

## Case Report

## Advances in Hematology and Oncology Research

## Thyroid Lesion with Thrombus in Great Veins Points towards Particular Pathology - A Case Report and Review in Literature

Nagendra Parvataneni<sup>1</sup>, Kiran D Kumar<sup>2</sup>, Ishfaq Ahmad Gilkar<sup>3\*</sup>, Ulhas Paga<sup>2</sup>, Susmitha P<sup>3</sup>, Mahesh Chejerla<sup>3</sup>, P Vamsi Manav<sup>4</sup> and Seema M Gafurjiwala<sup>5</sup>

<sup>1</sup>Head of the department of Surgical Oncology, KIMS Hospitals, India

<sup>2</sup>Consultant at the department of Surgical Oncology, KIMS Hospitals, India

<sup>3</sup>Resident at the department of Surgical Oncology, KIMS Hospitals, India

<sup>4</sup>Junior Resident, KIMS Hospitals, India

<sup>5</sup>E2E Research Fellow, Indian Institute of Public Health, India

**\*Corresponding Author**

Ishfaq Ahmad Gilkar, Resident at the department of Surgical Oncology, KIMS Hospitals, India.

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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 tumour 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 center

**1. 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 tumours 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

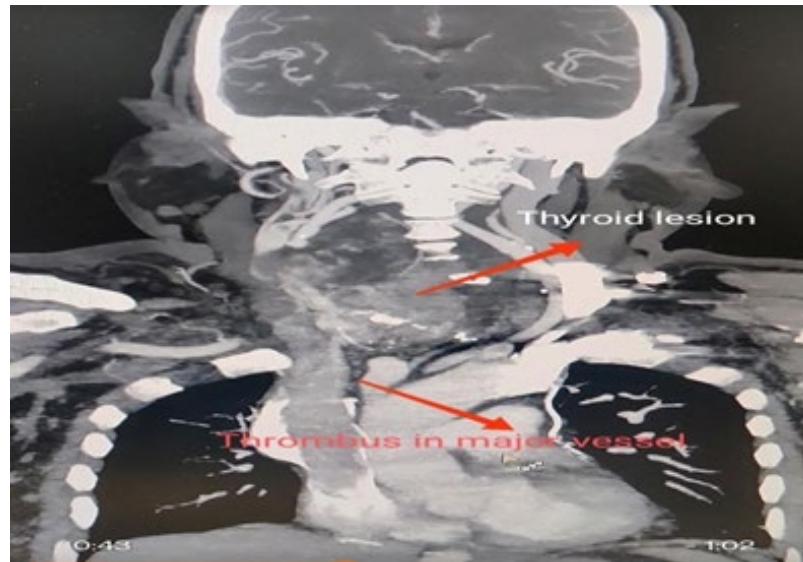
or concealed vascular spread both result in tumor thrombus [2]. Ultrasonography used for preoperative imaging frequently finds thrombus by accident but CT or MRI scan should be performed on the suspected patient to provide an accurate diagnosis [3]. In our case study, we are describing a rare presentation of an advanced thyroid cancer with tumor thrombus in the great veins extending up to right atrium.

**2. Case Report**

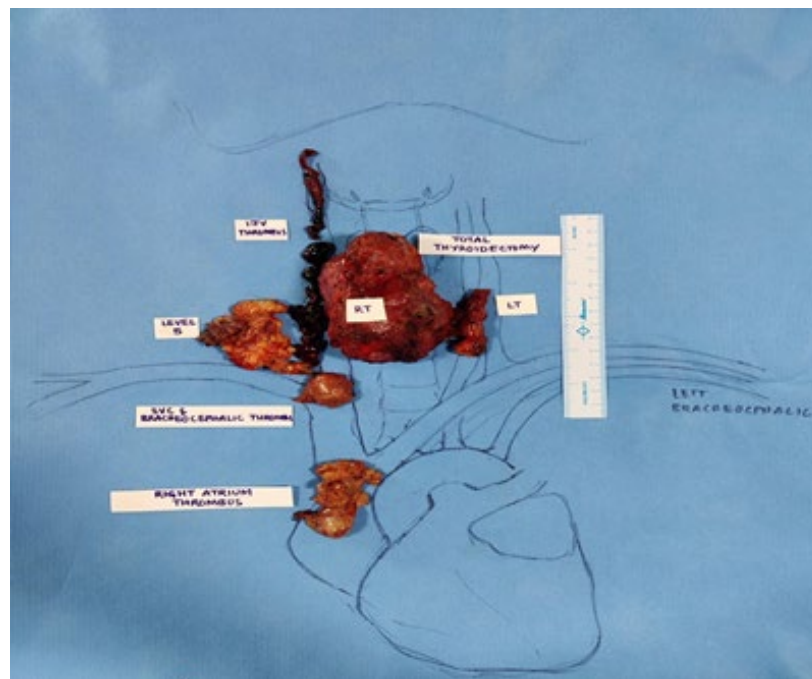
A 78 year old female known history of hypertension and diabetes presented with swelling in front of neck from 2 months, insidious in onset gradually progressive. Swelling was more prominent over right side of face & right upper limb. With no history of stridor difficulty in swallowing, fever, pain or 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 10 x 8 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

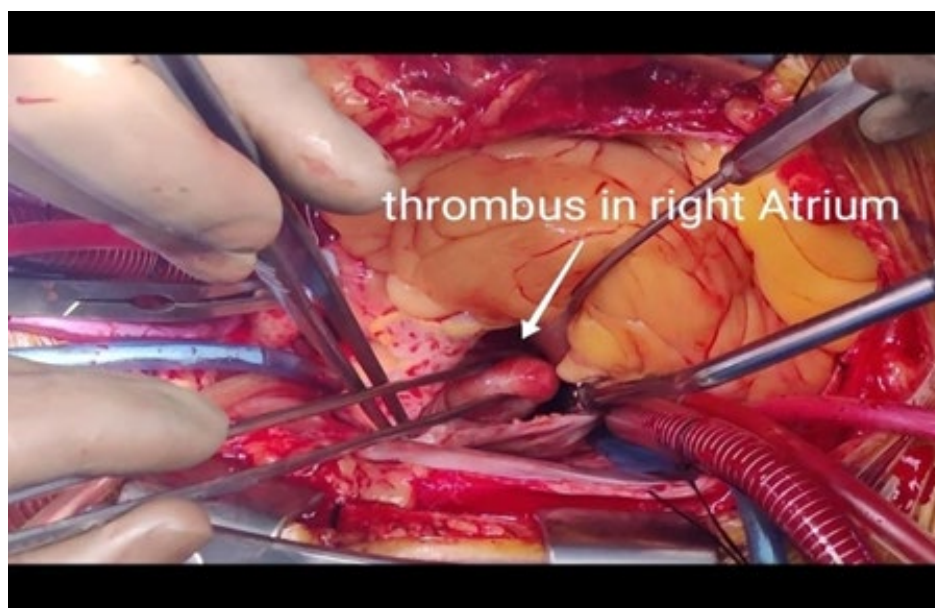
mass in neck on right side extending from the level of oropharynx superiorly to the level of thoracic inlet inferiorly. Epicentre of the lesion appears right lobe of thyroid gland 10.6 x 5.7 x 5.2 cms. Right internal jugular vein thrombosis and Inferiorly thrombosis is extending into right brachiocephalic 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. Patient underwent Neck Exploration + Total Thyroidectomy + B/L Neck Dissection + Sternotomy + Atriotomy + Tumor Thrombus Extraction was done under general anaesthesia. Intraoperative findings 10x8cms hard nodular lesion involving the right lobe of thyroid adherent to strap muscles, internal jugular vein (IJV) and carotid artery. Left lobe appeared normal. Right IJV thrombus extending into right subclavian vein into the right atrium. Multiple level VI nodes present in neck. Bilateral parathyroid & 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, extrathyroidal extension present, no metastatic deposits, staging was pT3bNO.

### 3. 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 tumours 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]. Symptoms depends on the location and extension of 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, sub-clavicular, 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.

### 4. Conclusion

Tumor thrombus with intravascular tumor extension, can develop in a variety of cancers. 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.

### 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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