UNRAVELING THE JOURNEY TO INSULA - A RARE CASE REPORT OF THE INSULAR CARCINOMA OF THYROID

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Abstract- Insular carcinoma of the thyroid is considered to be a rare and very aggressive form of cancer in which the thyroid tissue undergoes neoplasm. It falls under the category of poorly differentiated carcinomas. As it was first characterized in the 1980s, it is regarded as an intermediate form of evolution between well-differentiated thyroid tumors (such as papillary and follicular carcinoma) and anaplastic thyroid carcinoma. It has some distinctive neurosurgical pathologic features such as nests or "insulae" composed of homogenous, uniform cells that can range from small to medium-sized, exhibit vigorous cell division (mitosis), and necrosis. Relatively, insular carcinoma appears to middle aged and older patients who more often present with a neck mass that steadily increases in size over time while also showing signs of either local or remote metastasis. Because these tumors are aggressively progressive, they have worse prognosis than well-differentiated forms of insular thyroid carcinomas, including increased recurrence rates and metastasis to lung or bone structures notably osteopetrosis. Diagnosis comes through histology slides with pathological microscopy imaging analysis combined with immune-microscopy techniques targeting specific antibodies directed against tumor markers. Treatment typically entails total gland excision followed by I^{131} radioactive iodine therapy with External Beam Radiation Therapy or Chemotherapy

Key words- Insular Carcinoma, Thyroid malignancy, Thyroidectomy

INTRODUCTION

Insular carcinoma is a little-known thyroid cancer, characterized by the presence of well-defined nidi of small uniform cells with frequent areas of tumor necrosis and microfollicles with thyroglobulin. It was described by Carcangiu in 1984, but its prognosis is not yet clear. [1] Insular carcinoma of the thyroid is an uncommon pathologic entity, and many of the tumours have been documented as case reports in the literature.

Insular thyroid carcinoma (ITC) is defined as a rare malignant thyroid cancer standing in an intermediate position between the well-differentiated (papillary and follicular) and the anaplastic thyroid carcinomas. The incidence of insular carcinoma in literature is 0.3% and 1 in 10,00,000 population. Despite its rarity, it remains the main cause of death from non-anaplastic follicular cell-derived thyroid cancers.

Molecular analysis by polymerase chain reaction-single-strand conformation polymorphism demonstrated RAS gene family point mutations in five of eight cases analyzed in each of the two histotypes, with a high proportion of CAA→AAA transversion at codon 61 of the N-RAS gene in insular carcinoma. These findings suggest that insular carcinoma represents a de novo entity distinct from widely invasive follicular carcinoma. [2]

CASE STUDY

Here is a 45 years old female who presented with complaints of swelling in the anterior portion of the neck since 6 months

On Examination: Uniform enlargement of right lobe of thyroid with firm consistency. Left lobe was normal.

FNAC of right lobe revealed colloid goitre.

Patient underwent Right Hemithyroidectomy and specimen was sent for Histo-Pathological Examination which was reported as Insular Carcinoma of Thyroid.

Revision Total Thyroidectomy was performed and the specimen was sent for Histo-Pathological Examination which also revealed insular carcinoma of thyroid.

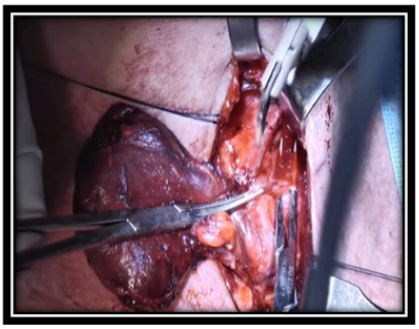

Fig.1: Intra-Op finding of Right Hemithyroidectomy

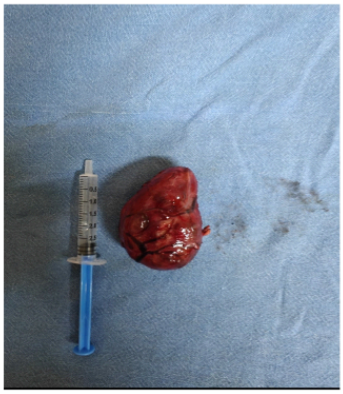

Fig.2: Right Hemi-Thyroidectomy Specimen

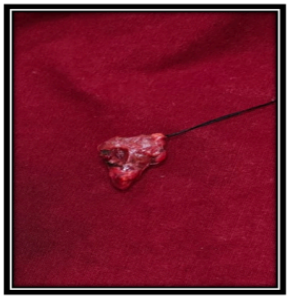

Fig.3: Left Hemi-Thyroid Specimen post Revision Total Thyroidectomy

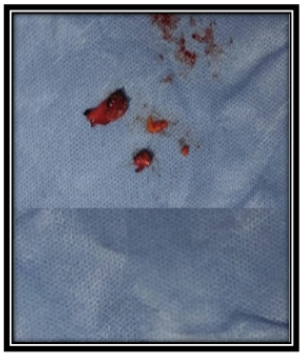

Fig.4: Central Compartment Neck Dissection (Level 5/6 Lymph Nodes)

DISCUSSION

Foci of insular carcinoma are noted in anaplastic carcinomas. These findings strengthen the postulation that well-differentiated carcinoma can progress to insular carcinoma and then to anaplastic carcinoma of the thyroid by dedifferentiation. Also, long-standing goiter, present in approximately 25% of patients with either anaplastic or insular carcinoma, contributes to the development of these aggressive subtypes of thyroid carcinomas.

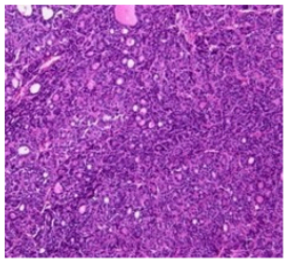

Fig.5: Histological Picture of the Specimen

CONCLUSION

PDTC is an unusual and aggressive form of thyroid cancer. Fine-needle aspiration cytology may not yield sufficient information to specifically diagnose PDTC. Aggressive management with total thyroidectomy and neck dissection followed by high-dose radioactive iodine remnant ablation is standard. Since FNAC revealed colloid goiter in this case, there is an increased need for excision biopsy in suspected malignant cases. The main challenge is early detection, aggressive intervention, and close follow-up of affected patients since prognosis is poor.

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