Parathyroid Adenoma with Unusual Clinical Features

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INTRODUCTION

Primary hyperparathyroidism is an uncommon disease with an incidence of 21 cases per 100,000 per year (approximately).¹ Symptoms produced by hyperplasia of the parathyroid are classified into three categories: a) those due to skeletal changes, b) due to urinary changes c) due to hypercalcemia itself.² They may also be due to the mechanical effect of the tumour such as dysphagia or a feeling of fullness in the neck.³ While symptoms due to pressure per se are rare, it is possible for the tumour to be located such that constant irritation of the recurrent laryngeal nerve may set up local triggers, which when stimulated produce several episodes of coughing and sneezing followed by weakness and at times, syncopal episodes.

PRESENTATION OF CASE

A 70-year-old gentleman presented with a history of 7 days of irregular talks and mild confusion but no loss of consciousness. He reported long standing gastroesophageal symptoms but no other abdominal complaints. His medical history was negative for depression and renal calculi. There was no history of carcinoma or radiotherapy treatment. On examination, on the right side of the neck, a swelling just lateral to the mid line at the lower edge of thyroid cartilage, with absence of pulsations or voice change. Upon examination, chest and abdominal were unremarkable. There was no evidence of bony pain and no other lump in the abdomen was reported. Laboratory tests showed mild anaemia, hypercalcemia, at the time of admission, elevated serum levels of serum parathyroid hormone and a normal level of Vitamin D.

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An ultrasound scan of neck revealed a 1.9 x 2.2 x 1.9 cm swelling with an approximate volume of 4.5 cc indenting the right lobe of thyroid with evidence of multiple anechoic areas suggestive of necrosis. No associated lymphadenopathy was noted. Mediastinum was normal.

CLINICAL DIAGNOSIS

Hyperparathyroidism - Adenoma

DIFFERENTIAL DIAGNOSIS

Primary Hyperparathyroidism, Parathyroid Adenoma, Parathyroid Hyperplasia, MEN Syndrome.

DISCUSSION OF MANAGEMENT

The patient underwent conservative management initially with aggressive intravenous fluid resuscitation, Vitamin D replacement, Intravenous loop diuretics and electrolyte management.

On day 7, biochemical markers had improved, with blood urea 62.0 mg / dL, serum creatinine 0.8 mg / dL and serum calcium 9.70 mg / dL. The patient underwent a neck exploration on day 10.

Resection of the giant gland was performed by a surgeon expert in thyroid surgeries through implementation of minimal invasive parathyroidectomy.

A small horizontal incision of 2 cm was given in the neck corresponding to the mid-thyroid level with lateral retraction of the sternothyroid muscle and manipulation of the right thyroid lobe. The gross parathyroid adenoma was located attached to the posterior side of the right lobe of the thyroid.

Careful resection of the gland was performed with identification of the right recurrent laryngeal nerve. The excised specimen was sent for histopathological examination, which reported as a 2.5 x 2 cm parathyroid adenoma.

The post period was uneventful for the patient, with a slight decline in calcium, 7.90 mg / dL, while his parathyroid hormone levels decreased after POD2 to 296.10 pg / mL.

PATHOLOGICAL DISCUSSION

Histological investigation revealed a 2.3 x 2 x 1.9 cm encapsulated parathyroid adenoma weighing 9.15 grams composed of chief and oxyphil cells with cystic changes. There was no local, capsulated or vascular invasion and no features suggestive of malignancy.

Preop Reports	Day 1	Day 3	Day 5	Day 7	Day 9	Day 10
Sodium	158	155.0	144.0	143.0	143.0	138.0
Potassium	2.7	3.4	3.0	3.6	3.7	4.10
Calcium	16.0	11.8	10.3	7.8	9.7	9.70

Table 1. Pre-Operative Investigation

Postop Reports	Pod2	Pod5	Pod 7
Sodium	143.8	140.0	144.0
Potassium	4.50	3.10	2.8
Calcium	8.60	7.90	7.4

Table 2. Post-Operative Investigation

Figure 1. On Table Dissection and Identification of Gland

Figure 2. Excised Right Superior Parathyroid Gland

DISCUSSION

The presented case represents a presentation of parathyroid cystic adenoma with parathyroid crisis, very high serum calcium and PTH levels. The excised parathyroid gland was also of a rather large size. Both the clinical and investigative findings were indicative of a parathyroid tumour. The presenting symptom of altered sensorium and lack of other clinical features intrigues research. Parathyroid crisis is an emergency condition, first described in 1923 by Dawson and Stuthers, characterized by severe hypercalcemia (> 14 mg / dL) associated with signs and symptoms of multi-organ failure.^{4,5,6}

Even though most cases of such severe hypercalcemia are seen in malignancies, severe hypercalcemia with raised PTH is pathognomonic of primary hyperparathyroidism.⁷ Our patient presented with severe dehydration and features suggestive of kidney injury as per laboratory findings along with neurological symptoms of altered sensorium. The size of the cystic adenoma, biochemical findings and a palpable swelling all indicated a carcinoma.

Management of hyper parathyroid crisis usually warrants an emergency parathyroidectomy within 72 hours of presentation but in recent times, as per evidence provided by Phitayakorn and McHenry, the excision has to be preceded by correction and optimization of biochemical markers as was seen in our case where superior right parathyroidectomy was performed after correction. With appropriate medical

management prior to excision, there has been a decline in mortality rates in hyper parathyroid crisis to 2.8 %^{8,9,10}

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