

# Mistaken Identity: Cystic Parathyroid Adenoma Masquerading As A Goitre

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## Abstract

Cystic degeneration of a parathyroid adenoma is rare. We present a case of cystic parathyroid adenoma in a 54-year-old gentleman, who underwent hemithyroidectomy for presumed thyroid cyst. The true diagnosis only being made on histological analysis. A review of suggested management techniques is included.

## INTRODUCTION

Cystic degeneration of a parathyroid adenoma is rare with as few as 200 cases reported previously<sup>1,2</sup>. We present the case of a large cystic parathyroid adenoma presenting as a thyroid goitre.

## CASE HISTORY

A 54-year-old euthyroid gentleman was referred with a 5-week history of an enlarging lump in his neck, and episodes of confusion. Routine blood tests including thyroid function tests, thyroid autoantibodies, full blood count and erythrocyte sedimentation rate were all normal.

Clinically he had a right-sided thyroid goitre, which moved on swallowing, with no lymphadenopathy. Ultrasound examination confirmed a right-sided 4cm cystic swelling containing echogenic material with calcification. A chest radiograph was normal. Fifty millilitres of haemorrhagic fluid was aspirated from the cyst and cytological examination of the aspirate revealed a paucicellular fluid insufficient for diagnosis.

The patient failed to attend for the following 9 months, and then re-presented with epigastric pain. He underwent an upper gastrointestinal endoscopy, which revealed small duodenal ulcers that were successfully treated with a proton pump inhibitor. An abdominal ultrasound at the time revealed the presence of gallstones. An ultrasound examination on this occasion demonstrated a 4-cm cyst in the right lobe of the thyroid and a solid 13-mm nodule in the left lobe. The serum calcium was 3.0 mmol/l, raising the possibility that the nodule in the left lobe was related to the

parathyroid gland.

During neck exploration frozen section of the left-sided nodule failed to identify parathyroid tissue. A right thyroid lobectomy was performed.

There were no immediate post-operative complications and the patient made an uneventful recovery and following the operation the patient's calcium levels reverted to normal.

Histopathological examination of the right lobe of the thyroid demonstrated a cyst wall composed of hyalinized collagen with aggregates and cords of chief and water-clear cells. A nodule was identifiable macroscopically, and this was composed of closely packed chief cells. There was altered blood within the cyst and haemosiderin was present in the cyst wall. The features were suggestive of a cyst arising as a result of degeneration of a parathyroid adenoma.

## CONCLUSIONS

The clinically reported incidence of cystic parathyroid adenoma is low, with as few as 200 cases previously reported in the literature<sup>1,2</sup>. The majority present as neck swellings, but a small percentage will present with a mediastinal mass<sup>2</sup>. They are most frequent in females between 20 and 60 years of age, and are usually mistakenly diagnosed as thyroid cysts. Unlike our case most are non-functioning, although functioning cysts are 1.6 times more common in men.<sup>2</sup>

The pathogenesis of cystic parathyroid adenomas is poorly understood. The most likely explanation is degeneration of an existing parathyroid adenoma secondary to haemorrhage

into the adenoma, resulting in cyst formation. This is supported by the circumstances surrounding this case. The rapid onset of swelling implies haemorrhage into a previously asymptomatic parathyroid adenoma. In this case the histology revealed a nodule of parathyroid tissue within the cyst wall and the haemosiderin and altered blood further supports the presumed pathogenesis. The haemorrhagic degeneration theory could also explain why the majority of these cysts are non-functioning at diagnosis, as the vascular event may lead to necrosis and degeneration of the adenoma and destroy sufficient viable adenoma tissue to prevent problems with calcium homeostasis.

The majority of cystic parathyroid adenomas are treated by surgical excision, either as the primary treatment of an active cystic adenoma, or more commonly by the excision of a presumed thyroid cyst as in this case, with the true diagnosis revealed by histology. Other modalities of therapy have been tried with varying degrees of reported success<sup>1,2,3</sup>. A recent series of cases suggest that some cysts may respond to fine needle aspiration<sup>3</sup>. The study observed 13 patients with parathyroid cysts that were diagnosed and treated by percutaneous aspiration. There was complete resolution in 10 cases, with a further 2 cases responding after a further

aspiration.

There were no further recurrences reported during the follow up period of 1 - 8 years<sup>3</sup>. This may well imply that the true incidence of these cystic parathyroid adenomas is greater than currently perceived as they may well be assumed to be thyroid cysts when aspirated successfully. However, as with active non-cystic parathyroid adenomas, functioning cysts should be removed surgically, in order to restore calcium homeostasis.

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