Double Parathyroid Adenoma: Culprit Behind A Non-Functioning Kidney

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Abstract

Double Parathyroid adenoma is a rare disease, with hyperparathyroid crisis being one of its unusual manifestations. Large rise in parathyroid hormone (PTH)levels in benign parathyroid disease is unusual and have been associated with more sinister diseases.The majority of patients suffering with the clinical entity hyperparathyroidism are found to have adenomas of one or more parathyroid glands, and the pathologic physiology of the disease is corrected by surgical removal of the tumor. In general, parathyroid tumors are classified into adenoma, hyperplasia, cystic changes and carcinoma. The differentiation between adenoma and hyperplasia is often difficult in usual histopathological examinations. Compared to hyperplasia, parathyroid adenomas often show a higher increase in the level of serum parathyroid hormone (PTH). Bone fractures, calculi of the urinary tract and higher serum calcium levels are more frequently the first symptoms of parathyroid adenomas than of hyperplasia. We report in this article, a case of double parathyroid adenoma with recurrent bilateral renal calculi.

Keywords: *doubleparathyroid adenoma,hyperparathyroidism, nephrolithiasis, hypercalcemia*

Case Report

A 58-year-old male came to the surgical out-patient department, School of medical science and research, Sharda Hospital, with a history ofon and offbilateral flank pain for 3 months which aggravated from last 4days. There was past history of symptomaticleft renalcalculi for whichUreteroscopic removal of stone was done around one and half years back. The patient was admitted to our hospital for furthermanagement. On examination, the patient's vitals were within normal limits, per-abdomen was soft and non-tender with no organomegaly.

Ultrasonographyof abdomenshowedbilateral nephrolithiasis [Right kidney- staghorn calculus measuring 34.7 mm with thinned out renal parenchyma with right sided hydronephrosis grade 4; Left kidney-10mm calculus in lower pole].The laboratory workup showed hypercalcemia, at 12.6 mg/dl (reference range: 8.5-10.5 mg/dl). The serum parathyroid hormone (PTH) level was significantly elevated of about 275pg/ml (reference range: 10-55 pg/ml). Ultrasound of neck showed bilateral parathyroid adenoma of inferior lobes of parathyroid gland. The 99m Tc – MIBI ParathyroidScintigraphywas done, which revealed tracer concentration in the thyroid tissues with more intense focal uptake observed related to the lateral side of the right thyroid lobe - possibility of right inferior parathyroid adenoma(Fig1).

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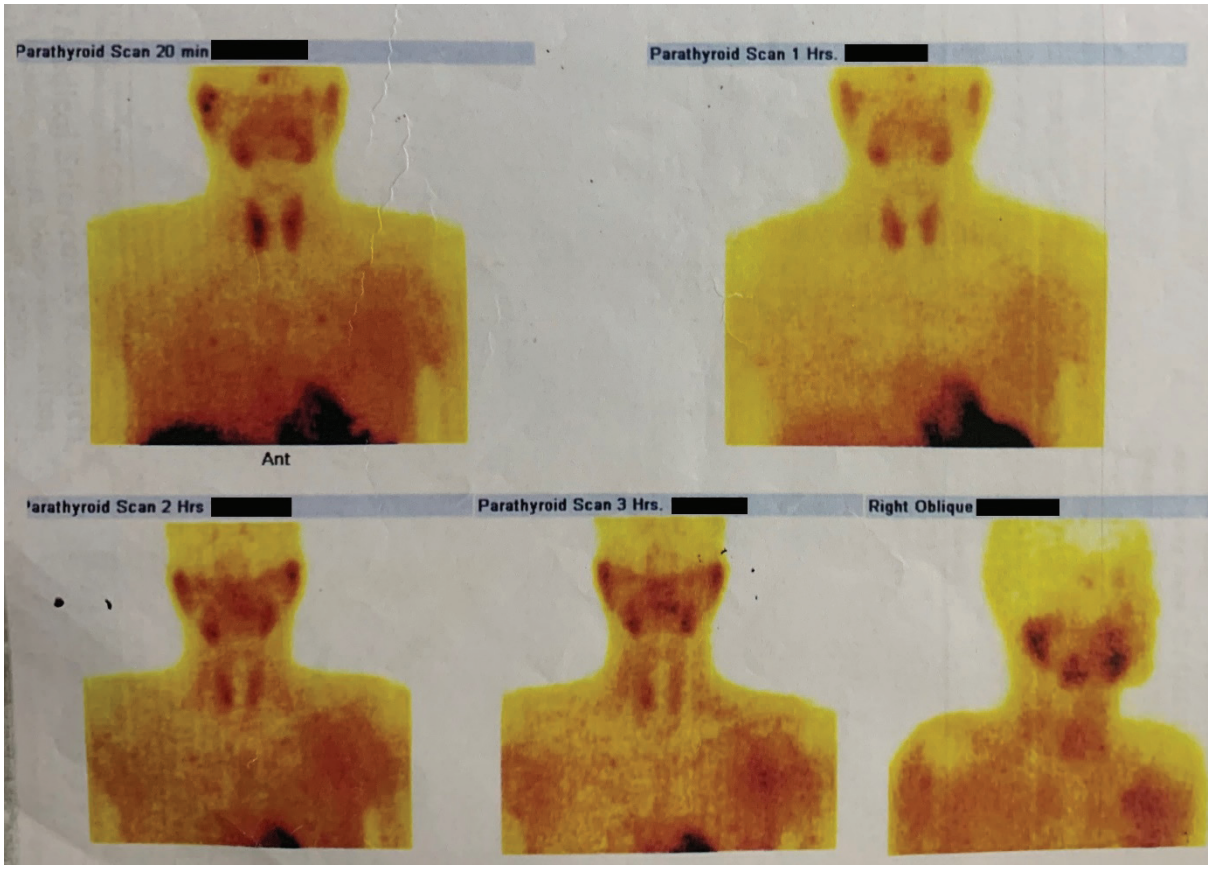

Fig1: 99m Tc – MIBI ParathroidScintigraphy: more intense focal uptake observed related to the lateral side of the right thyroid lobe suggestive of right sided parathyroid adenoma.

Methods

This patient had symptomatic parathyroid adenoma for which surgical parathyroidectomy was indicated. Patient underwentexcision of the both inferiorParathyroidAdenoma under generalanaesthesia. A transverse collar incision was made, the surgery proceeded and the adenomaswere identified and excised (Fig.2.1 & fig2.2). Glands were labelled and marked in separate containers and sent for histopathological examination to confirmdiagnosis. Patient recovered without any complications. Pre-operative PTH level of 275.7 ng/L was dropped to 73.9 ng/L couple of daysafter the excision of glands. Final histomorphologywas suggestive of chief cell hyperplasia of parathyroid withadenoma. Patient was discharged on the seventh post-operative day. Patient was asked to follow up with DTPA scan which revealed: left kidney showing normal cortical function and non-obstructed drainage (left kidney GFR-90.7ml/min) and right hydronephrotic kidney with severely impaired cortical function(right kidney GFR-8.1ml/min). Henceright open nephrectomy was conducted and it went uneventful.

Patientremained asymptomatic and normocalcemic at further follow-ups upto 6 months.

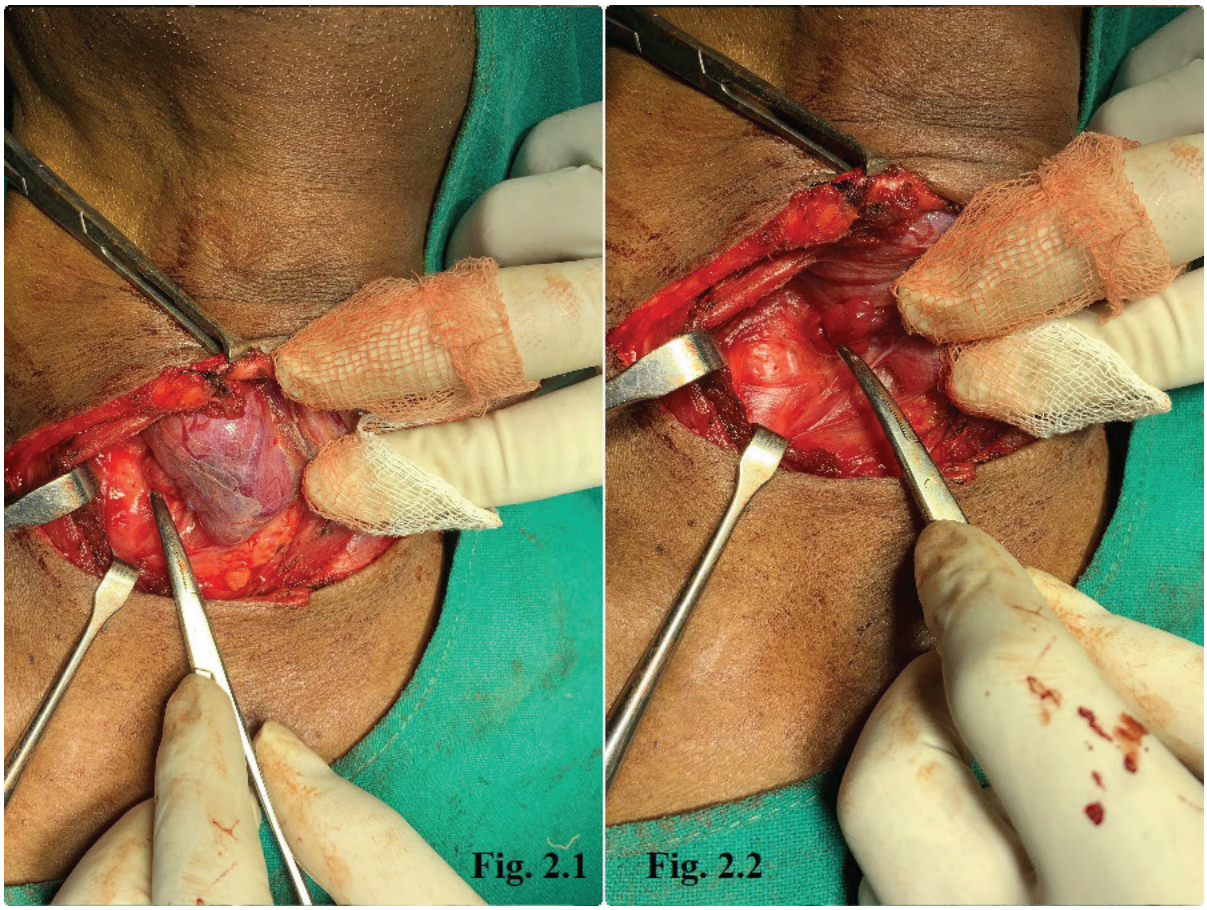

Fig2.1 and 2.2: Intraoperative view of the parathyroid gland.

Discussion

The normal parathyroid gland weighs approximately 50–70 mg. Parathyroid adenomas (PTAs) are usually small, measuring < 2 cm and weighing < 1 gm[1]. Such patientspresent with the manifestation of hypercalcemia. Palpable neck masses can be found in cases of parathyroid cancer. In this case, the patient didn't complain about the pain or enlargement of glands in the neck. Manifestations of hypercalcemia are very diverse.[2,3] The classic pentad of hypercalcemia symptoms is kidney stones, painful bones, abdominal groans, psychic moans, and fatigue overtones[3,4] Symptoms of early hypercalcemia are often undiagnosed, especially in developing countries due to limited laboratory facilities[3,4]Hypercalcemia raise suspicion of abnormalities in the parathyroid gland, which can be confirmed by radiological examination results. Ultrasonography of the abdomen could detect stones in the kidneys or biliary tract.[5,6]Parathyroidglandscan be located through non-invasive and invasive methods. Non-invasive methods include ultrasonography, CT, and MRI, or even radioisotope examination using Tc-99m sestamibi[7]as we used in our case.

Conclusion

In cases of bilateral renal calculi with raised calcium level, suspicion of parathyroid adenoma should be kept in mind for surgical management of the disease. Parathyroid adenoma has an excellent prognosis with surgical treatment.

Ethical Clearance- Taken from institutional ethical committee.

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Conflict of Interest- The authors have none to declare.

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