SUMMARY:
Idea: In this study we report our experience in the diagnosis and treatment of thyroglossal duct cysts. The aim of the treatment is to improve, restore or preserve by surgical excision the aspect of the neck. Another aim is to ensure the absence of the recurrences by correct removal of the cyst.
Method: Between 2000 and 2009, 56 patients with neck cysts and fistulas were treated in our clinic. These cases represent: thyroglossal duct cysts in 50 cases (89.28%) and thyroglossal duct fistulas in 6 cases (10.71%). All patients were operated under general anesthesia with endotracheal intubations. Treatment consisted in total cyst and median hyoid bone portion removal.
Results: Results have been reported to be excellent in 96.64% of cases and recurrences occurred in 3 cases (5.35%). All specimens were histological confirmed.
Conclusion: In the absence of total cyst and hyoid bone removal recurrence will appear.
Key Words: thyroglossal duct cysts, sinus tract, hyoid bone, surgical treatment.

THYROGLOSSAL DUCT CYSTS AND FISTULAE

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SUMMARY:
Introducere: În acest studiu este prezentată experiența Clinicii ORL Timișoara în diagnosticul și tratamentul chistelor de canal tireoglos. Tratamentul constă în excizia formațiunilor chistice împletată cu corpul osului hioid pentru a nu recidiva chistul de canal tireoglos.
Material și metodă: Între anii 2000-2009, în Clinica ORL Timișoara au fost tratați 56 de pacienți care prezentau formațiuni chistice cervicale anterioare. Dintre aceștia, 50 de pacienți (89,28%) au prezentat chiste de canal tireoglos și 6 pacienți (10,71%) fistule de canal tireoglos. Toți pacienții au fost operați în anestezie generală cu intubație orotracheală. Tratamentul a constat în îndepărtarea formațiunii chistice, a traiectului fistulos împreună cu o porțiune corespunzătoare din osul hioid pentru a nu recidiva formațiunea chistică. Rezultate: La cei 56 pacienți operați în Clinica ORL Timișoara s-au înregistrat următoarele rezultate: vindecarea fără semne de recidivă la 94,64% din cazuri (53 de pacienți), în 3 cazuri (5,35%) a apărut recidiva formațiunii chistice. Toate formațiunile chistice excizate au fost controlate prin examen histopatologic. Concluzii: Istoricul clinic și examenul fizic, combinat cu rezultatele ultrasonografiei, scintigrafiei și dozarea hormonilor tiroïdeni permit un diagnostic preoperator acurat. Semnul patognomic este reprezentat de poziționarea chistului pe linia mediană și ascensionarea acestuia odată cu protruzia limbii. În absența unei îndepărtări complete a formațiunii chistice și a porțiunii mediane corespunzătoare din osul hioid, va apare recidiva formațiunii chistice.
Cuvinte-cheie: chist de canal tireoglos, fistulă de canal tireoglos, corpul osului hioid, procedeu Sistrunk.

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INTRODUCTION

In this study we report our experience in the diagnosis and treatment of thyroglossal duct cysts. The aim of the treatment is to improve, restore or preserve by surgical excision the aspect of the neck. Another aim is to ensure the absence of the recurrences by correct removal of the cyst (1).

Thyroglossal duct cysts are the most common congenital cysts in the neck. Most patients present as children, although presentation at any age is possible. Male and females are equally affected, and the cysts are usually asymptomatic but they may become infected and form abscesses and draining fistulas. Cervical resection is recommended therapy (2).

Thyroglossal duct cysts are cystic dilations of epithelial remnants of the thyroglossal duct tract, just formed during the migration of the thyroid during embryogenesis. During its migration the gland remains connected to the tongue by a narrow canal, the thyroglossal duct. The duct usually atrophies and disappears by week 10. Portions of the tract and remnants of thyroid tissue may persist, however, anywhere along this crescent descent from the tongue to the thyroid. The most caudal remnant of the tract is the parietal lobe which is present in one-third of people (3).

Thyroglossal duct cysts can arise anywhere there has been failure of the complete obliteration of the tract, the commonest site being just above or just below the hyoid bone. Cystic dilations of this tract remnant result in the clinical presentation of a midline neck masses. Thyroglossal duct cysts are closely associated with the hyoid bone, and this becomes important when we discuss the Sistrunk procedure which is the standard operation and treatment of the thyroglossal duct cyst (4).

MATERIAL AND METHOD

Between 2000-2009, 56 patients with neck cysts and fistulas were treated in our clinic. These cases represent: thyroglossal duct cysts in 50 cases (89.28%) and thyroglossal duct fistulas in 6 cases (10.71%). Thyroglossal duct cysts and fistulae predominates in the first decade of life (26 patients, 46.42%). In the age group 11-20 years were 18 patients (32.14%), in the age group 21-30 years - 5 patients (8.92%), 3 patients (5.35%) were classified in age group 31-40 and 4 patients in age group 51-60 years. Distribution of patients by sex was approximately equal: 29 patients were female and 27 patients were male.

Positive diagnosis was based on physical examination combined with cervical Echography, scintigraphy and determination of thyroid hormone and in some cases CT. Patients with thyroglossal duct cysts had a prior asymptomatic neck formation, which has gradually expanded, located in the midline or slightly lateral to it.

Most cysts were located infrathyroidian 36 cases (64.28%) - most frequently in paramedian position. Other locations: 12 cases - suprathyroidian (21.42% - located on the midline) and in eight cases - juxthyroidian (14.28%).

Thyroglossal duct cysts were presented as masses usually asymptomatic, mobile. Four patients (7.14%) first present with an infected midline neck mass, which accompanies an upper respiratory infection. Larger cysts

Fig. 1. Axial CT showing a thyroglossal duct cyst attached to the hyoid bone
caused difficulty in swallowing or breathing obstruction in two cases (3.57%).

Location above hyoid bone and relationship between them were observed on profile radiography. Cervical ultrasonography was used as a screening to explore the cervical masses suspected to be congenital cysts and confirmed the clinical suspicion of thyroglossal duct cysts and removed the possibility of an ectopic thyroid. It was described on the midline cystic structure containing fluid with multiple internal echoes.

Preoperative scan was used for six patients (10.71%) to demonstrate the presence of normal thyroid tissue, which helps to avoid postoperative hypothyroidism due to accidental excision of functional ectopic thyroid tissue located along the thyroglossal duct.

Thyroid exploration was useful in making the decision to remove the cyst containing functional thyroid tissue. CT was used for 36 patients (64.28%) for anatomical assessment and for the cases in which the ultrasound evaluation results are ambiguous. The cysts appeared as a party flat, round, well circumscribed, located in the midline or side of it. (Figure 1a and b). Sizes ranged from 2 to 4 cm (Figure 2a and b).

Differential diagnosis was made: dermoid cyst, lymphangiopathies, sebaceous cyst, schwannomas, lymphatic malformations.

Treatment of choice was surgery because the cyst may be complicated due to recurrent infections. All patients were operated under general anesthesia with orotracheal intubation. Because the embryological development of hyoid bone is closely linked to thyroglossal duct cysts, middle portion of the hyoid bone was excised with the cyst. The entire tract of the canal and a small portion of tissue from the base of tongue were also excised (Sistrunk procedure) (Figure 3 a and b).
In eight patients (14.28%) methylene blue was injected to ease the path cyst dissection.

Removal of the cyst was performed after 3 months, before a suprainfection or, if it was present after the complete extinction of the infectious process.

RESULTS

Results have been reported to be excellent in 96.64% of cases and recurrences occurred in 3 case(5.35%). Four patients (7.14%) first present with an infected midline neck mass, which accompanies an upper respiratory infection. Preoperative infection is associated with an increased risk of recurrence, and infection was treated with antibiotics rather than incision and drainage, as this will lead to scarring and make later surgery more difficult.

All excised thyroglossal duct cysts were controlled by histopathology. Thyroglossal duct cysts are lined with squamous or columnar-affiliated epithelium. They can be surrounded by fibrous tissue with inflammatory cell infiltrate so that the epithelial island of thyroid tissue and mucous glands may be present. We found ectopic thyroid tissue in 6 cases. We didn’t found any case of thyroglossal duct cysts to contain thyroid carcinoma. There were no immediate or late postoperative complications.

DISCUSSIONS

The presence of a nodular density in the thyroglossal duct cysts suggests the possibility of an associate carcinoma. The incidence of carcinoma associated with thyroglossal duct cysts is low (less than 1% in literature) (5).

Histologically and clinically, 75% of carcinomas associated with thyroglossal duct cysts have the characteristics of thyroid papillary adenocarcinoma. These carcinomas probably arise from ectopic remnants thyroid tissue. Carcinomas from the tissue of thyroglossal duct cysts are very rare (6).

Nir Hirshoren and colab. submits in their study about analysis of pre- and postoperative features, long-term follow-up, and complications of thyroglossal duct cysts that the diagnosis should be confirmed by histological examination because several other midline neck entities can mimic its presentation, imaging and cytology. Of prime importance is the exclusion of carcinoma, especially in adult. They confirm that Sistrunk procedure is the elective treatment and postoperative complication is usually minor (7).

Simple cyst excision results in a high recurrence rate (8).

Saraiza Abu Bakar and colab. afirm in their study about drainage post-thyroglossal duct remnant surgery that despite the high success rate for Sistrunk surgery, mucopurulent drainage following the operation traditionally has been treated by reoperation, putting critical structures at risk for iatrogenic injury. Because they suspect that there is a subset of patients with postoperative mucopurulent drainage due to transected normal salivary tissue, they were interested in determining the proximity of salivary tissue to the normal Sistrunk operative field. The results suggest that in an adult human cadavaric population, salivary tissue rests close (average of 3.3 mm) to the hyoid bone. This finding should be considered by surgeons who wish to either avoid these secretory structures (by making the superior limits of the dissection just below the periosteum of the hyoid), or if included as part of the resection margin, be aware of possibility that the postoperative drainage may represent a salivary fistula and not always residual, actively secreting thyroglossal duct remnant (9).

CONCLUSION

Thyroglossal duct cysts are the most common congenital cysts in the neck. Most patients present as children. Positive diagnosis was based on physical examination combined with cervical Echography, scintigraphy and determination of thyroid hormone and in some cases CT. Ultrasound is a reliable and appropriate imaging modality for most patients. CT was used for the cases in which the ultrasound evaluation results are ambiguous. Thyroid exploration was useful in making the decision to remove the cyst containing functional thyroid tissue.

Pathognomonic sign of thyroglossal duct cysts is its elevation with tongue protrusion and swallowing. Surgery must effectively incorporate the tract and cyst with middle portion of the hyoid bone to allow low recurrence rates. The elective treatment is Sistrunk procedure for all midline neck lesions suspected to be a thyroglossal duct cyst or fistulae. Removing the central portion of hyoid with a cuff of tongue tissue should not result in untoward complications.

All excised thyroglossal duct cysts should be controlled by histopathological exam. Thyroglossal duct cysts and fistulae can affect quality of life by infectious complications, which require frequent hospitalizations.
REFERENCES: