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Case Report
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Asymptomatic Mature Teratoma Mimicking a Substernal Goiter of Thyroid Gland in Teenager Patient

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Abstract

Cervical teratoma is rare neoplasms, mainly when they do not present associated symptomatology. They may cause respiratory distress, among other complications. Surgery is the main form of treatment. This study shows a case of mature cervical teratoma in an adolescent patient, mimicking a substernal goiter of thyroid gland without symptomatology.

Keywords: Teratoma; Substernal Goiter; Surgical treatment

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Introduction

Teratoma is complex tumors originated from multipotent primitive germ cells, leading different tissues that are foreign to their anatomical site of origin [1-5]. They derived from multiple primitive embryological layer [6,7]. They appear in organs along the mid-line of the body, with the sacrococcygeal region and the gonads being the most commonly affected, in the ratio of 57% and 29%, respectively, their occurrence in the cervical location is uncommon [1,3,4,6,7].

Case Presentation

A 14 year old male, smoker for 2 years, no medical comorbidities, presenting volume increase in the anterior cervical region for about six months, without associated symptoms. On clinical examination a tumor was discovered in topography of the thyroid gland, with defined limits and partial mobility in the enlarged region. Unchanged laboratory and thyroid tests. Cervical Ultrasonography (CUS) revealed a nodular image in the left lobe of the thyroid, with cystic areas, well defined limits and regular borders, measuring 4.34 cm × 3.37 cm × 4.13 cm (Figure 1). The cervical thoracic tomography showed a goiter in the thyroid gland on the left side, with extension to the mediastinal region (Figure 2). Surgery was proposed for lesion resection, with initial forecast of total thyroidectomy. In the surgery, it was performed a horizontal cervical incision, dissection of the skin and subcutaneous tissue, dissection of the pre-thyroid muscles, and below it, a cervical mass was found, without macroscopic appearance of thyroid tissue. During the dissection, it was observed that there was differentiation of the lesion and the thyroid. There was a cleavage plane between it and the thyroid. After removing the lesion, with solid/cystic consistency, it was observed an intact thyroid gland (Figure 3). It was carried out the irrigation with 0.9% saline solution, closure of the wound with vacuum drainage installation and forwarding of the material for anatomopathological examination. The result of the pathological examination was mature benign teratoma (Figure 4).

Discussion

The etymology of the word teratoma comes from the Greek language, and means monster. Teratoma may contain many tissues and are classified as mature or immature [7]. This classification depends on the presence of immature elements of the neuroectoderm a found within the tumor [7].

These tumors are found in the literature in a ratio that may reach 1:200,000 live births [1,2,4]. Cervical teratoma is interesting due to their obscure origin, bizarre microscopic appearance, unpredictable behavior, and because of their dramatic clinical behavior [1-4]. They are extremely

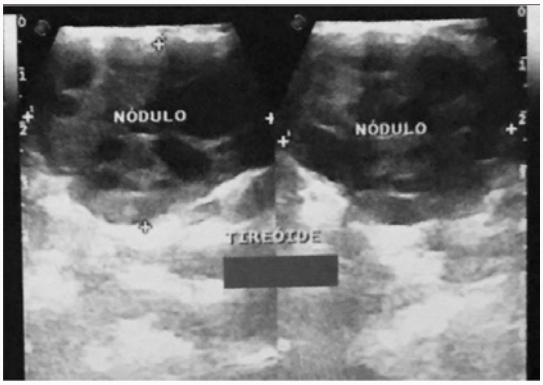

Figure 1: Cervical Ultrasonography evidencing a nodular image in the left lobe of the thyroid, with cystic areas and regular borders.

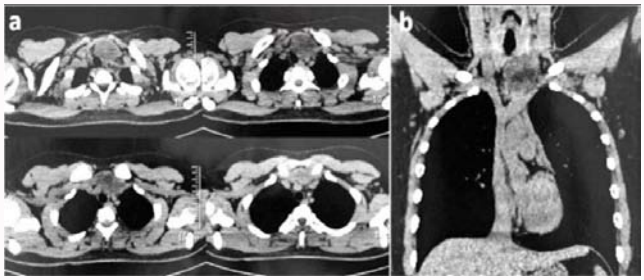

Figure 2: a) Photograph showing the surgical piece completely removed of a single lesion, b) Rejected and intact thyroid gland, after resection of the lesion.

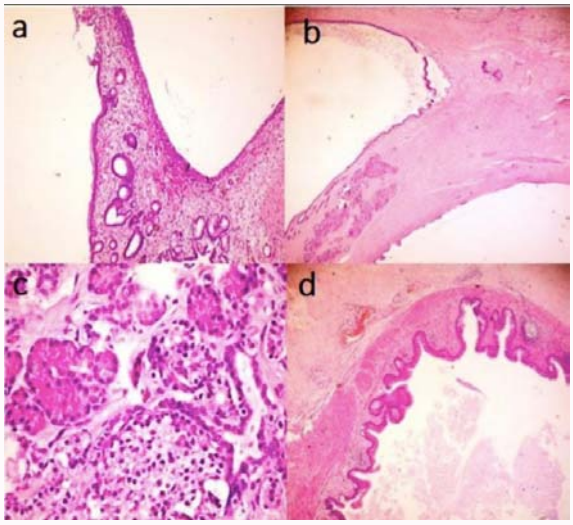

Figure 3: It was observed an intact thyroid gland.

rare neoplasms, mainly when there are no associated symptoms [2,6,8-10]. Only 1.5% to 5.5% of all teratoma in pediatric patients happen in the cervical region, [1,2,4,5].

Previous studies of benign thyroid teratoma, published in the last twenty years, were researched by means of a detailed investigation of English-language literature across PubMed, by searching the following keywords: "benign thyroid teratoma". All studies that included in these filters were included in this review (Keen et al., 1998; Segni et al., 2004; Rierdlinger et al., 2005; Fan et al., 2006; Nishihara et al., 2006; Zhang et al., 2010). Together with this present study, a total

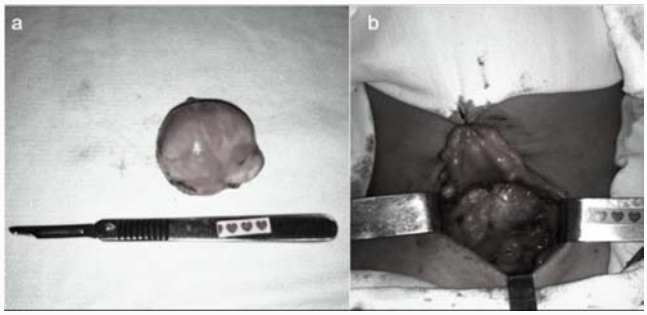

Figure 4: The result of the pathological examination was mature benign teratoma.

Table 1: TERATOMA. Americana.

Authors	No. Of Cases	Age	Gender	Measures (in mm)
Keen et al.,1998	1	Newborn	Female	120 × 80
Segni et al.,2004	1	6	Male	38 × 23 × 17
Rierdlinger et al.,2005	1 of 11	Newborn	NA	35
	2 of 11	Newborn	NA	45
	3 of 11	Newborn	NA	135
	4 of 11	Newborn	NA	80
	5 of 11	Newborn	NA	70
	6 of 11	Newborn	NA	70
	7 of 11	Newborn	NA	43
	8 of 11	Newborn	NA	55
	9 of 11	Newborn	NA	90
	10 of 11	Newborn	NA	70
	11 of 11	Newborn	NA	60
Fan et al.,2006	1	Newborn	Male	25 × 20 × 15
Nishihara et al.,2006	1 of 3	15	Male	NA
	2 of 3	23	Female	NA
	3 of 3	13	Female	NA
Zhang et al.,2010	1	5	Female	20 × 25 × 25
Silveira et al., 2019	1	14	Male	43 × 33 × 41

Total: 19 cases; 63% Newborn; 57 % NA; 21% Male; 21% Female
Mean: 12 years; other cases

of 19 cases were selected.

The expression ratio is similar in both genders and in different races [3,7]. However, according to Werner et al. [5] the female-to-male ratio is 3:1. They appear clinically at birth or during childhood, with rapid growth, and symptoms that may vary according to the extent, usually isolated, without association with chromosomal abnormalities or other congenital malformations, and are commonly solid/cystic [1,4,5].

Although 95% of the cases of teratoma are presented in the benign form, they can generate respiratory insufficiency, being potentially life-threatening in up to 80% of the cases, when they are not removed [1,2,4]. In addition to respiratory insufficiency, they may lead to facial deconfiguration [3], and often require immediate surgeries at birth [2].

The prognosis of cervical teratoma is poor without surgical intervention, and their curative treatment is made through excision [3,7]. In several cases it becomes a difficult and risky planning

because, depending on the size and topography of the tumor, airway obstruction is present and often the tracheotomy cannot be performed prior to the removal of large masses [3]. When the airway is guaranteed and the tumor is removed in the immediate neonatal period, the result may evolve with a survival rate of over 85% [1].

Apart from the early surgical approach being the most appropriate treatment, the complete excision reduces the risks of malignant transformation [1,3,7]. Malignant immature teratoma is reported to be around 5% of the cervical teratoma [4].

Unlike adults, where these tumors are more prone to malignancy and metastasis, and have a worse prognosis, teratoma in children hardly ever become malignant [3,9]. When this malignant transformation occurs in children, it should be treated through surgical resection associated with chemotherapeutic agents. Monitoring can be executed through serum alpha-fetoprotein measurements, without evidence of benefit in radiation treatment [3].

Imaging studies such as computed tomography, magnetic resonance imaging and ultrasonography collaborate in the planning of the treatment [5,7,9]. Although the definition of the lesion is given through the microscopic pathological result. In regards of the fetal period, three-dimensional ultrasonography and magnetic resonance imaging provide a better understanding of the cervical mass relationships to adjacent structures, allowing a more suitable approach to birth and better counseling to parents [5].

Conclusion

Cervical teratoma is rare entities, especially when they become evident at a late stage in the postnatal period, and without associated symptoms. Imaging examinations are necessary for diagnostic support and treatment plan, although the confirmation of the lesion is only given through the anatomopathological result. Surgical excision is the preferred treatment, avoiding possible chances of malignization, especially in those adults and children, when the airway is guaranteed, associated with surgery, considerably increase the survival rate.

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