CASE STUDY

Cystic Parathyroid Adenoma: Report of a Case

Adenoma quístico de paratiroides: a propósito de un caso

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Our case history is a 76-year old female with a cervical tumour which had evolved over several years. This had remained asymptomatic up until almost 2 weeks prior to presentation, when she began to suffer from local symptoms of dyspnoea and dysphagia. She therefore presented at the emergency department where a cervical tumour was located and on examination was referred to as a well-defined, cyst-like right laterotracheal mass, which did not move on swallowing. Thyroid function tested as normal (TSH 2.5 mU/l; T3 94 ng/dl; T4 8 ng/dl), as did calcaemia and PTH levels. Computerised tomography showed a multi-lobulated cyst which was displacing the airway. This did not affect the thyroid glands, and there were no regional adenopathies (Fig. 1).

The patient underwent scheduled surgical intervention for the clinical symptoms of compression. A 25 g specimen was obtained, the anatomic pathology of which showed its cystic structure surrounded by mainly parathyroid cells (Fig. 2A), and a cystic parathyroid adenoma was reported. The patient evolved favourably in the post-operative period and was discharged on the third day after surgery. The patient is currently asymptomatic.

Discussion

Cystic parathyroid adenomas are uncommon among cervical tumours. Approximately 250 cases have been reported in literature, the majority (85%) of which are found in the lowest region of the neck, although 15% of cysts are reported as being located at any level between the jaw and the mediastinum.

Several theories have been suggested to explain the aetiology of cystic parathyroid adenomas, including...
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the retention of glandular secretions, the growth of vesti-
gial remnants of the Kursteiner Canals,1 the degenera-
tion of parathyroid adenomas and carcinomas or persisting as
embryological remnants of the 3rd and 4th pharyngeal
pouches. It has also been suggested that they may occur
as a result of microcystic coalescence. These microcysts
are frequently found in normal glands (between 40% and 50% of
autopsies) and increase as the glands age and are infiltrated
with fat. Cystic adenomas could therefore occur as a result
of age-related degeneration.

Patients frequently present at surgery as a result of
an accidental finding of a mass during cervical palpation,
although occasionally clinical symptoms of compression
such as dyspnoea, dysphagia, and odynophagia are also
described. A full examination allows us to differentiate this
from the causes of other cervical cystic tumours such as thy-
roid nodules,1-3 from which they are differentiated because
they are lateralised and because they do not usually move
on swallowing.

With regards to calcaemia, parathyroid cysts may be class-
ified as functional and non-functional.3 Functional cysts
(9%) are more frequent in males and often occur as a result
of cystic degeneration of a parathyroid carcinoma. They are
characterised as producing PTH and hypercalcaemia in the
form of primary hyperparathyroidism which may originate
as an acute parathyroid crisis.3 By contrast, non-functional
parathyroid cysts (91%) are predominant in females and
are more frequently found in the lower parathyroid glands
rather than the upper ones. They present in patients with
normal calcaemia levels and who may be asymptomatic
(incidental finding during a scan or cervical intervention) and
symptomatic (clinical compression symptoms of dyspnoea
and dysphagia, venous thrombosis or injury to the recurrent
laryngeal nerve).

CT and ultrasound imaging provide information about the
characteristics of the cyst without revealing data on its func-
tionality. The Sestamibi PET scan is not a reliable method
for differentiating it from a thyroid cyst, and the study of
intracystic fluid is therefore recommended.

Fine-needle aspiration in parathyroid cysts plays an
important role in diagnosis and therapy.4-7 Characteristi-
cally the cystic fluid is clear and colourless, although cases
have been reported in literature where the content is blood
or coffee-like, similar to a thyroid cyst.8 Analysis of the
fluid reveals a high PTH6-7 content, associated or otherwise
with high calcium levels, which are considered to be charac-
teristic for the diagnosis of this lesion. The content of
non-functional cystic adenomas is usually serous, with PTH
levels of up to 40 000 pg/ml. By contrast, functional parathy-
roid cysts present a brownish fluid content with PTH levels
of up to several million pictograms per millilitre.9,10

Histologically, the cyst wall is delimited by a layer of
main parathyroid cells or by connective tissue which cov-
ers islets of these cells. The presence of these standard
parathyroid cells in the cystic wall is considered essential
for histologic analysis.1 Atypical parathyroid tissue may be
found in the cyst wall in cases of cysts secondary to adenoma
degeneration.

Treatment is indicated in cases of functional cystic ade-
noma or when there are symptoms of local compression.1
The cyst content may be aspirated, although in this case
they usually recur. Another therapeutic option is sclero-
therapy with alcohol and tetracyclines, although these sclerosing
agents can cause fibrosis which damages the laryngeal
nerves. Finally, there is the option of surgical resection via
the cervical route; this has good clinicopathological results,
as in our present case.

Conflict of Interests

The authors have no conflict of interests to declare.

References

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Figure 2 (A) The histologic structure of the cystic parathyroid adenoma is cystic, surrounded by main parathyroid cells.
(B) The difference compared with the parathyroid adenomatous tissue is that the latter is composed of a compact structure which
is homogeneous with the main cells.


