or recurrent lump.

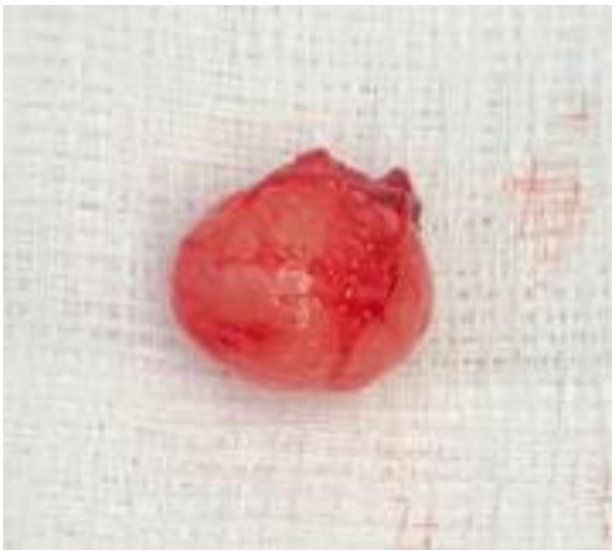

Figure (3): Excisional biopsy of the neck.

DISCUSSION

Angioleiomyomas are particularly rare in children [3]. There is only one study revealed a congenital tumour. Another study revealed an angioleiomyoma in a 10-year- old boy in the mandible. In a study published in 2020, less than 200 cases were described in the literature of angioleiomyomas occurring in the head and neck in various locations. That study was reported as the third documented case of angioleiomyoma within a specific part of the lateral neck space-the supraclavicular fossa. Our case is the fourth documented angioleiomyoma in the middle of the posterior triangle of the right neck. The three reported cases of lateral neck angioleiomyomas are detailed below.

The first case was reported in a retrospective study, it was supraclavicular angioleiomyoma in a 23-year-old asymptomatic male. He was investigated by a computed tomography (CT) scan and a fine needle aspiration cytology (FNAC), which were non-diagnostic, so an excisional biopsy was done and histologic analysis came back as a venous subtype angioleiomyoma. They concluded that FNAC is not beneficial in the diagnosis of head and neck angioleiomyoma and may lead to misdiagnosis.

The second case was also reported retrospectively in an asymptomatic 55-year-old male in the deep supraclavicular space. The patient was investigated with ultrasound and an excisional biopsy, the histological analysis revealed a solid subtype angioleiomyoma.

The third case was a 71-year-old male, with a 3-month history of a painless lateral neck mass. He was investigated with an ultrasound scan and a computed tomography scan, and an excisional biopsy, which came back as venous type angioleiomyoma.

Our case was of solid type like the first case. The diagnosis of angioleiomyoma in the head and neck region is difficult. In our case it was thought that the right posterior triangle neck lump was an enlarged lymph node, and being solitary, the suspicion of malignancy was raised despite the young age of the

patient and absence of risk factors. Other differential diagnoses were delayed presentation of cystic hygroma and sternomastoid tumour.

The diagnosis was further challenging because the images were non-conclusive and in some raised the suspicion of malignancy like the presence of vascularity. So, the best way for diagnosing angioleiomyoma in the region of the head and neck is excisional biopsy and histological examination.

CONCLUSION

We presented one of the rare conditions of solid subtype angioleiomyoma in the right posterior neck triangle. This report emphasized the question of the best preoperative method of diagnosing a neck lump in a child. It also emphasized that angioleiomyoma should be thought of in the differential diagnosis of head and lateral neck lumps in children.

- **Conflict of interest:** None.
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