

Thyroglossal duct cyst: About a case and review of the literature

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Abstract

Aim: The aim of this study is to discuss the diagnostic and surgical aspects of TDC, based on an observation.

Observation: This is a 35-years-old patient, with no pathological history, who consulted for the management of an anterior cervical mass progressing for approximately 2 years. This mass was painless and was not associated with digestive disorders such as dysphagia or respiratory disorders such as dyspnea and it reported a preserved clinical condition. The examination found a good general condition, an anterior cervical mass high, firm, mobile relative to the superficial plane and ascends with the traction of the tongue. There were no cervical lymphadenopathies and the rest of the examination was unremarkable. The ultrasound found a supra-isthmus mass, independent of the normal thyroid gland. The thyroid biology (ultrasensitive TSH and free T4) was normal. She underwent a cervicotomy which showed exploration of a supra-isthmus tumor lesion, with a thyroid without macroscopic abnormality. An excision was carried out according to the Sistrunk technique and the operating suites were simple. The microscopic examination of the tumor showed a thyroglossal tract cyst.

Conclusion: The thyroid gland cyst is a rare tumor whose the optimal surgical treatment rests on a good knowledge of its embryological birth.

Keywords: Cyst, thyroglossal duct, cervicotomy, excision.

Introduction

The thyroglossal duct cyst (TDC) is the most common congenital cervical malformation [1,2,3]. Indeed, embryologically, the thyroid originates at the level of the foramen cecum, at the base of the tongue. Subsequently, it descends to its normal position, still connected to the base of the tongue by a tubular structure (the thyroglossal tract, which passes in front of the hyoid bone, between the fourth and seventh week of development. This duct should disappear when the thyroid reaches its final position. Otherwise, its persistence may result in an accumulation of mucoid material causing the formation of the cyst [3,4]. Treatment of the cyst is surgical and is essentially based on the Sistrunk technique [4,5].

Case report

Ms. A. Fall is a 35-years-old patient with no medical history, who consulted for the management of an anterior cervical mass. The clinical history had evolved for approximately 2 years, marked by the appearance of a painless swelling of the anterior face of the neck, without dysphagia, dyspnea and other compressive signs. Clinical examination found good gen-

eral condition, anterior cervical swelling that was high, firm, mobile in relation to the superficial plane and ascending with the traction of the tongue (Figure 1).

There was no cervical lymphadenopathy and the remainder of



Figure 1: Upper anterior cervical swelling (Physical examination).

the exam was unremarkable. The ultrasound found a supra-isthmus mass, independent of the thyroid gland, which was otherwise normal. Thyroid workup (highly sensitive TSH and free T4) was normal. She underwent a cervicotomy through

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two fingers of the manubrium sternal, which on exploration showed a cystic, suprasthmic tumor lesion, with a thyroid macroscopically normal (Figure 2).

Resection was performed using the modified Sistrunk tech-



Figure 2: Sub-hyoid thyroglossal duct cyst (Exploration by cervicotomy).



Figure 3: Surgical specimen.

nique and the postoperative follow-up was simple. Examination of the surgical specimen (Figure 3) showed a thyroglossal duct cyst.

Discussion

Epidemiological aspects

The thyroglossal duct cyst (TDC) is the most common congenital cervical malformation [1,2,3]. Over a period of 10 years, Chrysostomos K. et al. reported an incidence of 55.9% of cystic neck masses. The other lesions were dermoid cyst (23.7%), branchial abnormalities (5.1%), lymphadenopathy (6.7%), cutaneous hemangioma (1.7%) and formations of unknown causes (6.7%) [4]. Our patient was a young adult female. In the study by Wenhao R. et al, TDC was more common in adults (56%) than in children (44%), and males were predominant in both groups [6]. However, Chrysostomos et al. reported this cyst in 33 children, with an average age of 6 years, during the same period [4]. Other authors have also reported this male predominance in their studies populations and the most clinical cases have been in male patients [7,8,9,10].

Diagnostic aspects

Clinically, our patient presented with isolated, anterior, cervical median and sub-hyoid swelling which, on physical examination, was characteristic of its ascending tongue traction. Uncomplicated cervical swelling is the most reported clinical sign in the literature [2,7,10,11]. Moreover, in the study of Ali I et al, it represented 75% of the signs, the others being represented by fistulized swelling in 3 cases (15%) and an isolated cervical fistula in 2 cases [7]. Uncomplicated neck mass was also the most common sign in most series [4,11,12,13,14,15]. The sub-hyoid localization of the cyst is the most frequent, as in the study of Sujatha et al, where it was 85.7% of cases [8]. A Serbian team reported in a meta-analysis, the sub-hyoid localization in 65% of cases, followed by the supra-hyoid (20%) and the juxta-hyoid (15%) localizations [16]. The other locations are rarer [17,18,19,20,21]. The clinic is sufficient to make a diagnosis of TDC, but cannot accurately assess the risk of malignancy. On imaging, ultrasound is the first-line exam [6,13,10,22]. It most often shows a cystic lesion, in the form of a midline, anechoic formation. However, it is characterized by a significant variability of signs [13]. It has very good diagnostic reliability, as it can differentiate it from cervical dermoid cyst with clear precision, as reported by the study by the team of Choi HI et al, in South Korea [10]. However, it can be the cause of false positives of 5%. In addition, it is less efficient than computed tomography and magnetic resonance imaging, particularly for intralaryngeal cysts [9,17,18,23]. In an american study published in 2016, ultrasound was used in only 40.1% of cases, while computed tomography was used in 55.9% of cases [11].

Therapeutic aspects

Treatment of TDC is surgical [5,15]. This surgery is performed mainly by the Sistrunk technique [5,14, 24]. The latter has three stages. The first step is an horizontal incision of 5 cm, midway between the upper edge of the thyroid cartilage and the hyoid bone. A possible fistula is removed through a wedge-shaped incision. Dissection is performed with fine Metzenbaum scissors and is continued by opening the linea alba, allowing dissection inferior to the isthmus of the thyroid. The second step is a resection of the cyst and of the hyoid bone, with resection of the prelaryngeal adipose connective tissue. The maneuver described by Sistrunk may be useful during dissection. It consists of introducing the left index finger (for a right-handed surgeon) with the tip of the finger pointing downward on the foramen cecum to guide the dissection. The dissection is performed flush with the lingual mucosa. The thyroglossal duct is then ligated before being cut. The last step is drainage and closure [5,24]. We performed in our patient a modified Sistrunk procedure with a lower incision, but 8 cm wide. The excision is

done without capsular breakage. This is a safe technique, but it must be done with great care, because cases of papillary carcinoma on TDC have been reported, even though it could be an underlying thyroid cancer [8,25]. The postoperative follow-up was simple in our patient and the pathological examination of the surgical specimen confirmed the diagnosis of TDC, without signs of malignancy. The postoperative consequences are usually simple after excision, and the drain is often removed within 48 hours. However, we can have some complications like odynophagia and respiratory disorders caused by compressive hematoma [24,25]. In the long term, we can have a recurrence, after an intervention according to the Sistrunk technique, with a rate between 1.5% and 10% [9,26,27,28,29]. With a three-years follow-up, our patient had no recurrence.

Conclusion

TDC is a congenital malformation whose diagnosis is clinicoradiological. The main complication of this lesion is fistula. Its treatment is surgical and is essentially based on the Sistrunk technique. This surgery must be done with great precaution, to avoid any break-in, because of the risk of degeneration. Af-

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