(International Print/Online Journal)

SJIF IMPACT FACTOR: 5.565
PUBMED-National Library of Medicine ID-101739732

ISSN (Print): 2209-2870
ISSN (Online): 2209-2862

International Journal of Medical Science and Current Research (IJMSCR)
Available online at: www.ijmscr.com
Volume 5, Issue 4 , Page No: 547-550
July-August 2022

IJMSCR

A Rare Case Of Intrathyroidal Parathyroid Adenoma

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Type of Publication: Case Report
Conflicts of Interest: Nil

Abstract

Intrathyroidal parathyroid adenoma exists as a mass within the thyroid and is often difficult to distinguish from thyroid masses. It is extremely rare and the incidence of intrathyroidal parathyroid adenoma is 1.4% - 2.1 %[1]. Herein we report a case of thyroid nodule in 56- year- old female who was clinically and radiologically (USG) diagnosed as multinodular goiter but on HPE shows an encapsulated neoplasm with classical histological features of neuroendocrine cells .and these cells were positive for GATA 3 and negative for TTF1 and calcitonin.

Keywords: intrathyroidal parathyroid adenoma, Ectopic parathyroid, Parathyroid adenoma

Introduction

In 1800 Ivar Sanstrom, a Swedish medical student first described the human parathyroid glands It was not recognized until 1815, 15 years later, that excision of the parathyroid glands is the cause of tetany, rather than the removal of the thyroid.

The parathyroid gland is located posterior to the thyroid gland, but it can sometimes be found in other anatomical locations, from carotid bifurcation to pericardium. The Parathyroid gland is considered ectopic when it is not present in a normal anatomical position. Most literature reports say ectopic position is caused by abnormal embryological migration. An intrathyroidal parathyroid adenoma is a neoplasm in the ectopic parathyroid gland and is extremely rare

Case Report

A 56- year- old diabetic and hypertensive female presented with a swelling in the neck of one-year duration. There is history of gradual increase in size. Not associated with hoarseness of voice, dysphagia, or heat /cold intolerance

On Examination

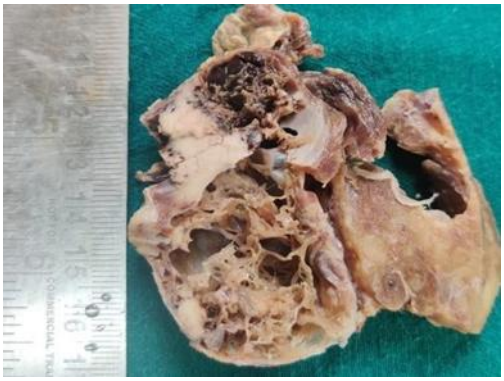
Multinodular swelling palpated over the right lobe of thyroid, largest nodule measuring 3x4cm which moves with deglutition

Investigations

1. Thyroid function test – T3 – 0.941ng/ml T4 - 7.21ug/dl TSH – 2.45uIU/ml
2. Ultrasonography neck - showed Multinodular goiter with early changes of thyroiditis 3)FNAC- Right lobe of thyroid – suggested colloid nodule with cystic degeneration
3. Intraoperative findings showed a cystic nodule in the right lobe thyroid measuring 8x8cm and the left lobe thyroid showed multiple small nodules. The right lobe of the parathyroid gland was not visible.
4. Macroscopic examination, the specimen weighed 35 gm,and the cut section of the larger lobe showed a grey-white lesion occupying nearly the whole of the larger lobe, and serial sections showed cystic degeneration and areas of

hemorrhage. Smaller lobe and, isthmus showed multiple colloid nodules(FIG: 1)

FIG:1 Total thyroidectomy specimen



Microscopically the larger lobe showed an encapsulated neoplasm (FIG:2)composed of round to polygonal cells arranged in nest, trabeculae and sheets . Cells are palisading around vessels. (FIG:3) Cells possess moderate eosinophilic cytoplasm and uniform round nuclei with many showing stippled chromatin(FIG:4). Smaller lobe and isthmus show nodules composed of colloid filled follicles with lymphocytic aggregates (FIG:5) and fibrosis

Histological appearance suggested a differential diagnosis of neuroendocrine neoplasm. IHC for chromogranin and GATA3 were positive and was negative for TTF1. Therefore final diagnosis of intrathyroidal parathyroid adenoma and thyroid showed nodular goiter associated with lymphocytic thyroiditis

This case was clinically and radiologically diagnosed as a multinodular goiter . The serum calcium levels of the patient before surgery were 8.5mg/dl and in the postoperative period, the calcium level decreased to 4.5mg/dl. Ten days following surgery, the calcium level was maintained within the normal range of 8.5 mg/dL (reference range: 8.6-10.2mg/dl). She was on follow up and found to have no problems in the immediate one month of surgery.

FIG .2, 3 : Pathological findings

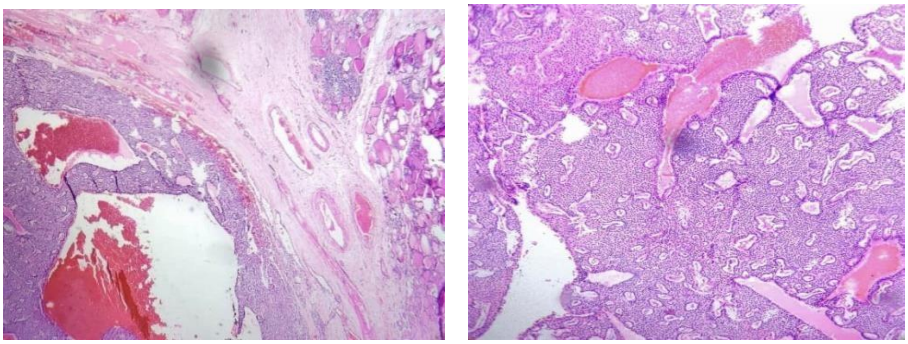


FIG.4,5 Pathological findings

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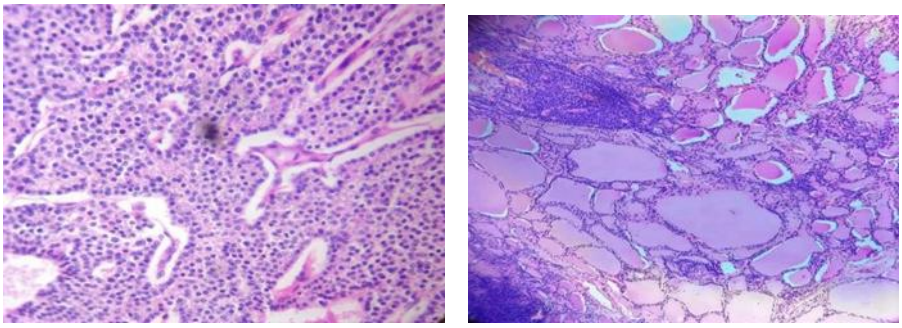


FIG.6 : Photomicrograph showing cells positive for GATA 3

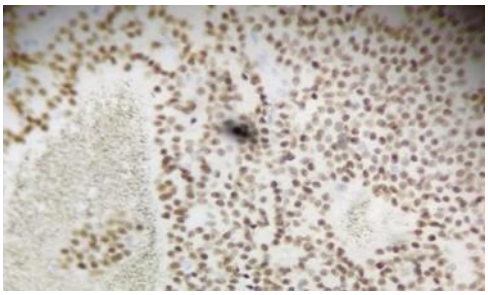


FIG.7 : Photomicrograph showing cells negative for TTF1

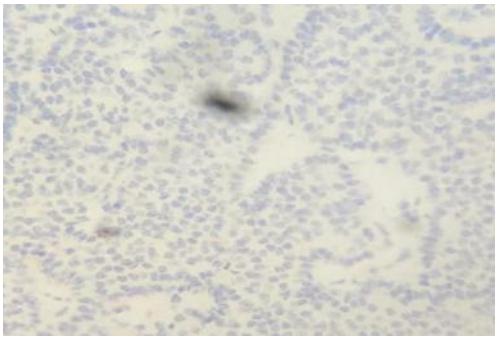
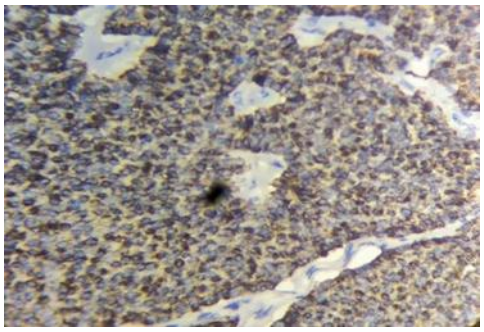


FIG.8 : Photomicrograph showing cells positive for Chromogranin



Discussion

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During the time of development, parathyroid glands can become misaligned and the displaced parathyroid glands are found more in the inferior gland (90%). The developmental origin of the superior and the inferior parathyroid glands are different .The superior parathyroid glands are derived from the fourth pharyngeal pouch and lie on the dorsal surface of the thyroid gland, while the inferior parathyroid glands originate from the third pharyngeal pouch and accompany the thymus, and are in a more inferior position than the superior parathyroid glands derived from the fourth pharyngeal pouch. Therefore, the inferior glands are likely to become misaligned compared to superior parathyroid glands [1,2]

Intrathyroidal parathyroid adenoma is rare and its prevalence is around 1.4-2.1% [1]. Intrathyroidal parathyroid adenoma is more frequent on the right lobe and is divided into complete and partial types in encircled form, but the frequency of both these types are reported to be the same.

Parathyroid adenoma is part of the parathyroid proliferative disorder that includes parathyroid hyperplasia, parathyroid adenoma, and parathyroid carcinoma[5]. Ultrasonography, contrast-enhanced CT, and MIBI scintigram are useful for the localization of parathyroid tumors. The rate of correct diagnosis is very high especially when the localization in ultrasonography and MIBI scintigram coincide, and at present, the combination of Ultrasonography and 99mTc-MIBI SPECT/CT is most recommended. But in the case of intrathyroidal parathyroid adenoma, it is difficult to interpret the image findings when compared to that which exists in the normal position

This is an intrathyroidal parathyroid adenoma of the right side. A Functional scan can help in the diagnosis, especially in cases of normal serum calcium level, but it is not done routinely. In such situations, the diagnosis is made only in resected specimen with histological and immunohistochemical examination

Conclusion

The case described here is an intrathyroidal parathyroid adenoma (right side) which was diagnosed both clinically and radiologically as multinodular goitre . A Functional scan can help in the diagnosis, especially in cases of normal serum calcium level, but it is not done routinely. In such situations, the diagnosis is made only in resected specimen with histological and immunohistochemical examination.

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