ISSN Print: 2664-7591
ISSN Online: 2664-7605
Impact Factor: RJIF 5.2
IJAN 2023; 5(2): 14-16
www.pharmaceuticaljournal.in
Received: 28-05-2023
Accepted: 02-07-2023

Dr. Manal Ashraf Ali
DCP, DNB Pathology, Department of Pathology, Professor Chirayu Medical College and Hospital, Bhopal, Madhya Pradesh, India

Dr. Ritu Asnani
M.D Pathology, Department of Pathology, Senior Resident, Chirayu Medical College and Hospital, Bhopal, Madhya Pradesh, India

Dr. Naila Durrani
M.D Pathology, Department of Pathology, Senior Resident, Chirayu Medical College and Hospital, Bhopal, Madhya Pradesh, India

Corresponding Author:
Dr. Ritu Asnani
M.D Pathology, Department of Pathology, Senior Resident, Chirayu Medical College and Hospital, Bhopal, Madhya Pradesh, India

Extensive necrotic hurthle cell carcinoma falsely presenting as abscess-A rare case

Dr. Manal Ashraf Ali, Dr. Ritu Asnani and Dr. Naila Durrani

DOI: https://doi.org/10.33545/26647591.2023.v5.i2a.56

Abstract
Hurthle cell tumours are follicular neoplasms. These are well-circumscribed, encapsulated with more than 75% of tumor cells showing oncocytic appearance due to dysfunctional mitochondria accumulation. Diagnosis of malignancy is based on capsular or vascular invasion. These tumours are prone to infarction and can mimic other tumours.

Keywords: Hurthe cell carcinoma, abscess, follicular neoplasms

Introduction
The four forms of thyroid cancer historically recognized are papillary, follicular, medullary, and anaplastic. The incidence of follicular thyroid carcinoma, which makes up about 3–15% of all cases, is the second most prevalent epithelial-derived thyroid malignancy [1]. Evidence of capsular and/or vascular invasion is necessary for the identification of folic ular-patterned carcinomas, such as follicular thyroid carcinoma, oncocytic (Hurthle cell) carcinoma, and the encapsulated follicular patterned papillary thyroid carcinoma [2, 3]. Hurthle cell lesion has been the focus of ongoing and evolving disputes in almost all of its features, from its name to its therapy, since it was first described in the eighteenth century. Hurthle cell carcinoma represents about 5% of all differentiated thyroid carcinomas [1]. It is seen more frequently in females and generally diagnosed after the age of 40. Germline polymorphisms of the ATPase 6 gene, which helps maintain mitochondrial DNA integrity, are believed to have a role in the pathogenesis [4, 5]. These neoplasms show Hurthle cells which originate from follicular cells. These are eosinophilic cells with round to oval nuclei, prominent nucleoli, and small, densely packed mitochondria that give empty cytoplasm a granular appearance. When Hurthle cells make up more than 75% of a thyroid tumour, it is categorised as a Hurthle cell neoplasm [4, 6].

Case report
A 64-year male presented with midline lump over neck region for 35 years. The swelling gradually increased in size over years. Patient presented with history of pain in swelling, weakness and recurring fever for one month. There was no family history of thyroid cancer or previous radiation exposure. On local examination, a swelling of size 8 X 5 cm was seen over right side of the neck. Right lobe of thyroid was enlarged, firm, mildly tender, not fixed to overlying skin and non-mobile No clinical feature of thyrotoxicosis was noted. Routine blood investigations were sent (CBC, LFT, RFT, CRP) and reports were within normal limits. Thyroid profile was within normal limits. USG neck and thyroid were suggestive of ill-defined hypoechoic, solid lesion of size 9.2×5.5 cm with necrotic areas suspecting? Infective aetiology. FNAC was suggestive of extensive suppuration and necrosis hence, mimicking abscess.
Patient was operated and Total thyroidectomy was done. Specimen measuring 12x11.5x6 cm was received. It was firm in consistency. On cut surface the entire Right lobe was replaced by necrotic friable material with no solid areas and periphery showed thin rim of thyroid parenchyma.
Histopathological examination showed large areas of necrosis with karyorrhectic debris. On extensive sampling few areas showed tumour cells having abundant dense eosinophilic

cytoplasm with pleomorphic vesicular nuclei and nucleoli. Other areas showed cells arranged in form of nests and follicles. Capsular invasion noted. Features were suggestive of Poorly differentiated carcinoma. Three differential diagnoses were considered for this case. First was Hurthle cell carcinoma showing follicles with dense eosinophilic cytoplasm and round nuclei. Second differential was Anaplastic carcinoma due to longstanding history and morphology showing cells with high nuclear-cytoplasmic ratio and prominent nucleoli. Medullary carcinoma was third differential with spindle cell morphology. Immunohistochemistry was advised and tumour cells were positive for PAX8 and decreased expression of TTF1 and Thyroglobulin. Calcitonin and chromogranin were negative. Final diagnosis of Hurthle cell Carcinoma was made. Post-surgery evaluation did not show any lymph node deposit. Patient was advised regular follow-up.

Discussion

HCCs are considered to exhibit a more aggressive clinical course compared to other forms of differentiated thyroid carcinoma (DTC), with higher incidence of distant metastases and more rapid progression of metastatic disease [4, 7]. Several Hurthle cell tumours express thyroglobulin and other enzymes specific to thyroid follicular epithelial cells, indicating that at some point during their development, these cells diverge from thyrocytes. Hurthle cell carcinomas have a lesion-specific pattern of metastasis, with advanced disease characterised by vascular spread to distant tissue sites as well as lymph node metastases to the central and lateral neck. The majority of cancers are well-confined, encapsulated, or unencapsulated until they are invasive, and the diagnosis of malignancy requires invasion into the nearby thyroid parenchyma or vascular invasion inside or outside of the lesion area [2, 4, 6].

The current case perhaps represents the end stage of the infarcted neoplasm. Histopathological examination of the surgical specimen revealed only viable tumour cells in a small and inapparent rim at the periphery, which could have been overlooked. Trauma, particularly when there is an accompanying haemorrhage, can cause Hurthle cell lesions to rapidly degenerate. These changes include cystification with papillary architecture, generalised necrosis, hyalinization, and ossification. These mechanisms, which could be activated by a needle biopsy or even with palpation, might make diagnosis difficult and point to a high sensitivity of tumour to hypoxia or other effects of vascular disruption. Nuclei may lose their typical appearance and adopt nuclear membrane irregularities, including some clearing and loss of the prominent nucleolus for smaller chromocenters. Intranuclear pseudo-inclusions are occasionally observed in Hürthle cells. A papillary thyroid cancer misdiagnosis could undoubtedly result from papillary cystic degenerative alterations, plus or minus any of the other characteristics mentioned above [8].

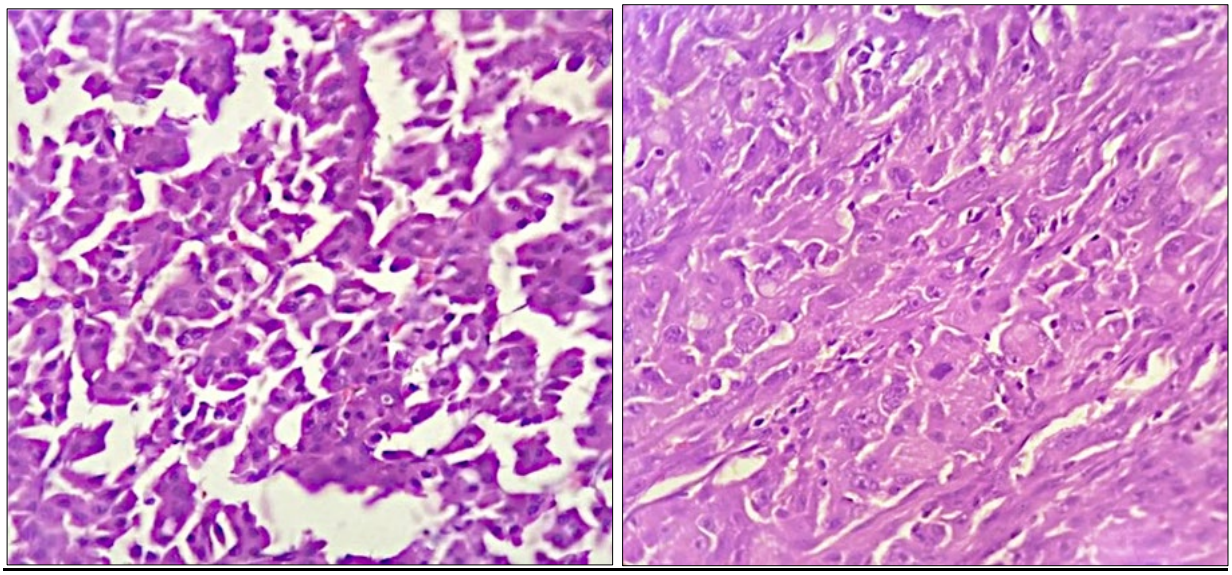
The involvement of lymph nodes especially in the central compartment (level VI) is a common feature of papillary thyroid cancer, but in the case of HCC, there is a lower incidence of metastases to the lymph nodes compared to other follicular thyroid cancers [9].

Hurthle cell carcinomas are thought to have poor prognostic characteristics such as older age, greater tumour size at diagnosis, extra-thyroid extension, female sex, and higher stage at diagnosis. They may locally invade the larynx, vocal cords, oesophagus, trachea, or mediastinum to produce difficulties in the neck, or they may push on major nerves and veins in the neck due to bulky adenopathy. Metastases are most usually found in the lymph nodes, lungs, bone, and rarely the brain [10, 11].

Surgery is the mainstay of treatment. In matched populations, thyroid lobectomy and complete thyroidectomy have been reported to produce equivalent results for non-invasive Hurthle cell tumours in numerous papers and case series. A total thyroidectomy is necessary for invasive cancer. Radioactive Iodine is a better choice for people with symptoms or quickly expanding metastatic tumours. Tyrosine kinase inhibitor (TKI) systemic therapy, such as lenvatinib or sorafenib, is a possibility if the patient's tumour is resistant to Radioactive Iodine [1, 8-11].

Fig 1: A) Total thyroidectomy specimen with enlarged right lobe

Fig 1: B) Entire cut surface of right lobe replaced by necrotic tissue



2 A. H & E (40 X) 2 B.H & E (40 X)

Fig 2: A and 2B show cells with eosinophilic granular cytoplasm, pleomorphic vesicular nuclei & nucleoli

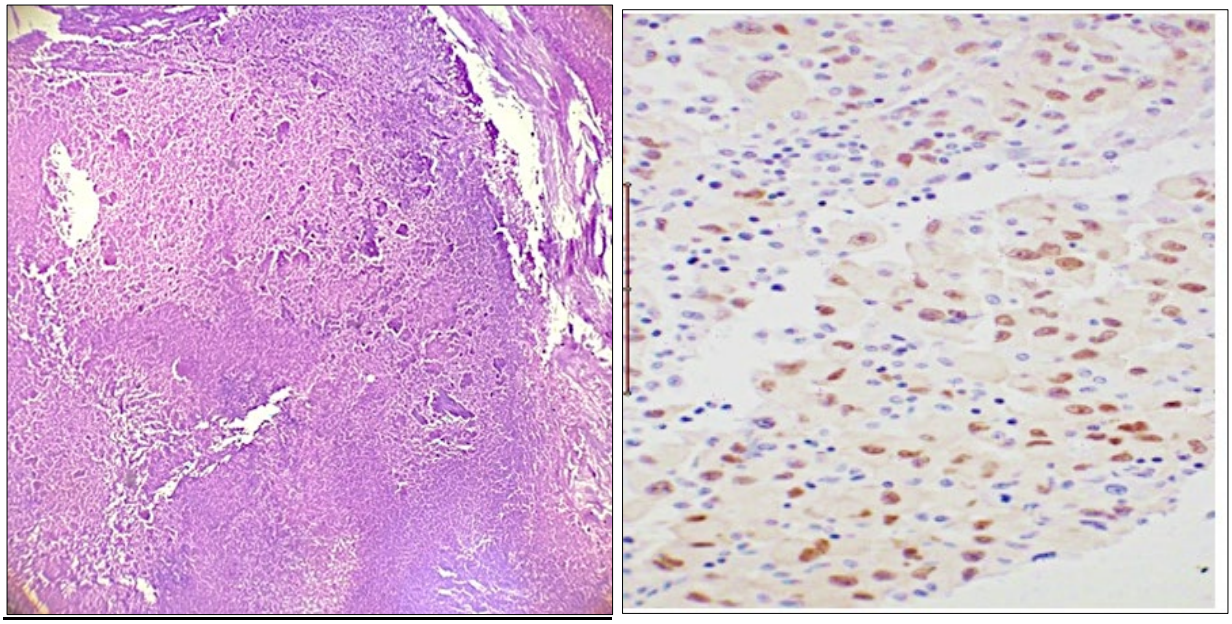


Fig 3: C. H & E (10 X) Extensive infarct necrosis **Fig 3: A)** PAX 8 positive

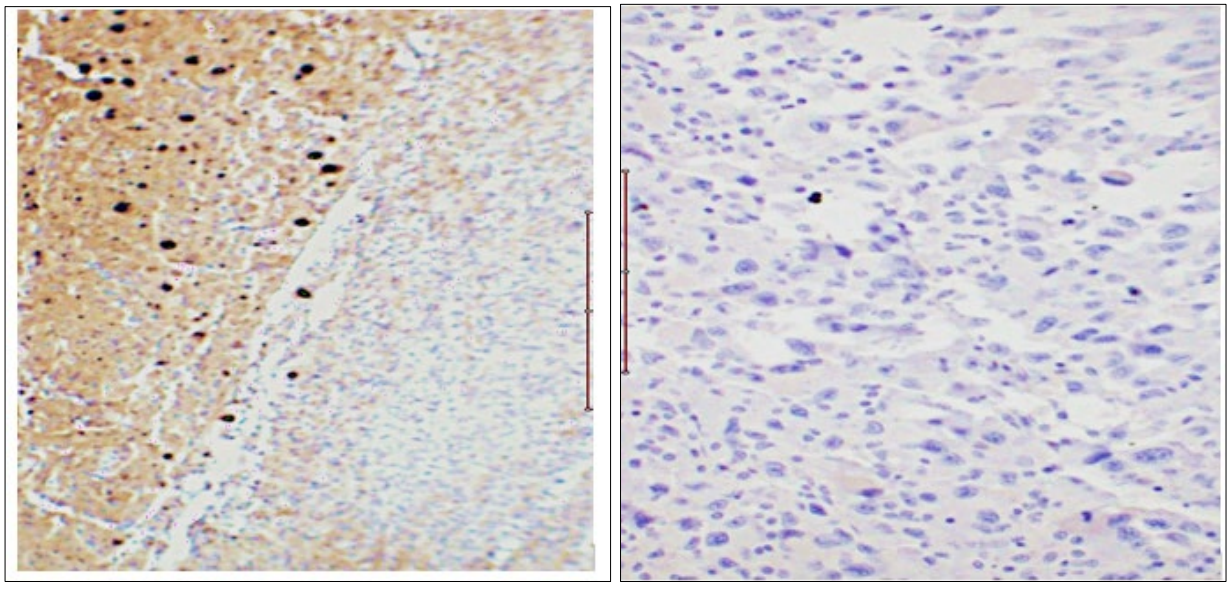


Fig 3: B) Thyroglobulin decreased expression **Fig 3:** C) TTF-1 Decreased Expression

Conclusion

Hurthle cell neoplasms were previously thought to be a subtype of thyroid follicular neoplasms. Due to important molecular, histological, and prognostic distinctions, WHO has designated them as a unique category of thyroid cancer. They have low prevalence and limited clinical and translational evidence as they were formerly classified as follicular neoplasms. Hence, it is important to acknowledge Hurthle cell carcinoma amongst differentials of thyroid. Equally important is extensive sampling to not miss such malignancies which are camouflaged under unusual presentations such as abscess. This is especially relevant for patients who come to tertiary centres after prolonged or worsened morphology.

References

1. Bhattacharyya N. Survival and prognosis in Hürthle cell carcinoma of the thyroid gland. Arch Otolaryngol Head Neck Surg. 2003;129(2):207-210.
2. Zhou X, Zheng Z, *et al*. Clinical characteristics and prognostic factors of Hurthle cell carcinoma: a population-based study. BMC Cancer. 2020;20(1):407.
3. Hedinger C, *et al*. The WHO histological classification of thyroid tumors: A commentary on the second edition. Cancer. 1989;63(5):908-911.
4. Barnabei A, Ferretti E, Baldelli R *et al* Hurthle celltumours of the thyroid. Personal experience and review of the literature. Acta Otorhinolaryngol Ital. 2009;29(6):305-911.
5. Erickson LA, Jalal SM, Goellner JR *et al*. Analysis of Hurthle cell neoplasms of the thyroid by interphase fluorescence in situ hybridization. Am J Surg Pathol. 2001;25(7):911-917.
6. Cibas ES. The 2017 Bethesda System for Reporting Thyroid Cytopathology. Thyroid. 2017;27(11):1341-1346.
7. Shaha AR, Ferlito A *et al*. Distant metastases from thyroid and parathyroid cancer. ORL J Otorhinolaryngol Relat Spec. 2001;63(4):243-249.
8. Mcfadden DG, Sadow PM. Genetics, Diagnosis, and Management of Hürthle Cell Thyroid Neoplasms. 2021;12:1-9.
9. Adham M, Moulanda F, Harahap A *et al*. Diagnosis and management of hurthle cell carcinoma, a rare case report. Acta Oto-Laryngologica Case Reports [Internet]. 2020;5(1):74-80. Available from: https://doi.org/10.1080/23772484.2020.1838285
10. Oxford. Metastatic Hurthle cell cancer. An Int J of Medicine; c2019. p. 453-4.
11. Varma V, Chelmeda S. Infarction of Hürthle Cell Tumor of Thyroid Following Fine Needle Aspiration Infarction of Hürthle Cell Tumor of Thyroid Following Fine Needle Aspiration 12-4.