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CASE REPORT

Parathyroid Cyst: A Rare Diagnosis Of A Neck Swelling

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ABSTRACT

Parathyroid cysts are rare clinical entities. They may mimic solitary thyroid nodules and frequently present as a clinical diagnostic problem. The case of a 43- year male is presented here, who had a left sided neck swelling which recurred after aspiration. The patient underwent excision of the swelling and the diagnosis of parathyroid cyst was established on the basis of the histopathological examination of the specimen. The diagnosis of parathyroid should be suspected in the case of any cystic anterior neck mass that yields a clear fluid on aspiration, especially if it is in the inferior position. The presence of elevated parathyroid levels in the fluid is diagnostic. Aspiration alone is curative in some cases.

Keywords: Parathyroid cyst, neck mass

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Introduction

The common causes of lateral neck swellings are thyroid enlargement, branchial cyst, cold abscess, aneurysm of the caroid artery, carotid body tumour, sternomastoid tumour or latyngocele. Parathyroid cysts are rarely seen in clinical practice, but they should be suspected in the differential diagnosis of a neck swelling. The incidence of parathyroid cysts found at autopsy range from 40% to 50%.

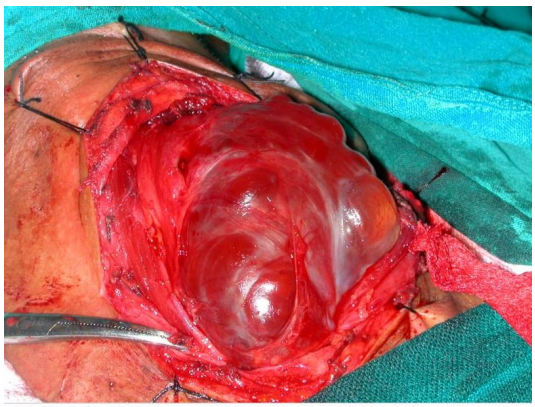
Sandstrom described the first parathyroid cyst in 1880, and Goris reported the first successful resection of a parathyroid cyst in 1905. Parathyroid cysts typically manifest as asymptomatic neck masses or are discovered as an incidental finding during a neck operation or an imaging procedure performed for unrelated reasons. Nevertheless, cases of airway compromise, dysphagia, recurrent laryngeal nerve palsy and innominate vein thrombosis attributable to large parathyroid cysts have been reported.

Two types of parathyroid cysts have been recognized: the non- functioning or essential forms, which are more frequent and the adenomatous or functioning parathyroid cysts, which are rarer and cause hyperparathyroidism. We present here, the case of a nonfunctioning cyst of the parathyroid gland which presented with symptoms of pressure.

Case Report

A 43-year-male presented with a swelling on the left side of the neck of one year duration, which increased in size about 5-6 times in the last five months. He had associated symptoms of dull pain, difficulty in swallowing and choking sensation while in the supine position. On examination, it was seen that there was a single swelling, 3x6 cm in size, on the left side of the neck, which moved with deglutition. There were no clinical signs of hypo or hyperthyroidism. A clinical diagnosis of a thyroid cyst was made.

His routine laboratory investigations were normal. Ultrasonography revealed a unilocular swelling which did not arise from the thyroid gland. FNAC yielded a clear watery fluid. The cyst could be completely aspirated and the patient became symptom free. Three months later, the patient presented again with a recurrent swelling and was taken up for exploration. The swelling was found to be loosely attached to the thyroid gland and could be completely excised [Table/Fig 1].



(Table/Fig 1) Intraoperative picture of parathyroid cyst

(Table/Fig 2) H&E slide (40X) showing cyst wall made up of fibrocollagenous few clear cells of parathyroid origin

Histopathology of the specimen showed that the cyst wall was made up of fibrocollagenous tissue lined by flattened cells. However, in few fields, clear cells of parathyroid origin were identified [Table/Fig 2]. The outer aspect of the cyst wall was attached to the fibro-adipose tissue and revealed a few remnants of atrophic parathyroid parenchyma and lymphoid tissue. There was no evidence of any neoplastic process in the multiple sections examined. The diagnosis of parathyroid cyst was confirmed.

Discussion

Parathyroid cysts are rare and only 250 cases have been reported in the literature[1]. Parathyroid cysts usually occur in the fourth or fifth decade of life. Most parathyroid cysts are nonfunctional and may be developmental in origin. Parathyroid adenomas after infarction or haemorrhage rarely degenerate into cysts. Some of these (20%-30% of reported cases) remain functional with hyperparathyroidism, while other patients return to a normal state. Non-functioning cysts are about 2.5 times more common in females, while functioning cysts are more common in males than in females by a ratio of 1.6:1 [2].

The etiological factors contributing to parathyroid cyst formation continue to remain as questions. At least five different theories have been proposed: (*1*) retention of glandular secretions, (*2*) persistence of vestigial pharyngobranchial ducts, (*3*) cystic degeneration of parathyroid glands, (*4*) persistence of Kursteiner's canals, and (*5*) enlargement of a microcyst or coalescence of the more common parathyroid microcysts. None of these theories is universally applicable, and the processes leading to cyst formation may well differ from one person to the next. The one exception may be that of functional parathyroid cysts, which some investigators believe may occur as a result of cystic degeneration, infarction, or haemorrhage in a preexisting adenoma.

Most parathyroid cysts are solitary and unilocular,and are located in the lower neck near the lower poles of the thyroid gland, although they can be as cephalad as the angle of the mandible or as caudad as the superior mediastinum [3]. Non-functioning cysts are typically found in the inferior parathyroids and occur on the left side, 60% of the time. Capezzone et al in 2007 have

described an ectopic intra-thyroid parathyroid cyst which was non- functional and presented as a multi - nodular goiter [4] . It was surgically removed after an initial attempt to manage after aspiration. A preoperative diagnosis can be made by ultrasound of the neck which shows a unilocular cyst, not arising from the thyroid gland. A parathyroid cyst in and around the thyroid gland will appear as a cold, nonfunctioning defect by radionuclide thyroid scanning, often simulating a nonfunctional thyroid nodule. Sonography will demonstrate a smooth-walled anechoic lesion with good through-transmission of sound, indicating a cystic lesion.

FNAC of these cysts yield a crystal clear watery fluid which contains a high concentration of parathyroid hormone [5]. Non- functioning cysts are simple cysts lined by a flattened cuboid to low columnar epithelium. Several types of parathyroid cells are found in their walls- chief cells, water clear cells and oxyphil cells-but all three are not necessarily present. The presence of smooth muscle in the walls of some parathyroid cysts may suggest that these have arisen from branchial pouch remnants. Histopathology of these cysts often show clusters of parathyroid cells, compressed and intermingled with the fibrous tissue in the wall. Lining epithelium is positive for parathyroid hormone (PTH), Parathyroid secretary protein and cytokeratin and is negative for thyroglobulin [6] .

The treatment of parathyroid cysts varies from aspiration to surgical excision [1], [2], [3], [6]. Uncomplicated cysts can be managed by simple aspiration. In some cases, aspiration can be followed by sclerosant installation [8]. For recurrent lesions, sclerotherapy with the use of tetracycline and alcohol has been reported to be effective, but is associated with the risk of subsequent fibrosis and recurrent laryngeal nerve palsy. M Zingrillo (1996) has reported a large parathyroid cyst which recurred after aspiration and was subsequently managed by percutaneous ethanol injection [9]. Surgical excision is indicated in functioning forms and in non-functioning forms in cases of recurrence after simple aspiration and in patients with significant symptoms (dyspnoea, dysphagia, recurrent laryngeal nerve palsy etc). When managed conservatively, serum calcium should be checked regularly to detect potential hyperparathyroidism [6]. Surgical excision of the cyst is the definitive treatment.

References

[1]. Mevio E, Gorini E, Sbrocca M, Artesi L, Mullace M, Lecce S. Parathyroid cysts: description of two cases and review of literature. Acta Otorhinolaryngol Ital.2004; 24:161-4.

[2]. Page GV, Burke ML, Metzger WT. Parathyroid cysts Am Surg. 1984; 50:29-32.

[3]. Varaldo E, Mimuto M, Torre G. Parathyroid cyst, a case report and review of literature. Ann Ital Chir 2001; 72:343-5.

[4]. Capezzone M, Morabito E, Bellitti P, Giannasio P, de Santis D, Bruno R. Ectopic intrathyroidal nonfunctioning parathyroid cyst. Endocr Pract. 2007 Jan-Feb;13(1):56-8

[5]. DeRaimo AJ, Kane RA, Katz JF, Rolla AP. Parathyroid cyst: diagnosis by sonography and needle aspiration. AJR Am J Roentgenol. 1984; 142:1227-8.

[6]. Roth SI. The parathyroid gland. In Silverberg SG, Delellis RA, Frable WJ,eds. Principles and practice of surgical pathology and cytopathology. New York, Churchill-Livingstone 1983: 2739-40.

[7]. Ujiki MB, Nayar R, Styurgeon C, Angelos P. Parathyroid cyst often mistaken for thyroid cyst. World J surg. 2007;31:60-4

[8]. Nobuo Takeichi, Kriyohiko Dohi, Haruo Matsumoto, Maysayuki Niahiki, Naohiko Kishi, Toshio Fujii et al: A parathyroid cyst effectively treated with a sclerosing agent. Surgery Today 1985; 15:405-7.

[9]. ZINGRILLO M., GHIGGI M. R. , LIUZZI A. : A large, nonfunctioning parathyroid cyst recurring after aspiration and subsequently cured by percutaneous ethanol injection. Journal of clinical ultrasound ; 1996, vol. 24, n°7, pp. 378-82