

Parathyroid Adenoma Associated with Granulomatous Inflammation: A Curious Cause of Hypercalcaemia

HENA PAUL SINGH¹, VIKRAM NARANG², NEENA SOOD³, HARPREET PURI⁴

ABSTRACT

Primary Hyperparathyroidism (PHPT) due to solitary parathyroid adenoma followed by parathyroid hyperplasia and carcinoma are the most frequent cause of hypercalcaemia. The most common granulomatous disorders causing hypercalcaemia are sarcoidosis and tuberculosis. We have reported a case where unexplained granulomas were seen along with parathyroid adenoma.

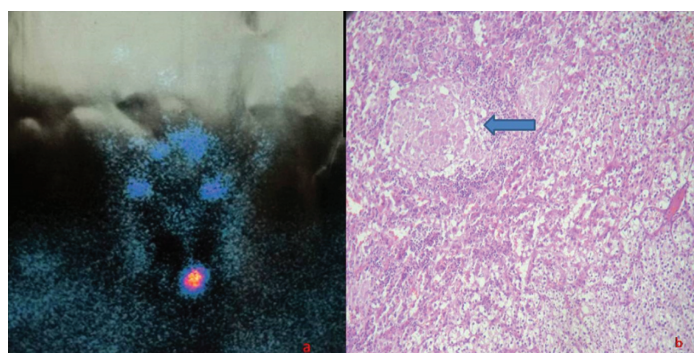
CASE REPORT

A 43-year-old female presented with complains of body pains and fatigue of 4 months duration. Her physical examination and routine investigations (complete blood counts, urine routine examination) were normal except for increase Serum Parathyroid hormone (161.4 pg/ml) and increased serum calcium levels (1.55 mmol/L). Ultrasound neck was planned with clinical suspicion of parathyroid adenoma which showed a well-defined space occupying lesion in left lobe of thyroid measuring 23x17mm. Parathyroid scan (20mCi of Tc- 99m sesta MIBI) showed a focal area of increased uptake in relation to lower pole of left lobe of thyroid gland and was suggestive of Left lobe Parathyroid adenoma [Table/Fig-1a]. Chest X ray was normal. No past history or family history of tuberculosis was present. Sarcoidosis was excluded as her ACE levels were also normal.

She underwent excision of left parathyroid gland and tissue was subjected to histopathology. Grossly, there was a well encapsulated grey tan soft tissue piece measuring 2.0x2.0x1.0 cm. on cutting lesion had a yellowish brown appearance. Histopathological examination revealed features of parathyroid adenoma along with presence of epithelioid cell granulomas associated with Langhans and foreign body giant cells [Table/Fig-1b]. Zeihl-Neelson stain for Acid fast bacillus was negative.

DISCUSSION

Hypercalcaemia in PHPT is due to activation of osteoclasts, leading to increased bone resorption. It has also been demonstrated to be associated with vitamin D (1,25(OH)₂D₃) mediated granulomatous disorders, reflecting disordered extrarenal production of 1,25(OH)₂D₃ [1-3]. The most common granulomatous disorders causing



[Table/Fig-1]: (a). Parathyroid scan (20mCi of Tc- 99m sesta MIBI) showed a focal area of increased uptake in relation to lower pole of left lobe of thyroid gland and was suggestive of Left lobe Parathyroid adenoma. (b) Granulomas in parathyroid adenoma (arrow) (100X,H&E).

Keywords: Hyperparathyroidism, Tuberculosis, Sarcoidosis

hypercalcaemia are sarcoidosis and tuberculosis. Other causes include lymphoma, silicone-induced granulomatosis, paraffin-induced granulomatosis, berylliosis, Wegener's granulomatosis and eosinophilic granuloma. Underlying infectious etiologies may include fungal infections (candidiasis, histoplasmosis, coccidioidomycosis) and leprosy. Although most patients with granulomatous disease-related hypercalcaemia are asymptomatic but symptoms and signs of chronic hypercalcaemia can occur [4-6].

The present case had enough radiological and biochemical evidence of hyperparathyroidism which was the cause of hypercalcaemia in the patient. The fall in calcium and Parathormone levels postoperatively also suggest as parathyroid adenoma being the cause of hypercalcaemia [Table/Fig-2]. This patient had no family history or past history of tuberculosis and the CXR was normal. Also there were no complains of cough or loss of appetite. Thus primary lung tuberculosis was ruled out. This patient had normal ACE levels and as previously discussed normal CXR, so hypercalcaemia due to sarcoidosis was also ruled out. Moreover, her medical history and clinical findings for berylliosis, coccidioidomycosis, and histoplasmosis were all negative.

	Before operation	After operation	Normal levels
PTH (parathyroid hormone) serum	161.40pg/ml	25.30pg/ml	15.00-65.00pg/ml
Serum calcium	1.55mmol/L	1.20pg/ml	1.16-1.32mmol/L

[Table/Fig-2]: Comparison of pre and postoperative PTH levels.

Anaforoglu et al., and Jacob et al., couldn't ascertain the reason behind this co-existence of parathyroid adenomas and granulomatous infiltration [1,7]. Jacob et al., preferred to begin anti-tuberculous treatment for their patient. Similarly, we could not ascertain any aetiology of granulomatous inflammation in the index case even with extensive clinical and laboratory work up. The patient was not started on anti-tubercular treatment and was advised to follow-up in the out patient department.

CONCLUSION

Granulomas within a parathyroid adenoma are a rare. The detailed clinical and pathology workup is necessary to ascertain the exact aetiology, however rarely it might not be possible to find the exact reason of granulomatous response as was in the present case.

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PARTICULARS OF CONTRIBUTORS:

1. Senior Resident, Department of Pathology, Dayanand Medical College & Hospital, Ludhiana, India.
2. Assistant Professor, Department of Pathology, Dayanand Medical College & Hospital, Ludhuana, India.
3. Professor & Head, Department of Pathology, Dayanand Medical College & Hospital, Ludhuana, India.
4. Professor, Department of Pathology, Dayanand Medical College & Hospital, Ludhuana, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:

Dr. Vikram Narang,
Assistant Professor, Department of Pathology, DMCH, Ludhiana, Punjab, India.
E-mail: drvikramnarang@yahoo.com

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