

A Case Report of a Thrombectomy of Internal Jugular Vein Tumoral Thrombus of Follicular Thyroid Cancer Origin

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Abstract:

Intravascular tumor extension of a thyroid cancer is a rare but life-threatening condition. We report herein the case of a 66-year-old female patient with follicular thyroid carcinoma and an internal jugular vein (IJV) tumor thrombus. The patient had undergone a thyroidectomy at our institution and presented with left-sided swelling of face and neck. An MRI showed a thrombus within the left IJV, a finding confirmed by US. During surgery, a left IJV tumor thrombus was identified and excised followed by venous reconstruction. The pathological examination confirmed a follicular thyroid carcinoma. The patient received postoperative treatment with 150 mCi of ¹³¹I, followed by thyroid stimulating hormone suppression therapy with thyroxine. Although the fibrous capsule prevents the tumor's invasion into the surrounding structures, the presence of a tumor thrombus carries a poor prognosis.

Key words: thyroid cancer; tumoral thrombus; follicular thyroid cancer

Case:

This is the case of a 66-year-old female patient known to have hypertension, peripheral vascular disease, gastroesophageal reflux disease, left eye cataracts status post phacoemulsification, and follicular thyroid carcinoma status post total thyroidectomy who is admitted for direct venous tumoral thrombectomy from the left internal jugular vein. 9 months prior to presentation, the patient presented with dyspnea of progressive onset. A chest X-ray showed widening of the upper mediastinum with deviation of the trachea to the right, likely related to an enlarged thyroid gland. An MRI showed an enlarged left thyroid gland mass exerting mass effect on the trachea and esophagus showing intraluminal narrowing with no evidence of obstruction and bulging anteriorly displacing the right platysma muscle. A Tumoral thrombus was found within the left internal jugular vein with preserved fat planes between the thyroid gland and left internal jugular vein. Pre-operative

FNA showed follicular cells some cells arranged in microfollicles. A total thyroidectomy was thus performed, and it was complicated by transient hypoparathyroidism (PTH=3 pg/mL, nadir Ca 6.9 mg/dL). The patient received a treatment of radioiodine I-131 postoperatively, but her mass did not decrease in size. More recently, our patient presented with left-sided swelling of face and neck with no associated complaints. Physical exam showed tenderness upon palpation of left side of the neck. An ultrasound showed an intraluminal tumoral thrombus in the left internal jugular vein that shows a preserved patency (consistent with the previous MRI). She was admitted for excision of the tumoral thrombus from the left internal jugular vein (IJV) and venous reconstruction. Pre-operatively TSH 0.03 mIU/mL (low) and FT3=3.63 pg/mL

Old admission:

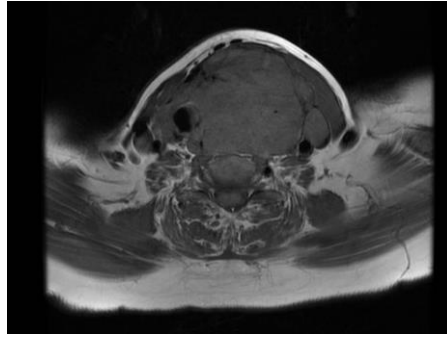


Figure 1: MRI Thrombus sub totally obliterating lumen of IJV

Current admission:

Our patient presented more recently with left-sided swelling of face and neck with no associated complaints. Physical exam showed tenderness upon palpation of left side of the neck. An ultrasound showed an

intraluminal tumoral thrombus in the left internal jugular vein that shows a preserved patency (consistent with the previous MRI). She was admitted for excision of the tumoral thrombus from the left internal jugular vein (IJV) and venous reconstruction. Pre-operatively TSH 0.03 mIU/mL and FT3=3.63 pg/mL

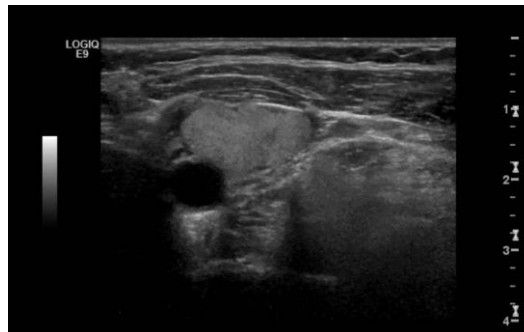


Figure 2: US showing thrombus in IJV

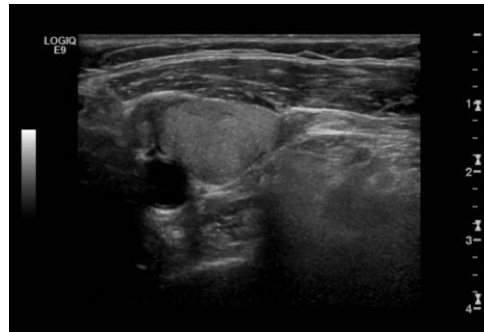


Figure 3: US

The patient underwent thrombectomy under general anesthesia. Intraoperatively/Longitudinal venotomy revealed a thrombus attached to the medial wall of the left IJV and was surgically excised. The vein was reconstructed with exclusion of the medial wall. Histopathology of the

intraluminal mass was reported as an intravascular thrombus of follicular thyroid carcinoma. Recovery was uneventful. The patient received a treatment radioiodine I-131 postoperatively.

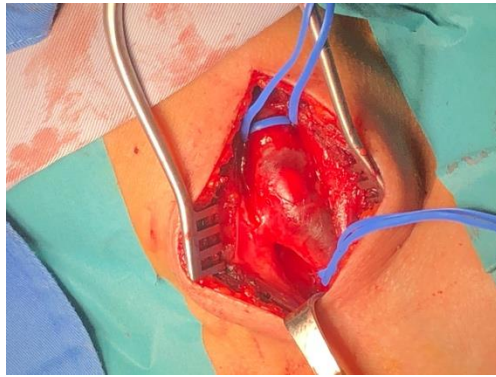


Figure 4: Operative findings: Swollen internal jugular vein identified

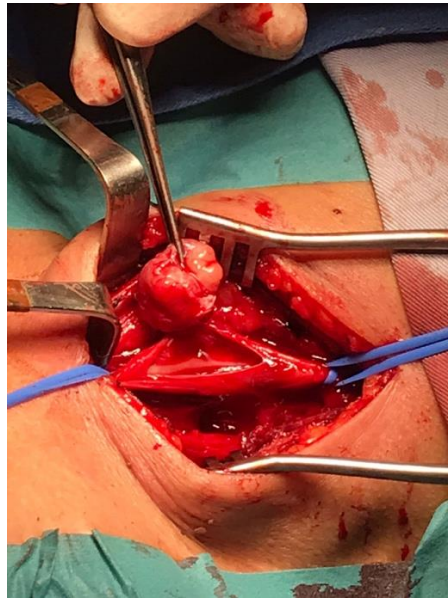


Figure 5: Operative findings: Internal jugular vein opened showing soft tissue tumor within its lumen



Figure 6: Macroscopic view of the tumor

Literature review:

Follicular thyroid cancer (FTC) is the second most common differentiated thyroid cancer, after papillary thyroid carcinoma, and accounts for approximately 10–15% of all thyroid cancers (Parameswaran et al., 2017). It occurs more frequently in women, and usually presents in the

fifth and sixth decades of life. It typically spreads via hematogenous dissemination. Distant metastases occur in 10 to 15 percent of patients with follicular cancer, even in those with small primary tumors (Machens et al., 2005). Common sites of distant metastases are bone and lung and, less commonly, the brain, liver, bladder, and skin (Grebe & Hay, 1995).

Intravascular tumoral extension is extremely uncommon albeit life-threatening. The tumor invades the internal jugular vein through the thyroid veins and propagates, either by direct extension or by occult vascular spread with a freely mobile distal portion resembling deep vein thrombosis (Manik et al., 2016). Cervical and arm edema and pain are the most common presentations of IJV thrombosis, which may also range from being completely asymptomatic to acute pulmonary emboli and superior vena cava syndrome, so the history and examination may be indeterminate (Boedeker et al., 2004; Bukhari et al., 2011; Kobayashi et al., 2011). Recognition of a tumor thrombus by PET/CT can change the management plan and prevent unnecessary long-term anti-coagulation treatment because of wrong diagnosis of cancer-related venous thrombus (Lai et al., 2007). In thyroid cancer, the presence of a venous tumor thrombus should be considered as a risk factor of distant metastases or early relapse (Kowalski et al., 2002).

Due to the rarity of thyroid cancer vascular thrombi, no management guidelines have been established yet. Segmental venous resection or thrombectomy with venous reconstruction have been reported (Kawano et al., 2016). An intraluminal tumor mass is usually surrounded by a fibrous capsule which prevents the tumor cells from invading the adjacent vascular structures, thus making a total resection with vessel reconstruction more possible (Sugimoto et al., 2006). Invasion of IJV by thyroid cancer indicates a poor outcome (Kebebew & Clark, 2003) as thyroid cancer patients with IJV invasion or other great cervical veins are reported to have a two- to five-year survival rate (Carrington & Adams, 1988).

We report a surgical case of thyroid carcinoma with extensive tumor thrombus in the left internal jugular vein (IJV) and consider the appropriate treatment strategy (transcervical excision and venous reconstruction).

conflict of interest:

We have no potential conflict of interest. We have no competing interest to declare. The content of the manuscript has not been published or submitted for publication elsewhere. The manuscript has not been published nor is it under consideration for publication with any other journal.

Contributions:

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

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