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ASIAN JOURNAL OF SCIENCE AND TECHNOLOGY

ISSN: 0976-3376

Asian Journal of Science and Technology
Vol. 10, Issue, 03, pp.9540-9543, March, 2019

RESEARCH ARTICLE

PARATHYROID ADENOMA - A CASE REPORT

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ARTICLE INFO

Article History:
Received 18th December, 2018
Received in revised form
29th January, 2019
Accepted 18th February, 2019
Published online 30th March, 2019

Key words:
Parathyroid adenoma,
Parathyroid hormone.

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ABSTRACT

A parathyroid adenoma is a benign tumor on one of your parathyroid glands. These are four very small glands located near or at the back of your thyroid gland. They produce parathyroid hormone (PTH). This hormone helps control the amount of calcium and phosphorus in your blood. A parathyroid adenoma causes the affected gland to release more PTH than it should. This disrupts your calcium and phosphorus balance. This condition is called hyperparathyroidism. Primary hyperparathyroidism is a common endocrine disorder mostly associated to parathyroid adenomas. Although those tend to be small in size, rare cases of giant parathyroid adenomas may be present.

***Citation: Kuldeep Nahar and Sunil Kumar Sharma,* 2019.** "Parathyroid adenoma - A Case Report", *Asian Journal of Science and Technology*, 09, (03), 9540-9543.

INTRODUCTION

The incidence of primary hyperparathyroidism (PHPT) is increasing with rate of 42:100,000 per year. While in women over 60 years of age the average annual incidence rate approaches 190:100,000 per year. Whether this gradual rise reflects a true increase in the incidence of PHPT, a greater use of routine testing of serum calcium or an altered referral pattern for surgery is not known. Primary hyperparathyroidism is usually seen in females above the age of 50 years, with a prevalence of 21/1000,1 whereas the incidence in patients aged 12–28 years is less than 5%.2 A solitary adenoma is responsible for 80% of cases of primary hyperparathyroidism. Primary hyperparathyroidism is most commonly asymptomatic. The incidence of acute pancreatitis associated with hyperparathyroidism is less than 10%.The incidence of hyperparathyroidism associated with a Brown tumour is less than 5%.

CASE REPORT

A 16 year old male Patient was admitted in our hospital with multiple fracture of leg bones, weakness and vague abdominal pain for the past 1 years. Patient operated 3 times for multiple femur or tibia fracture in both legs which occurs during routine activity.

Preoperative exams indicated primary hyperparathyroidism as a cause to his symptomatology, with elevated values of parathormone and high level of serum calcium. Ultrasound scan and MRI of her cervical region uncovered a giant 3 × 2 cm parathyroid adenoma, located in the lower left thyroid lobe. Complete investigative workup revealed a solitary parathyroid adenoma causing hyperparathyroidism. Surgical exploration with excision of the parathyroid adenoma was performed, following which the patient recovered uneventfully. Despite its size, the gland was successfully removed through implementation of Microscopic parathyroidectomy. He was uneventfully discharged on the 5th postoperative day.

DISCUSSION

Although a common reason for developing hyperparathyroidism, parathyroid adenomas may rarely present with exaggerated dimensions and weight. Physical examination is usually unremarkable, while patients may present with symptomatology associated with elevated calcium levels. Treatment of this medical condition consists of surgical removal of the pathologic parathyroid gland either by bilateral neck exploration or through minimal invasive parathyroidectomy. Preoperative localization plays an important role in the second case, since the method focuses on resection of a pre-op marked hyperactive parathyroid gland, through a small incision.

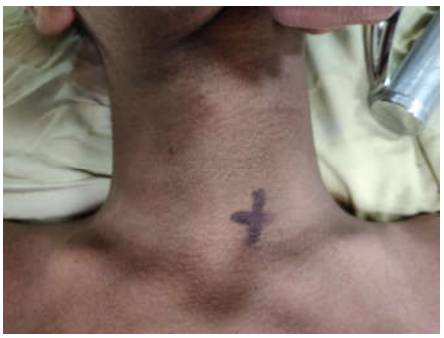


Fig. 1. Pre-op marking

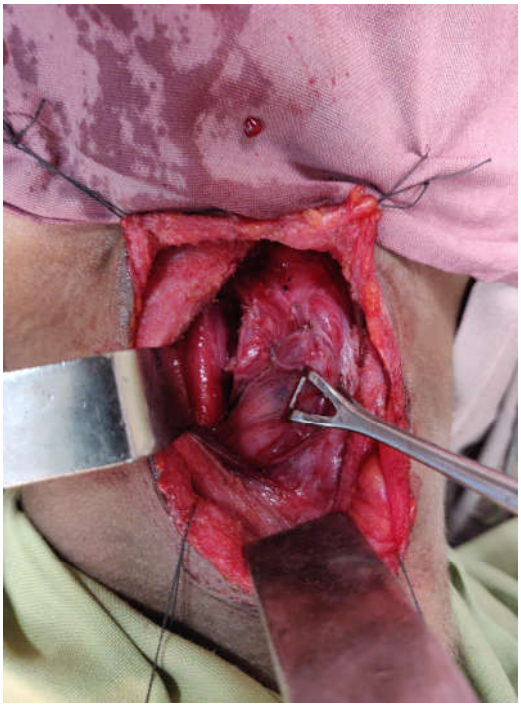


Fig. 2. Intra op adenoma

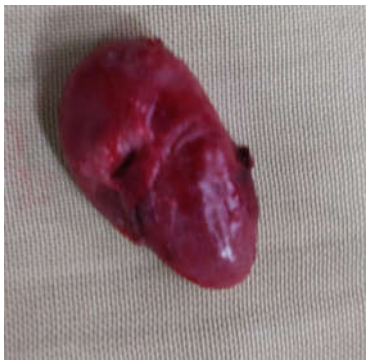


Fig. 3. Post op parathyroid adenoma

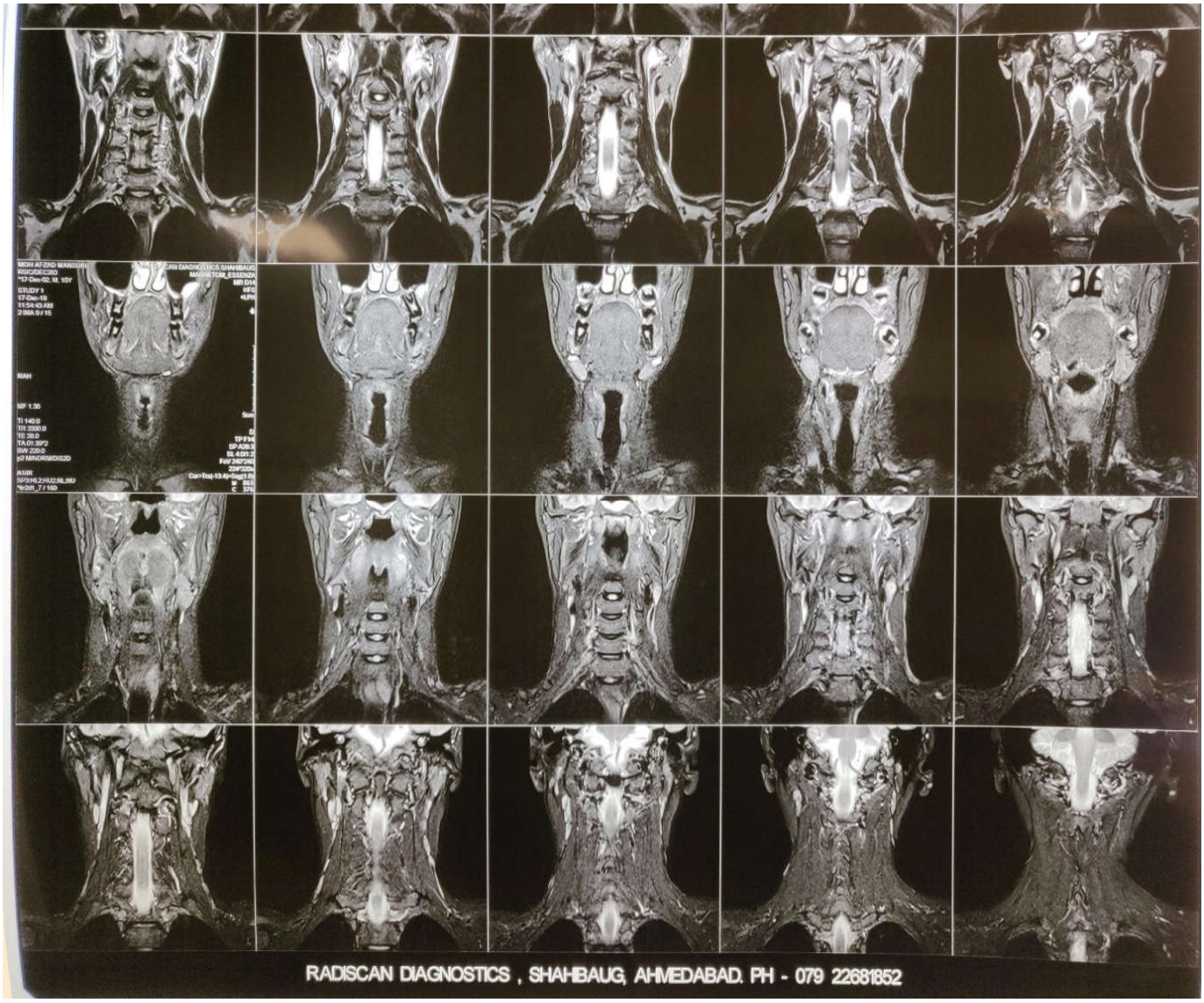
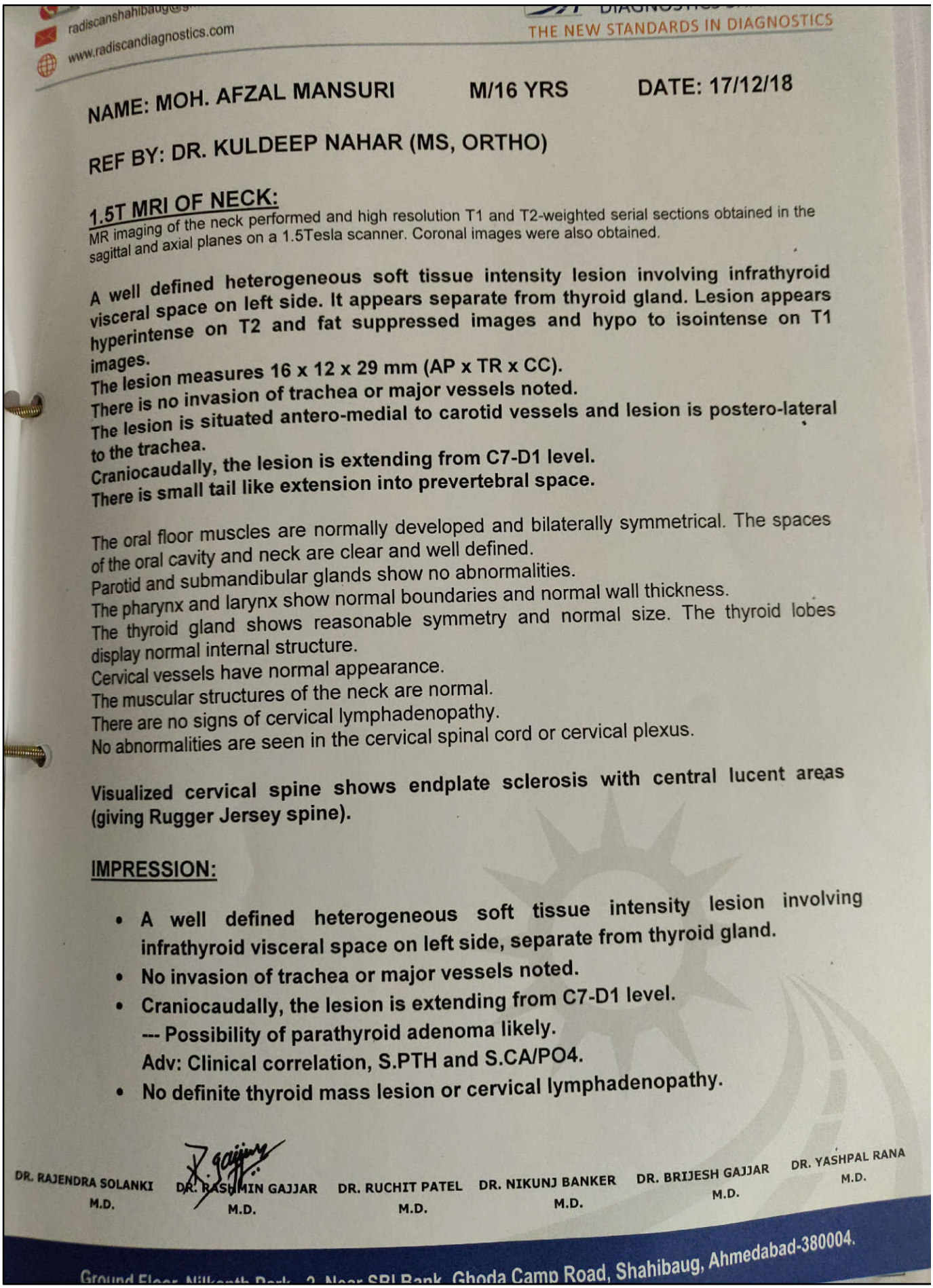


Fig. 4. Imagine: left inferior adenoma



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1.5T MRI OF NECK:

MR imaging of the neck performed and high resolution T1 and T2-weighted serial sections obtained in the sagittal and axial planes on a 1.5Tesla scanner. Coronal images were also obtained.

A well defined heterogeneous soft tissue intensity lesion involving infrathyroid visceral space on left side. It appears separate from thyroid gland. Lesion appears hyperintense on T2 and fat suppressed images and hypo to isointense on T1 images.
The lesion measures 16 x 12 x 29 mm (AP x TR x CC).
There is no invasion of trachea or major vessels noted.
The lesion is situated antero-medial to carotid vessels and lesion is postero-lateral to the trachea.
Craniocaudally, the lesion is extending from C7-D1 level.
There is small tail like extension into prevertebral space.

The oral floor muscles are normally developed and bilaterally symmetrical. The spaces of the oral cavity and neck are clear and well defined.
Parotid and submandibular glands show no abnormalities.
The pharynx and larynx show normal boundaries and normal wall thickness.
The thyroid gland shows reasonable symmetry and normal size. The thyroid lobes display normal internal structure.
Cervical vessels have normal appearance.
The muscular structures of the neck are normal.
There are no signs of cervical lymphadenopathy.
No abnormalities are seen in the cervical spinal cord or cervical plexus.

Visualized cervical spine shows endplate sclerosis with central lucent areas (giving Rugger Jersey spine).

IMPRESSION:

- **A well defined heterogeneous soft tissue intensity lesion involving infrathyroid visceral space on left side, separate from thyroid gland.**
- **No invasion of trachea or major vessels noted.**
- **Craniocaudally, the lesion is extending from C7-D1 level.**
  --- Possibility of parathyroid adenoma likely.
  Adv: Clinical correlation, S.PTH and S.CA/PO4.
- **No definite thyroid mass lesion or cervical lymphadenopathy.**

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Fig. 5. imaging report

Treatment

The patient was electively posted for surgery. Excision of the parathyroid adenoma with exploration of the remaining parathyroid glands was done. Neck was accessed via a transverse skin crease incision. Subplatysmal flaps were raised and strap muscles retracted laterally. Strap muscles of the right side were divided horizontally to expose the right lobe of the thyroid. The thyroid was retracted medially to expose the posteromedial border, thus enabling visualization of the parathyroid adenoma. It was seen as a smooth, oval, brown to caramel color structure near the lower pole of the right lobe of the thyroid, seen to be arising from the left inferior parathyroid gland, measuring approximately 3 ×2 cm in size. The adenoma was then dissected free from the surrounding thyroid gland, finally isolating its blood supply. It was then excised after ligating the feeding vessel, and sent for frozen section. Frozen section report confirmed the mass to be a parathyroid adenoma. The rest of the parathyroid glands were explored and were found to be normal, hence were left in situ.

Histopathology

The excised parathyroid adenoma was then sent for histopathological examination. The diagnosis of parathyroid adenoma was confirmed on histopathological examination by presence of normal parathyroid glandular tissue, markedly reduced amount of adipose tissue and an intact capsule.

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