Oxyphil variant of parathyroid adenoma: A rare case report

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ABSTRACT
Parathyroid adenomas which are composed predominantly of chief cells are the most frequent cause of primary hyperparathyroidism. Predominantly composed of chief cells, parathyroid adenomas are the most frequent cause of PHPT. Uncommonly, PHPT is caused by oxyphil adenoma, an infrequent histological form considered exclusively nonfunctioning until 1970. These adenomas consist of cells with abundant eosinophilic cytoplasm that correlates ultrastructurally with numerous mitochondria. Benign oxyphil adenomas may mimic parathyroid carcinomas, both in terms of clinical features and tumour sizes. A multi-disciplinary team approach in an intensive care setting, would help in avoiding a lengthy and stormy post-operative course in such patients.

Keywords: Parathyroid Adenoma, Oxyphil Variant, Hyperparathyroidism

INTRODUCTION
Parathyroid adenomas which are composed predominantly of chief cells are the most frequent cause of primary hyperparathyroidism. Parathyroid adenomas of the oxyphil cell type, an infrequent histologic subtype, are rarely seen. Warren and Morgan, in 1935, were the first to report a pure functioning oxyphil adenoma of the parathyroid. 1

CASE REPORT
An 18 year old female presented with neck swelling, she did not complain of breathlessness, stridor or dysphagia. Her menstrual periods were normal. On physical examination, her blood pressure was found to be 128/78 mm Hg. Neck examination showed that mild deviation of trachea to the right, with no cervical lymphadenopathy. Cardiovascular, pulmonary and abdominal examinations were within normal limits. She was operated for same and the specimen was sent for histopathological examination.

Gross
Specimen consisted of globular encapsulated mass of tissue measuring 2.5x2x2 cm. Cut section was gray white lobulated.

Microscopy
The tumor consisted largely of cords and nests of cells with abundant granular eosinophilic cytoplasm with round to oval nuclei. The diagnosis of Oxyphil variant of parathyroid adenoma was made.
Fig 1: Cut Section of the Specimen

Fig 2: Cut Section of the Specimen
DISCUSSION
Eighty to 85% of patients with primary hyperparathyroidism (PHPT) have a single parathyroid adenoma that is ectopic in 5% to 10% of cases. Ectopic parathyroid adenoma is a frequent cause of surgical failure and, therefore, several authors recommend preoperative imaging to localise the condition in patients with PHPT before initiating surgery. Thus, about 5% of patients who underwent parathyroidectomy present persistent or recurrent hyperparathyroidism.

Predominantly composed of chief cells, parathyroid adenomas are the most frequent cause of PHPT. Uncommonly, PHPT is caused by oxyphil adenoma, an infrequent histological form considered exclusively nonfunctioning until 1970. These adenomas consist of cells with abundant eosinophilic cytoplasm that correlates ultrastructurally with numerous mitochondria.

The most frequent cause of PHPT is a solitary adenoma composed mainly of chief cells producing PTH. In contrast, oxyphil adenoma meets the following criteria: 1) consists of at least 90% oxyphil cells; 2) histologically normal excision or biopsy of a second gland excluding the possibility of parathyroid hyperplasia; and 3) immediate postoperative normalisation of hypercalcemia.

The normal parathyroid gland weighs about 25-35 mg, while an average chief-cell parathyroid adenoma weighs 0.5 gram. The oxyphil variants are known to be heavier, with an average weight of 1.2 gram. In 2004, Fleisher et al described two cases of abnormally large oxyphil parathyroid adenomas which weighed 7 and 25 grams. In our case the oxyphil adenoma weighed 10 gram. Microscopically, oxyphil cells are larger than chief-cells and they are filled with abundant eosinophilic cytoplasm, which may explain their large sizes.
CONCLUSION
Benign oxyphil adenomas may mimic parathyroid carcinomas, both in terms of clinical features and tumour sizes. A multi-disciplinary team approach in an intensive care setting, would help in avoiding a lengthy and stormy post-operative course in such patients. This case is presented for its rarity.

REFERENCES