

Acute pulmonary emboli due to internal jugular vein thrombosis in papillary thyroid carcinoma, a case report and literature review

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Abstract

Upper extremity deep vein thrombosis (UEDVT) is a life threatening rare condition. Among the patients with UEDVT, internal jugular vein is accepted as uncommon thrombosis. Since internal jugular vein thrombosis (IJVT) is mostly underdiagnosed, a great attention is needed to diagnose the disease. A 75-year-old woman with history of dyspnea on exertion (DOE), weight loss and anorexia with the stable vital sign and right-sided cervical adenopathy with suspected thyroid nodule was admitted. One day after admission, sudden dyspnea was occurring with unstable vital sign and hypotension. Chest X-ray showed a bilateral pleural effusion. Pleural tap was exudative, CT scan showed bilateral pulmonary emboli. CT scan of the neck showed right-sided cervical adenopathy, heterogeneous thyroid and internal jugular vein thrombosis concomitant with superior thyroid vein thrombosis. The patient was treated with thrombolytic agent and enoxaparin followed by warfarin. Thyroid FNA revealed papillary thyroid carcinoma that followed by total thyroidectomy, histopathological examination verified papillary thyroid carcinoma. Although lower extremity DVT is the main cause of pulmonary emboli, but IJVT may be proceed by pulmonary embolism. Due to fatal outcome of pulmonary emboli in IJVT, color duplex sonography, is recommended in documented tumors or suspected history of malignancy.

Key words: Internal jugular vein thrombosis, malignancy, pulmonary emboli, upper extremity jugular vein thrombosis

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INTRODUCTION

Upper extremity deep vein thrombosis (UEDVT) is a rare condition with life threatening outcome.^[1]

Because of increased flow, gravity and the lack of stasis, thrombosis formation in upper extremities is less possible to happen. UEDVT include subclavian, axillary, brachial vein and internal jugular vein thrombosis. Among the patients with UEDVT, internal jugular vein is accepted as uncommon thrombosis.^[2] Since internal jugular vein thrombosis (IJVT) is mostly underdiagnosed, a great attention is needed to diagnose the disease.^[3] IJVT has been reported to be more in woman.^[2] The most common clinical presentation is arm edema and pain, but it can also be completely asymptomatic.^[2]

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The incidence of malignancy as a risk factor for IJVT is increasing, so especial attention must be paid to cancer as a rule. The most common predisposing factors are central venous catheter, malignancy and ovarian hyperstimulation syndrome.^[2] UEDVT can lead to lethal outcome like pulmonary emboli, septic emboli, brain edema.^[1] While lower extremity deep vein thrombosis (DVT) are the most common cause of pulmonary emboli,^[4] but the incidence of pulmonary emboli (PE) due to upper extremity DVT has been reported 4% to 10%.^[2] Color duplex sonography, CT scan and MRI have been accepted for diagnosis of IJVT.

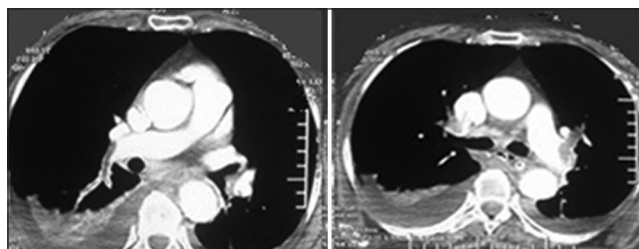
CASE REPORT

A 75-year-old woman with a three month history of dyspnea on exertion (DOE), weight loss and anorexia was referred to the clinic of pulmonary disease. There were no other symptoms. Her medical history had no problem. On admission temperature was 37° C, pulse rate was 85/min, respiratory rate 14/min and blood pressure was 140/90mm/Hg, jugular vein pressure (JVP) was normal and there was no neck and arm swelling. A right-sided cervical adenopathy with suspected thyroid nodule was detected. Other examinations were normal.

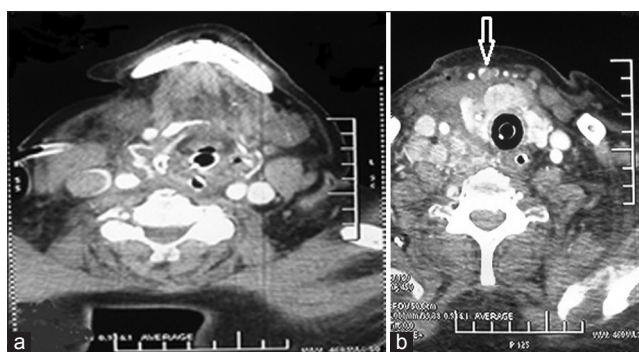
Chest X-ray was normal, erythrocyte sedimentation rate (ESR) was 70/hour, other routine laboratory tests were normal. Echocardiography was normal. Sonography revealed cervical adenopathy of the right side and thyroid nodule with the dimensions of 0.8 mm × 0.6 mm.

One day after admission, sudden dyspnea was occurred with PR: 125/min, RR: 30/min, BP: 85/50mm/Hg and o2 saturation: 70%. A decreased sound was detected in both lungs. Chest X-ray showed a bilateral pleural effusion. Pleural tap was exudative, CT spiral showed bilateral pulmonary emboli with plural effusion and lung collapse [Figure 1]. She was treated with streptokinase. CT scan of the neck showed a right-sided cervical adenopathy, heterogeneous thyroid and internal jugular vein thrombosis concomitant with superior thyroid vein thrombosis [Figure 2]. Thyroid FNA revealed papillary thyroid carcinoma [Figure 3]. The day after thrombolytic therapy her respiratory distress became better that showed thrombotic nature of emboli.

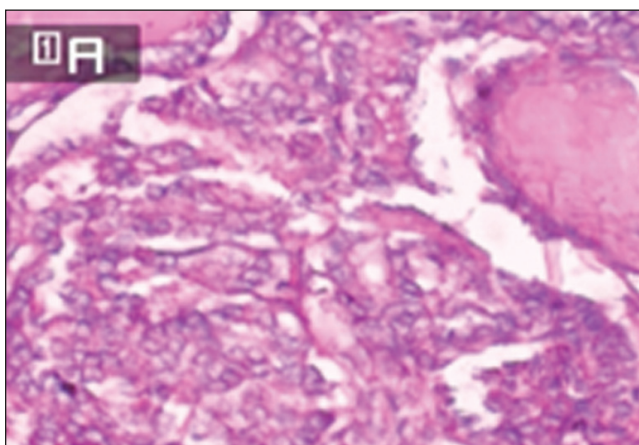
Finally total thyroidectomy was performed, histopathological examination revealed papillary thyroid carcinoma with lymph node involvement. Microscopic examination showed neoplastic proliferation of epithelial cell with papillary appearance,



Figures 1A, B: Bilateral pulmonary emboli, pleural effusion and lung collapse



Figures 2A, B: CT scan of the neck showed right sided cervical adenopathy, heterogeneous thyroid and internal jugular vein thrombosis concomitant with superior thyroid vein thrombosis (white arrow)



Figures 3: Histopathological examination showed papillary thyroid carcinoma with papilla appearance and ground glass feature H and E × 40

the cells include round to oval nuclei with ground glass foci. Doppler ultrasonographic examination of the subclavian, axillary and brachycephalic vein was normal. After total thyroidectomy, she was treated with the diagnosis of secondary IJVT due to PTC with enoxaparin and Warfarin, after 5 days warfarin continued.

DISCUSSION

Upper extremity deep vein thrombosis is very less common than the lower extremity but may be

increasing and includes approximately 4% of all DVTs.^[5] Although, IJVT occurs concurrent with other UEDVT, but can be isolated. Internal jugular vein thrombosis is a rare condition but can be a serious condition with a lethal outcome.

The prevalence of upper extremity deep vein thrombosis (UEDVT) has increased due to use of central venous catheters, and increasing rates of cancer.^[6] The most common leading factor was central venous catheter, which is present in up to 75% of the patients with upper extremity DVT.^[5]

IJV thrombosis without CVC may be the first manifestation of an occult malignancy^[1,5,7] and it must be ruled out. There is a good relation between malignancy and coagulation, 50% of the patients with malignancy and 90% of the metastatic tumors have coagulation abnormalities while only 15% have any symptoms.^[7]

UEDVT may be seen in a variety of adenocarcinomas, including breast, ovarian, and prostate cancer.^[8] Gbaguidi *et al.*, Showed that IJV thrombosis can be caused by lung, breast, ovarian, prostate, lymphoma and leukemia, especially when they are metastatic. IJVT due to PTC has not been reported till now.

Cervical and arm edema and pain are the most common presentations but IJVT may be completely asymptomatic, so the history and examination may be indeterminate.^[1,6]

Although lower extremity DVT is the main cause of pulmonary emboli, but IJVT may be complicated by pulmonary embolism. Septic emboli to different organs and brain edema due to intracranial propagation of the thrombus can occur.^[1] Like lower extremity DVT, it can lead to post-thrombotic syndrome and ischemia.^[3] The Gbaguidi's study demonstrated that 10.3% of the patients had pulmonary embolism while 41.4% of them had post-thrombotic syndrome. Despite to the low incidence of IJVT, it can lead to high mortality that may be due to pulmonary emboli.

Imaging has a main role in the diagnosis of DVT. Pulmonary emboli is best diagnosed by spiral CT scan with contrast, the second step is pulmonary scan, and if it was negative for pulmonary emboli, color duplex sonography, angiography and MRI will be the next step.

Due to fatal outcome of pulmonary emboli in IJVT, color duplex sonography, is recommended in documented tumors or suspected history of malignancy. It can be a cause of sudden dyspnea and hypotension due to massive emboli in asymptomatic patients.

CONCLUSION

Thrombosis of the IJV is probably underdiagnosed. Since the clinical presentation may be vague or misleading, a high degree of suspicion is required to make the diagnosis. CVC and malignancy are the main cause of IJVT, so IJVT can lead to lethal outcome, especially pulmonary emboli.

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