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Pathology

A CASE OF RECURRENT PARATHYROID ADENOMA – A CASE REPORT

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ABSTRACT Parathyroid adenomas(PTH) are rare lesions. We report a case of recurrent parathyroid adenoma in a 28 year old male patient. He was operated for parathyroid adenoma, right inferior parathyroid was removed ten years bsck. Now he presented with extreme muscle weakness and renal calcinosis. Entire clinical history, laboratory investigations, microscopic picture are discussed in detail.

KEYWORDS : Parathyroid adenoma, parathyroid hyperplasia, recurrent

Introduction:
PTH occur in women and men in the ratio of 3:1 and common in the 4th decade. Majority are solitary masses, but double and multiple adenomas have been reported.[1] Their size and weight may vary greatly , some are recognizable only microscopically. Most of the PTH are capsulated. Histologically they are composed of chief cells, oxyphil cells or clear cells. Clinically present as fractures , kidney stones.

Case history :
A 19 year old boy has presented with supracondylar fracture. MRI showed a parathyroid adenoma. The tumor was resected 10 years back. Again on 28/06/21 , he came with complaints of pain abdomen. MRI showed parathyroid adenoma. U/S abdomen showed medullary calcinosis. Serum PTH levels are high and calcium levels are high. Ten years back ,right inferior parathyroid was excised. Calcium and PTH levels came down to normal level after surgery. Post operative period was uneventful.

Gross:
we received a globular mass of2x2 cms , on C/S Grey white, capsulated mass with occasional cystic areas is seen. (Fig 1)

Microscopy:
Encapsulated tumor composed of cells arranged in trabecular, acinar and glandular patterns. Trabeculae are separated by dilated vessels. Cells shoe abundant, granular cytoplasm. No evidence of necrosis. Mitotic activity is very low. Adjacent normal parathyroid tissue is also seen. Hence, it is diagnosed as parathyroid adenoma.

Discussion:
Recurrent hyperparathyroidism is defined by the re-appearance of parathyroid hormone (PTH) and high blood calcium levels more than 6 months after successful initial surgery for primary hyperparathyroidism. Many causes are associated with recurrent hyperparathyroidism and one of the main reasons is the presence of parathyroid adenoma.[2]

Adenomas are usually oval and surrounded by a thin connective tissue capsule. On C/S they are grey brown, foci of hemorrhage, cystic change can occur. About 75% involve lower glands, 15% upper glands, 10% in the anomalous positions. Microscopically, adenomas are highly cellular, contain chief cells or a combination of chief, oxyphilic, water clear cells can be seen. Mitotic activity is usually absent, cells with hyperchromatic nuclei can be seen. Cells are arranged diffusely or in nests, follicles or pseudo papillary patterns. IHC shows positivity for PTH, chromogranin, synaptophysin and keratins.

The other glands may be normal or atrophic. Adjacent gland are normal, it is an adenoma rather than hyperplasia. Adenoma variants are oxyphil adenoma and lipoadenoma. Parathyroid adenoma and hyperplasia are difficult to distinguish, microscopically if the tumor shows a normal parathyroid, it is an adenoma. Absence of thick fibrous bands, vascular invasion, extension into the soft tissues, abundant mitotic figures has excluded carcinoma. Recurrent hyperparathyroidism following extensive parathyroid surgery is not unusual. [3] Factitiously elevated levels of parathyroid hormone were found when cubital venesection was performed on the left where the cubital vein was immediately proximal to the site of this parathyroid autotransplant.

Anomalous sites for adenoma formation are esophagus , thyroid, mediastinum.[4] Parathyromatosis is a multiple hyperfunctioning parathyroid tissue in the neck. In rare conditions it can cause hyperparathyroidism. It becomes hyperfunctioning after subtotal or total parathyroidectomy due to primary or secondary hyperparathyroidism (pHPT and sHPT). Palmer et al reported the first case of parathyromatosis, followed by 12 cases.[5]

In the present case a capsulated tumor containing chief cells is seen with adjacent rim of normal parathyroid. (fig2&3) There is no evidence of atypia or mitotic figures or necrosis. Hence a carcinoma is excluded. The other possibility of parathyromatosis is excluded because the other two glands are normal. This case is presented in view of its rarity.

Conclusion :
In patients presenting with hyperparathyroidism, chief cell hyperplasia, adenoma , carcinoma and parathyromatosis have to be distinguished based on microscopic findings.

Fig 1 : Gross picture of parathyroid adenoma with intact capsule

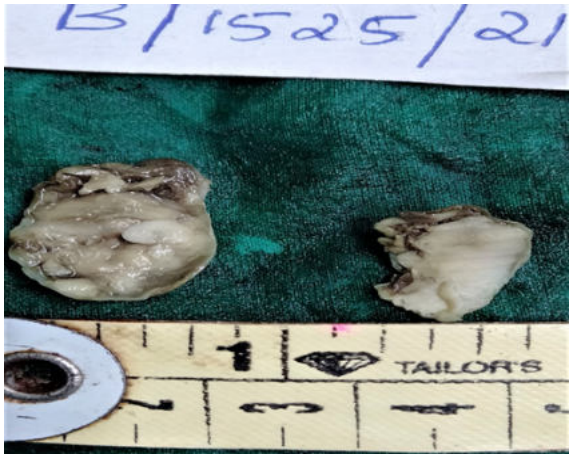


Fig2 : microscopy 10x10 H&E showing chief cells arranged clusters surrounded by thin fibrous septa.

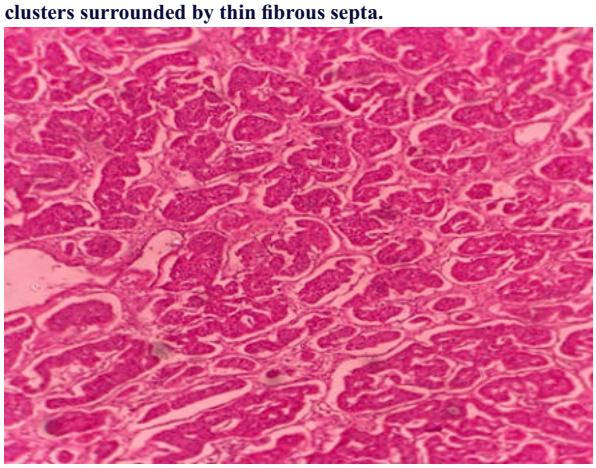
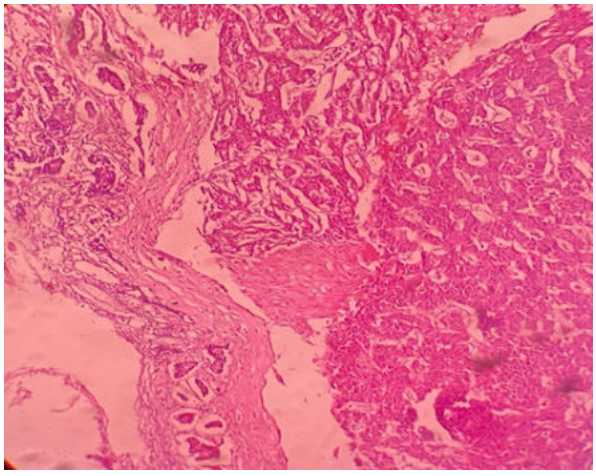


Fig3: microscopy 10x10 ,H&E showing parathyroid adenoma with adjacent rim of normal parathyroid.



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