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Cartilaginous choristoma: a case report

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Abstract: *Cervical chondrocutaneous branchial remnants are rare, benign congenital lesions that often present as asymptomatic neck masses along the sternocleidomastoid muscle. We report the case of a 17-year-old patient with a firm, painless neck mass. Ultrasound suggested a cartilaginous origin, which was confirmed by surgical excision and histopathological analysis. Early diagnosis and surgical removal provide effective treatment and prevent misdiagnosis.*

Keywords: Cervical chondrocutaneous branchial remnant, Choristoma, Embryonic remnants

1. INTRODUCTION

Cervical kondrocutaneous branchial remnants are rare lesions of embryonic origin that may present unilaterally or bilaterally. The term "chondrocutaneous branchial remnant" is widely used to describe the presence of abnormal subcutaneous cartilage in the cervical region [1]. The exact origin of these lesions has been the subject of extensive study over the past century, but the rarity of reported cases limits our understanding [2]. Histologically, a choristoma may resemble normal tissue, but it will have an unusual location in relation to the specific organ involved [3]. Cervical kondrocutaneous gill remnants consist of a core of elastic cartilage covered by a keratinized squamous epithelium with skin appendages [4]. Cervical kondrocutaneous gill remnants are generally benign, but their prevalence varies widely in the general population. Although cervicalchondrocutaneous branchial remnants are rarely symptomatic, they can sometimes be associated with severe congenital anomalies. Therefore, it is important to recognize cervical hondrocutaneous branchial remnants and to perform further evaluation when necessary.

Cervical kondrocutaneous branchial remnants located in the cervical region along the anterior border of the sternocleidomastoid muscle are known as choristomas. A choristoma is defined as a benign growth consisting of normal tissue in an abnormal location. These lesions may manifest as cysts, sinuses, fistulas, or cartilaginous remnants [5]. Choristomas can manifest in various forms, including the unusual presence of thyroid gland tissue, bone tissue, glial tissue, or salivary gland tissue [1]. Surgical excision of these lesions is an effective treatment, but swellings in the front of the neck along the sternocleidomastoid muscle can present with numerous differential diagnoses. An accurate diagnosis is essential before treatment can be planned.

1. CASE PRESENTATION:

A 17-year-old patient presented to our clinic with a small neck mass. A routine examination revealed a mass on the anterior border of the right sternocleidomastoid muscle (see Figure 1). The mass was characterized by its diminutive size, firm consistency, subcutaneous location, and partial attachment to the overlying skin. The condition had been present for a considerable period of time, during which no associated symptoms had been observed. The patient's medical history indicated a lesion that was deemed to be of a benign nature and consistent with the characteristics of a cervical hondrocutaneous branchial remnant, otherwise known as a choristoma.

The subject's family history was unremarkable. There were no visible congenital anomalies, such as aberrant ear implants, auricular dimples, or fistulas, present. The mass measured approximately 1.5 centimeters in length by 0.5 centimeters in width. Palpation revealed a painless structure in the subcutaneous plane, not attached to the underlying tissues and mobile in all directions. The skin overlying the mass exhibited partial attachment, yet its origin was not from within the skin itself (as evidenced by the ability to pinch the skin above the swelling). No cervical lymph nodes draining the area were palpable. A thorough examination of the left neck region revealed no abnormalities.

A subsequent ultrasound scan of the neck was performed. A subsequent ultrasound examination revealed a hypoechoic mass, measuring 2 centimeters by 0.65 centimeters, which is likely of cartilaginous origin.

The treatment plan involved the surgical excision of the entire mass, followed by a comprehensive pathological examination.

The pathological findings indicated the presence of a cartilaginous choristoma.

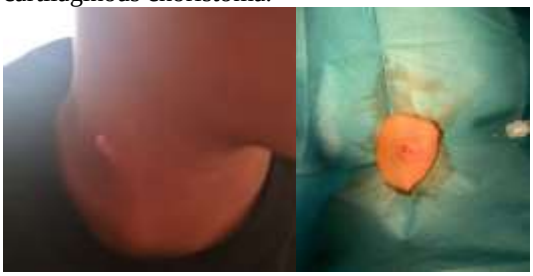

Figure 1: A swelling opposite the anterior border of the right sternocleidomastoid muscle. The swelling was approximately 1.5 cm long and 0.5 cm wide.

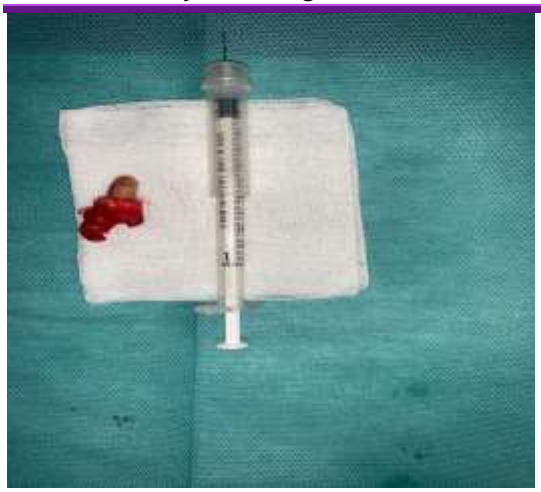

Figure 2: Surgical specimen after complete excision.

1. DISCUSSION

Cartilaginous embryonic remnants in the neck are rare, in contrast to the prevalence of accessory traguses, a fairly common finding compared to cervical chondrocutaneous branchial remnants [7]. From an embryological perspective, the first and second branchial arches give rise to the auricle and middle ear structures. Initially, these structures are located ventrally in the lower lateral part of the neck. Subsequently, these structures migrate cranially along the anterior border of the sternocleidomastoid muscle. Incorrect or incomplete migration can result in residual tissue at the original site, leading to cervical hondrocutaneous branchial remnants [8]. It has also been suggested that the presence of pluripotent cells may give rise to cartilaginous remnants [3]. The presence of cartilage in the excised lesion indicates a second branchial arch origin, while the presence of hyaline suggests a more proximal cervical location [9].

The diagnosis of cartilaginous choristoma was made. There are several potential causes for the observed swelling in the neck in this case, including a thymic cyst, a thyroglossal duct, a branchial groove cyst, a pilomatricoma, or a hamartoma. It has been documented that goldenhar, treacher-collins, and certain other well-defined syndromes may involve cervical or preauricular remnants [10]. All potential differential diagnoses have been thoroughly reviewed and excluded through subsequent investigations.

Hamartomas are defined as focal overgrowth of cells and tissues native to the organ in which they occur [11]. During the embryonic development process, numerous anatomical structures undergo migration. In cases where a cervical branchial skin remnant persists, it is more likely to be classified as a heterotopic remnant or choristoma. These terms are used to describe microscopically normal cells or tissues present in atypical locations [11].

A pilomatricoma is an abnormal swelling that is typically located on the neck or head. However, during a physical examination, pilomatricomas are typically identified by the tent sign and/or the swing sign [12]. The tent sign involves stretching the skin around the protrusion, while the seesaw sign is observed by pressing on one half of the lesion and observing the protrusion of the other half [12]. After a thorough examination, it was determined that neither the swing sign nor the tent sign were present. This finding supports the hypothesis that a cartilaginous embryonic remnant is the more probable diagnosis.

There are other possible differential diagnoses, but they were overshadowed by the final diagnosis of cartilaginous embryonic remnant due to all the elements presented in the case.

Treatment involves complete surgical removal as soon as possible to obtain an accurate histopathological diagnosis [13]. If the patient is a child, surgical treatment may be deferred until an appropriate and safe age [6]. Histopathological studies are then recommended, where investigations define this lesion as heterotopic, composed of normal skin and adipose tissue with a band of cartilage in the middle [14].

2. CONCLUSIONS

A choristoma is a cartilaginous embryonic remnant located specifically in the cervical region near the sternocleidomastoid muscle. It is a benign swelling that is firm to palpation and located subcutaneously. The choristoma in this case had been present since birth on the right sternocleidomastoid muscle, had never been infected, and was not painful. This, in conjunction with the findings from ultrasound, which further confirmed a hypoechoic cartilaginous mass, resulted in the diagnosis of a choristoma in this case. Subsequent investigations ruled out other differential diagnoses.

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