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A Rare Case Of WHAFFT In Papillary Cancer Of Thyroid

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Abstract
Infarction in Papillary Thyroid cancer cases are rare but reported post-surgery It may lead to difficulties in interpretation for pathologist and in decision making for the surgeon.

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I. Case

A 40 years lady presented to us with history of thyroid nodule (multinodular) with progressive enlargement for 6 monthsnot associated with pain, pressure symptoms & clinically EuthyroidUSG Neck – Left lobe showed 2*2 cm heterogenoushypoechoic area with raised vascularity ?solitary noduleRight lobe – normalLeft side of neck shows lymph node of shortest diameter 8mm Level II

FNAC- cytosmear shows high cellularity comprising of small groups of predominantly monolayered cells with eccentric nucleus and abundant granular cytoplasm (? Hurthle cell change)No nuclear inclusion seen, back ground shows scanty to moderate thick colloid.

Possibilities can be
1. Thyroid neoplasm (with Hurthle cell change) TBS IV
2. Suspicious for papillary carcinoma (oncocytic variant) TBS IV

Surgery – Total thyroidectomy with central neck dissection with excision of level 6 nodes under general anesthesia – 27.09.2021
Intra operative - Left - 4*3 nodule
Right - Compressed and less nodular

Post operatively patient was stable, subcutaneous drain was removed on the second post operative day. Patient was started on thyroid drugs within the first week

Follow up
3 months- S. TSH – 0.2 mU/ml
6 months – S. TSH – 0.18 mU/ml
S. Thyroglobulin - <0.2
USG Neck – thyroid bed appears normal, no residual mass noted. No cervicallymphnode enlargement
12 months- S. TSH,
S. Thyroglobulin and USG Neck within normal limits

II. Histopathology

Right thyroid gland - Section shows a foci of papillary carcinoma thyroid. Rest of the thyroid gland shows features of colloid goitre.

Left thyroid gland- Large area of infarction surrounded by tissue. Areas outside the fibrosis shows compressed thyroid tissue.
Lymphnode sample – no lymphoid tissue.

III. Discussion

Although minimum biopsy in Thyroid nodule is excision FNA is a modality of investigation in Thyroid nodule (1).

Minor Complications following FNA do occur which may result in histological changes which has been given the acronym **WHAFFT** or "worrisome histologic alterations following fine-needle aspiration of the thyroid."(2) (5)

These changes were subdivided into acute and chronic categories, with acute changes occurring within 3 weeks post-FNA and chronic changes occurring after 3 weeks post-FNA

Acute - Haemorrhage, granulation, giant cells, siderophagia

Chronic - fibrosis, metaplasia, atypia.

Mechanisms of infarction include-

When tumors of the Thyroid are encapsulated, such as in certain follicular neoplasms, stretching of the fibrous capsule from hemorrhage following FNA may lead to compression of blood vessels that penetrate the capsule, leading to subsequent vascular compromise(2,7,6)

The needle may interrupt the microvasculature during entry or may cause traumatic venous thrombosis.

Infarction of a thyroid nodule may manifest as ghost shadows of tumor cells or eosinophilic granular material surrounded by granulation tissue and inflammatory infiltrate(11).

Ghostly papillary epithelia with psamomma bodies in a necrotic background is a histologic finding that may indicate an infarcted PTC.

These theories suggest that infarction on histologic section should raise high suspicion for neoplasm. (3,4)

IV. Conclusion

Percentage of incidence of infarction in papillary cancer of thyroid is 1-2%.

Although infarction of PTCs are a rare phenomenon that occurs after FNA its rate is variable ,The surgeon and the pathologist need to be aware of the possibility

A Comprehensive literature search for Infarcted PTC was performed ,one study found a decreased rate of WHAFFT when a 22-gauge needle was used compared with a 21-gauge needleStudies using Galectin-3 test & CD44 are been done and has shown sensitivity -78%, specificity -93%(10)

Methods of including - BRAF V 600E mutations were studied and detected in infarcted tissue in 4/6 lesions (67%) using droplet digital PCR in FNA samples from PTC.(8,9)

Correlation between infarction and the aggressiveness of a malignancy or the rate of future recurrence? These questions would best be answered by future prospective studies that include a larger patient populations and longer follow-up times.

Total Thyroidectomy is still recommended for such patients as the percentage of chances for infarction having Papillary variant is obvious.

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