

Thyroid lesion with thrombus in great veins points towards particular pathology-A case report and review in literature

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Abstract:

Differentiated carcinoma of thyroid is regarded as one of those malignancies which if dealt at the right time lead to good survival and outcome but if the management is delayed then not only it can lead to loss of precious life but poses a surgical challenge in advanced cases. We are presenting an advanced carcinoma thyroid with thrombus extending to right atrium presenting with swelling in front of neck from 2 months, insidious in onset gradually progressive. swelling was more prominent over right side of face & right upper limb. During evaluation there was a lesion arising from right lobe of thyroid gland 10.6 x 5.7 x 5.2cms. Right internal jugular vein thrombosis and inferiorly thrombosis is extending into right brachiocephalic vein, superior vena cava (SVC) and right atrium. Even in the absence of malignant findings on cytology, the presence of a tumor thrombus in the thyroid vein or internal jugular vein is highly suggestive for malignancy. It is a significant discovery that raises strong suspicions about distant metastases.

KEYWORDS

Thyroid cancer, Atrium, Tumor thrombus

Learning Points:

- Tumors with radiological evidence of thrombus reflects metastatic nature
- Advanced tumors of thyroid needs multidisciplinary management
- Even with advanced nature of disease specially differentiated malignancies of thyroid the post of period remains uneventful if managed in tertiary care centre

Introduction Malignant diseases like thyroid carcinoma, renal cell carcinoma, renal transitional cell carcinoma, uterine carcinosarcoma, Wilms' tumor, testicular tumor, adrenal cortical carcinoma, lymphoma, pancreatic cancer, osteosarcoma and Ewing's sarcoma can lead to the development of tumors in the great veins known as tumor thrombus [1]. Papillary, follicular, insular, and anaplastic thyroid cancers have all been linked to the thyroid malignancies that typically cause such tumor thrombus. Direct extension of the tumor or concealed vascular spread both result in tumor thrombus [2]. Ultrasonography used for preoperative imaging frequently finds thrombus by accident but CT or MRI scan should be performed on the suspected patient to provide an accurate diagnosis [3]. In our case study, we described a rare presentation of an advanced thyroid cancer with tumor thrombus in the great veins extending upto right atrium.

Case report

A 78 year old female known history of hypertension and diabetes presented with swelling in front of neck

from 2 months, insidious in onset gradually progressive. swelling was more prominent over right side of face & right upper limb. With no history of stridor difficulty in swallowing, fever, pain or swelling anywhere in the body, loss of appetite and weight loss. On examination there was a swelling in front of the neck especially on the right side moving with deglutition, swelling was firm around 10x8 cm without retrosternal extension. No gross lymph node palpable on examination. Gross swelling of face and right arm was present. On investigations FNAC revealed papillary carcinoma (TIRADS 5 LESION). Suspecting advanced nature of pathology CT angiogram revealed large ill defined infiltrative heterogeneously enhancing mass in neck on right side extending from the level of oropharynx superiorly to the level of thoracic inlet inferiorly. Epicenter of the lesion appears right lobe of thyroid gland 10.6 x 5.7 x 5.2 cms. Right internal jugular vein thrombosis and inferiorly thrombosis is extending into right brachiocephalic vein, SVC and right atrium.

Figure: 1 Pre-operative CT-MRI findings revealing tumor thrombus reaching up to right atrium with a large thyroid lesion.

Figure: 2 Intra-operative findings of the location of thrombus in the right atrium.

Figure: 3 Demonstrating the final excised main specimen with tumor thrombus at various locations.

Patient went for complete major pre-surgical assessment and discussion with multidisciplinary team patient was planned for surgery. **NECK EXPLORATION + TOTAL THYROIDECTOMY + B/L NECK DISSECTION + STERNOTOMY + ATRIOTOMY + THROMBUS EXTRACTION** was done under general anaesthesia. Intraoperative found an 10x8cms right lobe of thyroid adherent to strap muscles, internal jugular vein (IJV), carotid, left lobe normal, IJV thrombus, subclavian junction into right atrium, multiple level V nodes present in neck, bilateral parathyroids & recurrent laryngeal nerve (RLN) identified & preserved. Postoperative patient was shifted to ICU without any significant event. Patient was extubated on first day of Post-Operative. Histopathological findings showed follicular carcinoma, solid, insular and follicular patterns, right lobe of thyroid with capsular and vascular invasion (mitotic activity <3/10 HPF, no necrosis, no significant nuclear atypia) measuring 6 cms in greatest dimension with tumor thrombosis in SVC and right atrium, no extrathyroidal extension, no metastatic deposits, staging was pT3aNO.

Discussion

A known risk factor for venous thromboembolism is cancer. Patients who have an unintentional venous thromboembolism appear to have lower (4%) prevalence of occult malignancy [4]. The annual incidence of thyroid cancer, which accounts for around 1% of all new malignant diseases, has increased over the past ten years, primarily as a result of better diagnostic tools for detecting malignant tumors in small thyroid nodules. The majority of nodules that are thyroid carcinoma are asymptomatic. It is still unclear how exactly thyroid cancer affects the possibility of venous thrombosis. Through compression, angioinvasion, or maybe a prothrombotic condition, thyroid malignancy induced thrombosis [5]. The location will affect the symptoms of a tumor thrombus. Internal jugular veins have a high incidence of tumor thrombus first, followed by other veins extending to other large veins, such as the axillary, brachiocephalic, subclavicular, and SVC. Patients who simply had an internal jugular vein thrombosis did not exhibit any overt symptoms, but half of those who also had an SVC thrombus experienced SVC syndrome [6]. **Conclusion:** Tumor thrombus with intravascular tumor extension, can develop in a variety of cancer forms. Wilm's tumor, renal cell carcinoma (RCC), adrenal cortical carcinoma (ACC), and hepatocellular carcinoma (HCC) are those with the highest propensity. The prognosis is significantly worsened and the therapeutic strategy is affected by tumor thrombus. Multidisciplinary team management is essential for a good outcome.

Declaration of interest

The authors declare that there is no conflict of interest that could be perceived as prejudicing the impartiality of the research reported.

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Patient consent

The patient provided written informed consent for the publication of her clinical details and clinical images.

Author contribution statement

All authors expect SG treated and had followed up with patient. All authors contribute in writing the manuscript.

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