



BMH Medical Journal 2015;2(1):24-27 **Case Report**

Parathyroid Cyst: Unusual Cause of Cystic Neck Mass

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Introduction

Parathyroid cysts are rare lesions. McCoy et al [1] reported an incidence of 3% in 1769 patients undergoing parathyroidectomy for primary hyperparathyroidism (PHPT). However when patients subjected for ultrasound neck were studied the incidence was 0.075% which shows the rarity of the cyst [2]. The majority of parathyroid cysts are said to be non functioning and needs to be considered in the differential diagnosis of asymptomatic neck mass. In this report we discuss our experience with two cases of parathyroid cyst.

Case discussion

Case 1

49 year old male patient presented with swelling of the left lower neck. There was associated pain. Clinically it was suspected to be a thyroid nodule and the patient had undergone FNAC (Fine needle aspiration cytology) from the GP. This was suggestive of parathyroid cyst. Investigations revealed: Serum Calcium: 9.2mg%, S Phosphorus 4.3mg%, S albumin 4.1gm%, S iPTH: 45 pg/ml (13-88). Serum TSH: 1.08mIU/L. CECT Neck revealed a 4.4x4.6x5.9cm thin walled cyst at the lower pole of Right thyroid lobe extending to superior mediastinum, with tracheal displacement. USG abdomen did not reveal any renal stones/ nephrocalcinosis. Patient underwent neck exploration. An 8x6.5x4cm cystic mass was detected at the lower pole of thyroid with superior mediastinal extension. Cystic contained clear fluid. The Left Recurrent laryngeal nerve was stretched over the cyst. The inferior parathyroid was not seen in the normal location. Cyst was excised and patient had uneventful recovery. Histopathology confirmed parathyroid cyst.

Case 2

35 year old female patient was seen with a neck mass of one year duration. Lower neck discomfort and pain was present since 2 months. Ultrasound neck revealed a purely cystic lesion in the left lobe of thyroid about 6x4cm in size. In view of the pain in the swelling and the large size patient underwent exploration of the neck. During excision a large cyst with clear fluid was encountered which was 8.5x5x3.5cm arising from the lower pole of the left lobe of thyroid and extending retro

sternally (**Figure 1 A**). The left inferior parathyroid gland was not visualised in the normal anatomical location. The cyst along with the left lobe of thyroid was excised. Histopathology revealed that it was a parathyroid cyst. Retrospectively it was found that the patient had no evidence of bone disease/ renal stones. Her serum calcium was 8.5mg%, Serum phosphorus was 3.2mg%, Serum IPTH 32pg/ml and normal serum alkaline phosphatase.

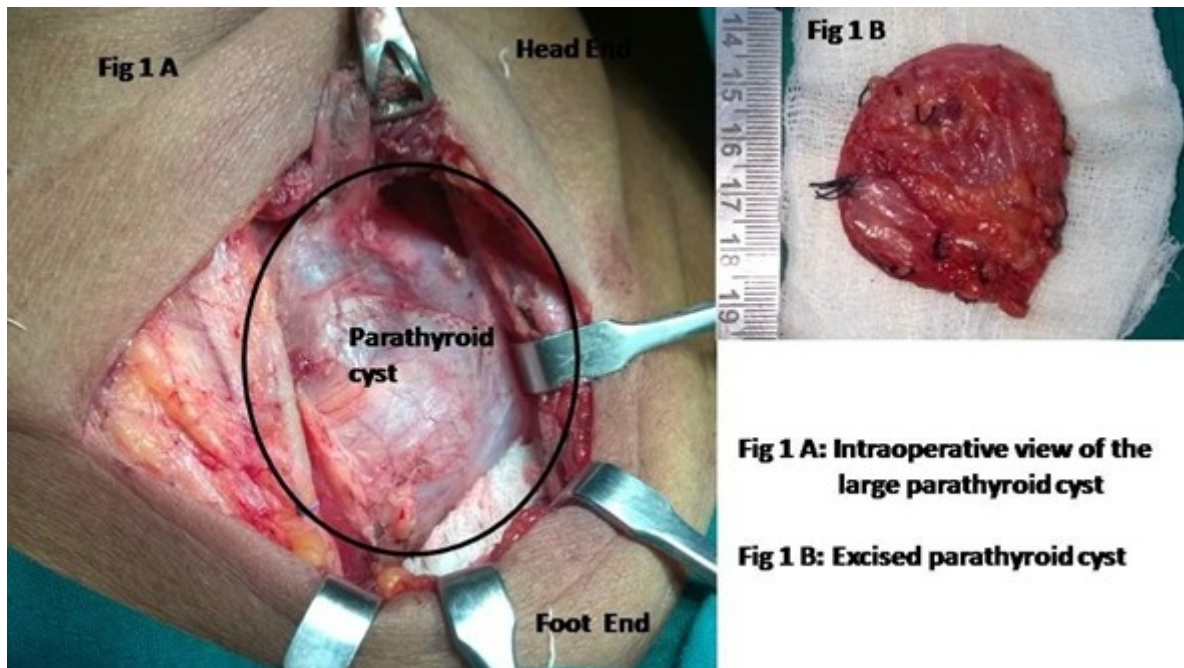


Figure 1

Discussion

Parathyroid cysts are very rare. Clinically it is not suspected since the commonest cystic lesion in the anterior compartment of neck is from the thyroid gland. The diagnosis is suspected either during an FNAC or during the radiological assessment (USG/ CT scan). In some cases the diagnosis is established only during the histopathology as in our second case. Both of our cases had normal biochemical profile and hormonal profile. There was no evidence of bone/ renal disease.

The Belgian surgeon Goris reported the first surgical removal of parathyroid cyst. Literature report suggests that parathyroid cyst can be functional or non functional [3]. 80% of the parathyroid cysts are reported as non functional [4]. Functional cysts are commonly reported in men [1]. However our cases were non functional. The parathyroid cysts are reported in the fourth and fifth decade as in our case. Various symptoms are described with non functional parathyroid cysts. These are related to pressure over the trachea, oesophagus and recurrent laryngeal nerves [3,5]. Extension into the mediastinum mimics as a retrosternal goitre. The functioning parathyroid cysts present with classical signs and symptoms of primary hyperparathyroidism and also some of them produce local compressive symptoms since they are large in size [6].

Cysts may arise in the parathyroid generally due to cystic degeneration of parathyroid adenoma. If so, they may be functional. However the non functioning parathyroid cysts are believed to be true cysts and derived from 3rd and 4th branchial clefts [7]. It is also postulated the micro cysts formed in the parathyroid later coalesce and form macro cyst [8]. Unlike the parathyroid adenoma in PHPT the diagnostic modalities like USG Neck, Sestamibi scans are not diagnostic. USG mistakes the cysts for thyroid cyst. Sestamibi reveals areas of decreased or no uptake which mimics cold nodule of the thyroid [9]. As seen in our second case the CT scan of neck can only reveal a cystic lesion and the retrosternal extension however it may not be diagnostic of parathyroid cyst. PTH estimation in the aspirate from the cyst is diagnostic. PTH concentration ranging from several hundreds to lacs have

been described in the aspirate. The aspirate is usually watery and clear fluid however it may be brownish in a degenerated parathyroid adenoma [10]. It has been observed that the FNAC findings overlap with the thyroid epithelium, however the absence of colloid and presence of granularity are suggestive of parathyroid origin [11]. Intraoperatively the cyst is seen as bluish with thin wall and clear fluid (**Figure 1A**). It may rupture unless dissected slowly. Since majority of the cysts are non functional, rupture of the cyst may not result in parathyroidomatosis unlike the usual parathyroid adenoma.

Management of the cysts can be surgical or medical. Generally these cysts are large as in our patients with pain/ compressive symptoms. Hence symptomatic non functional cysts as well as functional cysts needs surgical excision. This is a day care procedure. Unlike the usual PHPT where the patients run the risk of post parathyroidectomy hungry bone syndrome in patients with parathyroid cyst the recovery is without any hypocalcemia. Aspiration alone with or without injection of sclerosing agents (ethanol, tetracycline) have been described as other management options [12,13]. Unlike surgery these procedure run the risk of recurrence. Scleroscent injections in the lower parathyroid has resulted in recurrent laryngeal nerve palsy [13].

Conclusion

Parathyroid cysts are rare causes of cystic anterior neck mass. They are usually non functional and may have compressive symptoms. The imaging modalities are usually in conclusive however PTH in the aspirate from the cyst is diagnostic. Surgical excision is the treatment of choice since it results in complete cure without any recurrences.

References

1. McCoy KL, Yim JH, Zuckerbraun BS, Ogilvie JB, Peel RL et al. Cystic parathyroid lesions: functional and non functional parathyroid cysts. Arch Surg 2009;144:52-56.
2. Cappelli C, Rotondi M, Pirola I et al. Prevalence of parathyroid cysts by neck ultrasound scan in unselected patients. J Endocrinol Invest 2009;32:357-59.
3. Pontikides N, Karras S, Kaprara A, Cheva A, Doumas A et al. Diagnostic and therapeutic review of cystic parathyroid lesions. Hormones 2012;11:410-18.
4. Ippolito G, Palazzo FF, Sebag F, Sierra M, De Micco C et al. A single institution 25 year review of true parathyroid cysts. Lagenbecks Arch Surg 2006;391:13-18.
5. Coelho DH, Boey HP, Benign parathyroid cyst causing vocal fold paralysis: a case report and review of literature. Head Neck 2006;28:564-66.
6. Gurbuz AT, Peetz ME. Gaint mediastinal parathyroid cyst: an unusual cause of hypercalcemic crisis- case report and review of literature. Surgery 1996;120:795-800.
7. Marsot-Dupuch K, Levret N, Pharaboz C et al. Congenital neck masses. Embryonic origin and diagnosis. J Radiol 1995;76:405-15.
8. Rangnekar N, Bailer WJ, Ghani A, Carbonell FA, Nowak M. Parathyroid cysts: Report of four cases and review of literature. Int Surg 1996;81:412-414.
9. Cappelli C, Gandossi E, Pirola I, De Martino E, Delbarba A. Parathyroid cyst: often mistaken for thyroid cyst. World J Surg 2007;31:2269.

10. Layfield LJ. Fine needle aspiration cytology of cyclic parathyroid lesions. A cytomorphologic overlap with cystic lesions of the thyroid. *Acta Cytol* 1991;35:447-50.
11. Lerud KS, Tabbara SO, DelVecchio DM, Frost AR. Cytomorphology of cystic parathyroid lesions: report of four cases evaluated preoperatively by fine needle aspiration. *Diagn Cytopathol* 1996;15:306-11.
12. Clark OH. Parathyroid cysts. *Am J Surg* 1978;135:395-402.
13. Sanchez A, Carretto H. Treatment of a non functional parathyroid cyst with tetracycline injection. *Head Neck* 1993;15:263-65.