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RESEARCH ARTICLE

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.

Introduction:-

Insular carcinoma is an ill defined entity in medical literature. Initially described Carcangiu in 1984, it is characterized by the "insulae" which means presence of cells in nests which are usually small to medium sized with aggressive mitosis and rapid turnover of cells causing abundant necrosis, along with the presence of thyroglobulin filled micro-follicles.[1] Insular thyroid carcinoma is a rare pathologic class of thyroid neoplasm, and many such isolated case reports are only of significance in medical literature.

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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.

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-PathologicalExamination which was reported as Insular Carcinoma of Thyroid.

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

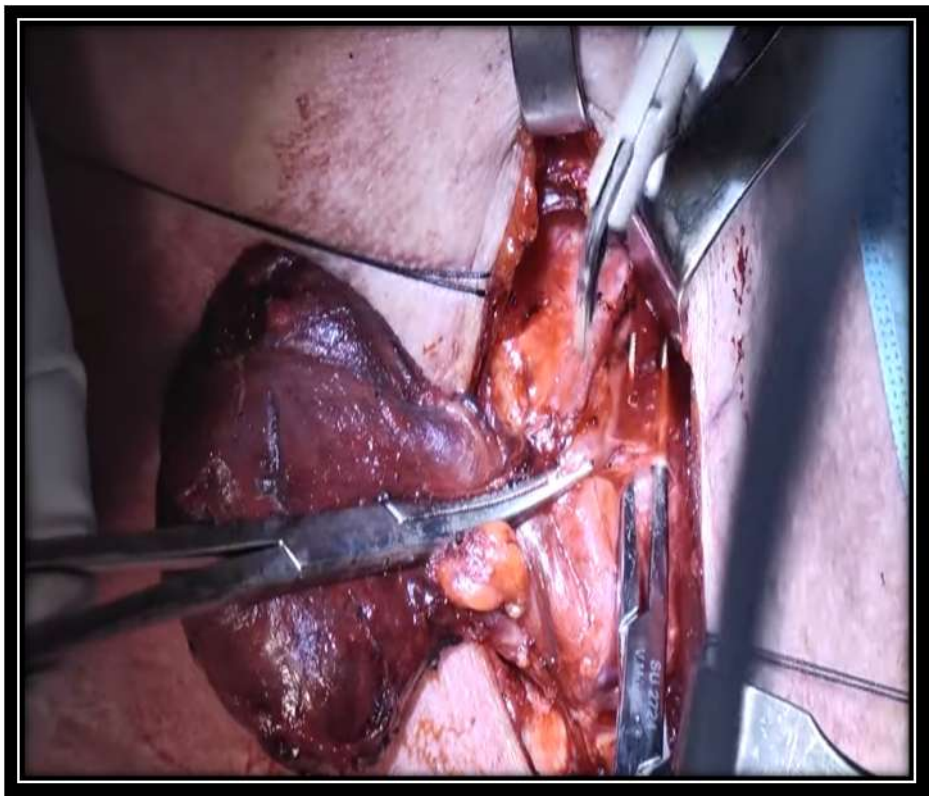

Fig.1:- Intra-Op finding of Right Hemithyroidectomy.

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:-

Few cases of Anaplastic Carcinoma also have foci of insulae which are characteristic of insular carcinoma of thyroid on Histological examination. These observations contribute to the suspicion on whether in the long term, the well differentiated carcinomas of thyroid also can turn aggressive and de-differentiate into poorer forms of neoplasm such as insular carcinoma of thyroid. In many cases it has also been observed that many of the long-standing goitres (approximately in 20-30% of the individuals) have poorly differentiated anaplastic or insular variant of anaplastic thyroid neoplasms also pointing out the fact that chronicity of the goitre indeed points out to poor prognosis and poor quality of life if not treated earlier.

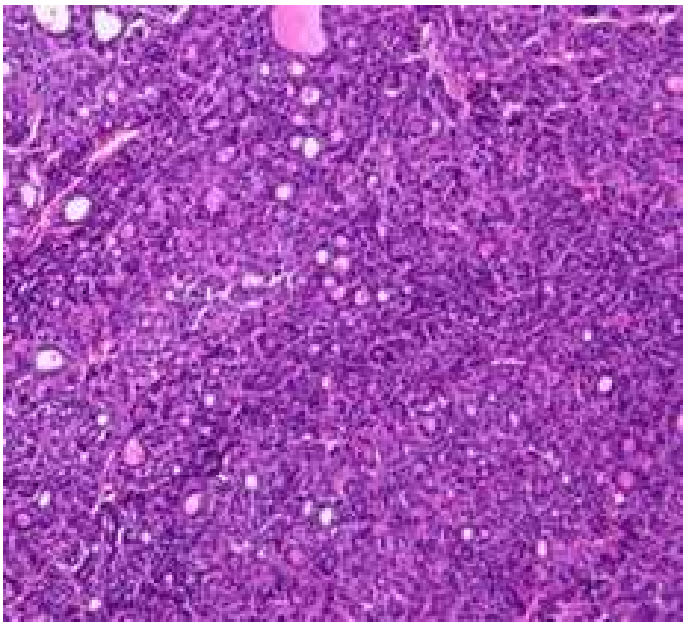

Fig.5:- Histological Picture of the Specimen.

Conclusion:-

Poorly Differentiated Thyroid Cancer (PDTC) is a highly aggressive and rare variant of thyroid neoplasm. In majority of the cases FNAC may not be of valuable importance to diagnose these rare variants of neoplasm. In cases where Insular Thyroid Malignancy is suspected, a highly aggressive treatment approach is to be followed which includes total thyroidectomy followed by radical neck dissection with central neck node dissection, which is to be supported by RAI therapy in the post-operative period. 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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