



Case Report

Minimally Invasive (Focused) Parathyroidectomy for Primary Hyperparathyroidism with Parathyroid adenoma

Authors

Dr N.R.Sajikumar¹, Dr Dimmy Harold², Dr Mathai Jolhf Koshy³

¹Additional Professor, General Surgery, T.D.M.C, Alappuzha

^{2,3}Junior Resident, General Surgery, T.D.M.C, Alappuzha

Introduction

Approximately 85% of patients with primary hyperparathyroidism harbour a single adenoma. Thus, with accurate preoperative localization, targeted surgery using unilateral neck exploration under regional or local anaesthesia has been developed. Today, minimally invasive parathyroidectomy (MIP)^{1,2} is performed after preoperative parathyroid localization usually with high quality sestamibi scans, ultrasonography, MRI or four-dimensional computed tomography scans.

Case report

A 20 year old male patient presented with left loin pain and haematuria, on evaluation CT KUB showed left kidney with mild Hydro Uretero Nephrosis secondary to distal ureteric calculus of size 8.6 × 6.3mm, following which he underwent left URS/Lithotripsy+ DJ stenting on 07/11/16. On further evaluation his Calcium level was 12.8mg/dl, Parathyroid hormone level was 140pg/ml suggestive of primary hyperparathyroidism. Sestamibi scan showed focal area of increased radiotracer uptake in the neck inferior to left lobe of thyroid suggestive of left inferior parathyroid adenoma. MRI neck showed well defined nodular lesion relatively hyper intense on T2, isointense on T1W noted just inferior to the lower pole of left thyroid lobe, lesion measures approximately 4.5 × 5.2 × 5.6 mm. lesion shows moderate homogenous enhancement on post contrast study suggestive of Parathyroid adenoma.

After the pre-operative evaluation and localization of parathyroid, with the help of MRI we marked the site of adenoma, which is 4 cm above the left sternoclavicular joint. Under general anaesthesia, a 2 cm incision put on the marked site and parathyroidectomy done on 08/12/16.

Post-operative period

S. Calcium level decreased -10.2 > 9.9 > 9 mg/dl

S.PTH came down to 20 pg/ml

DJ stent removed. Histopathology report-biopsy (8265/16)-parathyroid adenoma 1×0.8×0.7 cm

Fig 1 Tc99m MIBI injected iv, static views of the neck and mediastinum taken in the anterior position up to 1 hour- showed focal area of increased radiotracer in the neck inferior to left lobe of thyroid suggestive of left inferior parathyroid adenoma

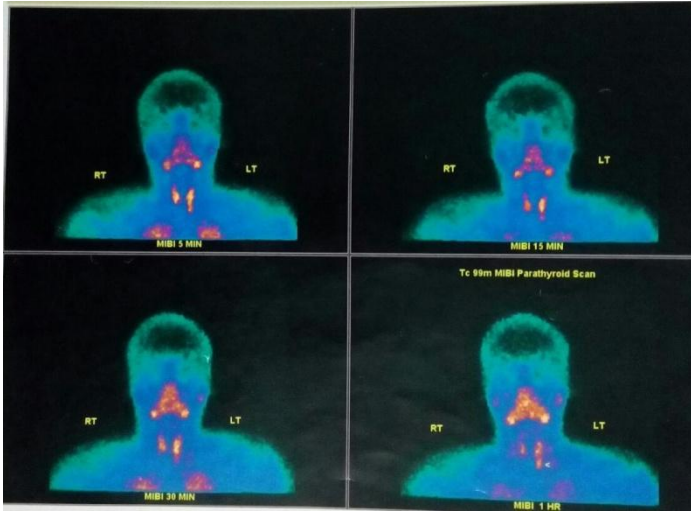


Fig 3: Surgery Pictures And Gross Specimen



Fig 2- MRI NECK- well defined nodular lesion relatively hyper intense on T2, isointense on T1W noted just inferior to the lower pole of left thyroid lobe, lesion measures approximately 4.5 × 5.2 × 5.6 mm. lesion shows moderate homogenous enhancement on post contrast study suggestive of Parathyroid adenoma.

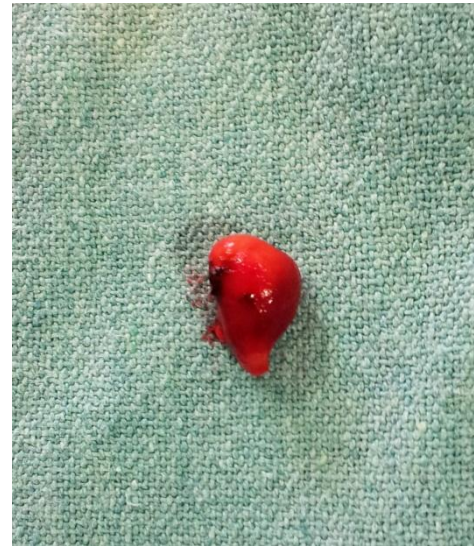
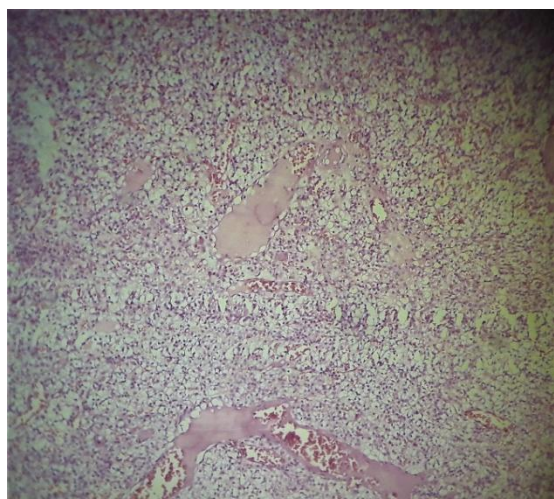
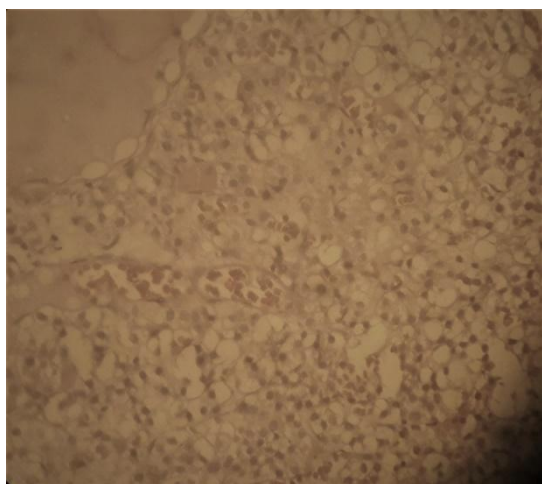
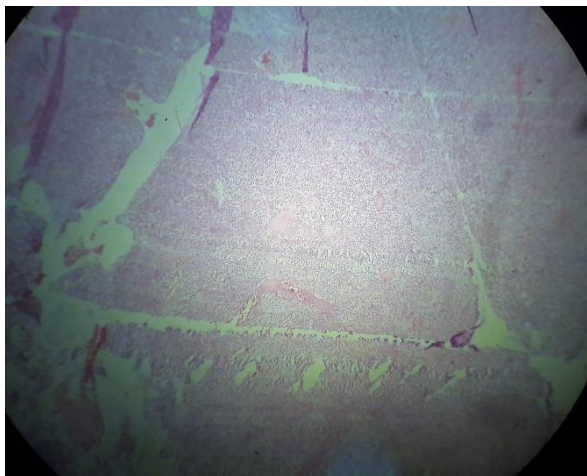


Fig 4: Histopathology (8285/16)- GROSS- single grey brown nodular specimen measures 1 * 0.8 * 0.7 cm weighing 9 Gms

Microscopy-well circumscribed neoplasm composed of cells arranged in diffuse sheets, micro follicles, acini, separated by vascular networks. Polygonal cells with eosinophilic to clear cytoplasm, oxiphilic cells also seen.no mitosis, pleomorphism and no features of invasion.



Discussion

A parathyroid adenoma⁵ is a benign tumour of the parathyroid gland. It generally causes primary hyperparathyroidism. Approximately 85% of patients with primary hyperparathyroidism harbour a single adenoma usually presents with kidney stones, constipation, peptic ulcers, depression and features of hypercalcemia. Diagnosis is done by serum calcium, serum parathyroid hormone level. A specific test for parathyroid adenoma is sestamibi scan, it reveals the presence and location of adenoma and helps differentiate from multiglandular disease or parathyroid hyperplasia. it can be also localised preoperatively by MRI or Ultrasound neck. Primary hyperparathyroidism has traditionally been managed by bilateral neck exploration and identification of the four parathyroid glands. The traditional surgical approach with visualization of all parathyroid glands and resection of apparently enlarged glands has been increasingly replaced by minimally invasive procedures². By preoperative localisation and rapid intraoperative parathyroid hormone assay measurement⁴, it is now easy to remove the diseased gland by targeted approach, thus avoiding unnecessary exploration of other glands and morbidity associated with it. In this case we preoperatively marked the site of exploration with the help of MRI scan and parathyroid hormone assessment done in the postoperative period.

Conclusion

Focussed parathyroidectomy can be done for primary hyperparathyroidism³ with parathyroid adenoma after proper preoperative localization and parathyroid hormone measurement with minimum scar and complications.

Acknowledgements

We would like Dr. Arya Jyothi A for her assistance in the histopathological report of this specimen.

This case was presented as a poster in the "International live workshop and peripheral

meeting” organized by Association of Surgeons of India, Kerala chapter in February 2017

References

1. Shindo ML, Rosenthal JM. Minimal access parathyroidectomy using the focused lateral approach: technique, indication, and results. Arch Otolaryngol Head Neck Surg. 2007 Dec;133(12):1227–34.
2. Agarwal G, Barraclough BH, Reeve TS, Delbridge LW. Minimally invasive parathyroidectomy using the “focused” lateral approach. II. Surgical technique. ANZ J Surg. 2002 Feb;72(2):147–51.
3. Elaraj DM, Clark OH. Current status and treatment of primary hyperparathyroidism. perm j. 2008 Winter. 12(1):32-7
4. Intraoperative parathyroid hormone assay during focused parathyroidectomy BMC Surg 2013;13(36)
5. Parathroid adenoma: diagnosis and treatment. Cleveland Clinic.june 11.2012.