Parathyroid cyst, a case report and review of the literature

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Abstract

Parathyroid cysts are rare, representing 1% of all neck swellings. A correct preoperative diagnosis is rarely formulated, especially because of the non-specific clinical and ultrasonographic findings; for this reason, patients are often submitted to surgery for thyroid nodules. In the present report we describe a case where the preoperative diagnosis was correctly formulated following the aspiration and PTH assay of clear, colorless, watery fluid from the cyst. While cyst aspiration is considered the elective treatment for these lesions, recurrences being uncommon, surgery was indicated in the present case because of two recurrences after aspiration and the onset of compressive symptoms. Cystic masses of the neck should be accurately diagnosed to recognize their true nature and to allow their correct and non-invasive treatment: surgery is indicated only when recurrences and symptoms are present. Indications for aspiration of all solitary cysts of the neck should be considered to correctly identify their nature.

Key words: Parathyroid, cysts; aspiration, recurrence, parathyroidectomy, ultrasonography.

Introduction

Parathyroid cysts are rare lesions (3, 8, 4, 7, 1) that present in the neck or in mediastinum, the former being more common. The association of a primary hyperparathyroidism with a functioning parathyroid cyst is uncommon (about 10-15%) (3, 4). Association with thyroid lesions has also been described (3). The first case was documented by Sandstrom in 1880 (11), while Goris (6) performed the first operation to remove a parathyroid cyst in 1905. In the present report we describe a case where, in spite of non- specific clinical and ultrasonographic findings, preoperative diagnosis was correctly formulated by PTH dosage on the aspirated cystic fluid which was evocative of parathyroid cyst. Aspiration of the cyst is considered the elective treatment for this lesion (4, 9, 12), recurrences being uncommon. In the present case, however, surgery was indicated because of two recurrences after aspiration and the onset of compressive symptoms.

Case report

A 26- year -old woman, presented with a left-sided neck swelling of one year duration, associated with recent onset of dysphonia and dysphagia.
Diagnosis of asymptomatic solitary cyst of the lower left thyroid pole was made 10 months earlier, on the basis of an US scan and normal thyroid hormones (FT3, FT4, TSH) levels. A clear, watery fluid, with clear, watery color, suggestive of a parathyroid cyst, was aspirated. Parathyroid Hormone (PTH) and Thyroglobulin (TG) assay of the cyst fluid showed elevated levels of PTH

Riassunto

CISTI DELLA PARATIROIDE, CASO CLINICO E REVISIONE DELLA LETTERATURA

Le cisti paratiroidee sono rare e rappresentano l'1% delle tumefazioni cervicali. Raramente si formula una diagnosi corretta preoperatoriamente, specialmente a causa della non specificità dei reperti clinici ed ecografici. Per questo motivo, spesso i pazienti vengono sottoposti ad intervento chirurgico con diagnosi di nodulo di pertinenza tiroidea. Riportiamo un caso clinico giunto alla nostra attenzione con una corretta diagnosi preoperatoria formulata mediante il dosaggio di PTH eseguito sul liquido aspirato dalla cisti. Tale materiale appariva chiaro e limpido, e pertanto di sospetta derivazione paratiroidea. L'aspirazione della cisti è considerato il trattamento di elezione di tali lesioni in quanto recidivano raramente. Nel caso qui riportato l'indicazione chirurgica è stata posta in seguito a due recidive dopo aspirazione e all'insorgenza di sintomi compressivi. Le lesioni cistiche del collo dovrebbero essere studiate accuratamente per riconoscerne la natura e permetterne quindi un

trattamento adeguato e non invasivo. La chirurgia è indicata solo se sintomatiche o in caso di recidiva. Riteniamo, pertanto, che sia corretto eseguire l'aspirazione di tutte le lesioni cistiche solitarie del collo in modo da permettere l'identificazione della loro natura.
Parole chiave: Paratiroidi, cisti, aspirazione, recidiva, paratiroidectomia, ultrasonografia.

and undosable TG. Diagnosis of parathyroid cyst was formulated on the basis of high PTH and undetectable TG content in the cyst fluid; its aspiration was considered curative.
Two months later, the patient presented with a recurrence of the neck swelling, and a second aspiration was performed. PTH and TG intracystic assay confirmed the previous diagnosis.
Three months later the patient showed a new recurrence associated to ingravescent dysphonia and dysphagia: for this reason, surgery was indicated.
On examination, there was a smooth, ill-defined, tense-fluctuant mass on the left side of the neck of about 3 cm in diameter. A chest x-ray demostrated a right shifted thrachea, while a preoperative US scan showed two adjacent cysts whose ultrasonographyic characteristics did not allowed enable to define of their parathyroid or thyroid origin (Fig. 1).
Circulating levels of PTH, calcium, phosphate and thyroid hormones were normal.
At operation, behind the left lower lobe of the thyroid, there was a translucent, thin-walled cyst of about 3 cm in diameter (Fig. 2). The inferior laryngeal nerve passed through the surface of the cyst which stretched it. The cyst was easily excised and was found to be separated from the thyroid gland. A second cyst, very close to the first one, was evident in the context of the thyroid gland and was dissected.
Pathological examination of the specimen demonstrated a monoloculated thin-walled cyst, containing about 5 ml of watery clear watery fluid. PTH concentration in this fluid was 250 pg/ ml. Microscopically, it was lined by flat epithelium and its walls contained parathyroid tissue residuals with chief cells (Fig. 3). The second cyst sized measured less thean 1 cm in diameter and was red colored. It was composed of dystrophic thyroid tissue cointaining colloid.
Postoperative course was uneventful and the patient was discharged two days after surgery.

Discussion

Parathyroid cysts are rare and represent 1% of all neck swellings (4). For this reason, and also because of the non-specific clinical and ultrasonographic findings, preoperative diagnosis is rarely formulated (1).

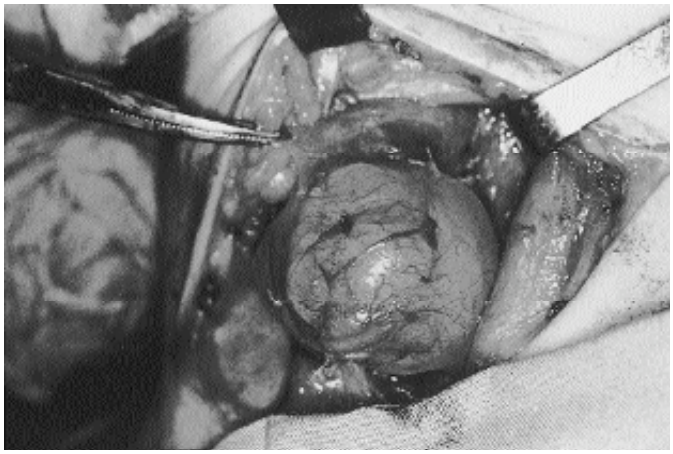

Fig. 2 Intraoperative finding of the cyst

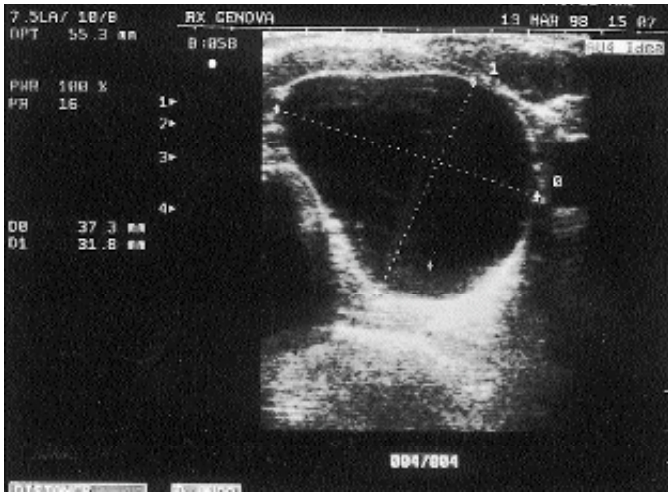

Fig. 1: US scan showing a thin walled cyst (diameter: 37x32x36 mm) at the inferior pole of the left thyroid lobe.

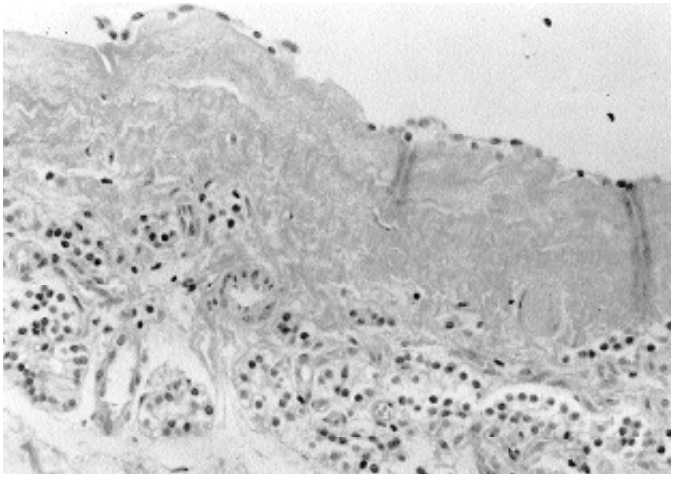

Fig. 3: Hystopatological examination (40x): cyst lined by flat epithelium, with a fibrous wall containing parathyroid tissue residuals with chief cells.

As a matter of fact, US scan of the neck does not allow to define whether the cysts arise from parathyroid or thyroid tissue, and these lesions are often considered thyroid cysts (3, 7, 13). Patients are consequently submitted to surgery with a wrong diagnosis (8).
Aspiration of clear, colorless, watery fluid is suggestive of a parathyroid cyst (3, 8, 4, 9, 12) and PTH assay on this fluid can confirm diagnosis (4, 10, 11), even if some Authors (9) consider it unnecessary and cost-ineffective. Cytologic findings are usually both non -specific and non -diagnostic (8).
Percutaneous cyst aspiration is considered the treatment of choice, except when hyperparathyroidism is present (3, 4, 5), because of its unusual recurrence. For this reason, a correct preoperative diagnosis should be formulated to obviate surgical treatment.
We believe that injection of sclerosing fluid, as suggested by some Authors (2), in the context of the cyst to prevent recurrences is not recommended, especially in view of the risk of dysphonia, when the inferior parathyroid is involved, because of its proximity to the inferior laryngeal nerve. Moreover, surgical dissection of the cyst in case of a recurrence after sclerosys could be difficult because of the loss of cleavage with adjacent structures. In this case, the risk of lesions of the inferior laryngeal nerve is increased, while parathyroid cysts are usually easily dissected.
Minimally invasive surgery could be considered a valid approach tofor these lesions, even if its routinary use is still not common. This technique, in fact, allows a better visualization of the anatomic structures of the neck, in particularly of the inferior laryngeal nerve.
Although the case here described here presented with a correct preoperative diagnosis, surgery was indicated for recurrences of the cyst after two complete aspirations and appearance of ingravescent dysphagia and dysphonia which was probably a consequence of the relation between the inferior laryngeal nerve and the cyst which stretched it.

Conclusions

The incidence of parathyroid cysts is probably greater than would be suggested by the low number of cases described. Cystic masses of the neck should be accurately diagnosed to recognize their true nature and to allow a correct and non-invasive treatment of these lesions. A detailed history is important in order to search for symptoms and signs of hyperparathyroidism (3, 7). Surgery is indicated only when recurrences and symptoms are present.
Indications for aspiration of all solitary cysts of the neck should be considered to correctly identify their true nature.

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