

Upper deep vein thrombosis in a patient with COVID-19 infection and a giant goiter

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Abstract

A 74-year-old female presented with COVID-19 pneumonia and multinodular goiter with right lobe enlargement, occupying medium mediastinum with trachea compression is presented. COVID-19 pro-thrombotic status combined with low dynamic flow due to the large goiter resulted in deep vein thrombosis of subclavian and jugular veins in this case.

INTRODUCTION

CASE HISTORY

A 74-year-old female was admitted to ward after 3 days of fever and dyspnea. At admission, the peripheral oxygen saturation was 85% on room air. Due to worsening respiratory distress and hypoxemia, the patient required invasive mechanical ventilation. Upon intensive care unit admission, the level of D-dimer was 36.77 ug/mL (RI < 0.5), and a computed tomography revealed bilateral ground-glass opacities, compatible with COVID-19 (Figure 1). Dexamethasone 6 mg/day and enoxaparin 40 mg/day were initiated. At physical examination, a large goiter was palpable and no visible collateral cervical vessels and arms edema were noticed. The tomography revealed a multinodular goiter with calcification, with predominantly right lobe enlargement, extending 4.9 cm below the sternal notch and occupying medium mediastinum with tracheal compression and deviation as well as esophagus displacement (Figure 2). Thrombosis of the right subclavian vein and the inferior segment of the left internal jugular vein were diagnosed (Figure 3). No collateral circulation was seen. Systemic thrombolysis was discarded due to the absence of significant symptoms or signs of venous compression. Before COVID-19, the patient did not complain of cervical enlargement, pain, dyspnea or dysphagia. TSH level was 0.73 mIU/L (RI 0.27-4.20), free T4 was 1.62 ng/dL (RI 0.93-1.70) and negative thyroperoxidase antibodies, indicating normal thyroid function. The patient recovered of COVID-19 after 15 days of hospitalization. At Hospital discharge, anticoagulation was changed to rivaroxaban. The patient returned to the outpatient care after 6 months, with no chest pain, dysphonia or obstructive complains, such as dyspnea or dysphagia. Pemberton's sign was absent. Total thyroidectomy with thoracotomy was scheduled.

DISCUSSION

During the pandemic, the diagnosis of clinical respiratory syndromes causing dyspnea must be promptly done to establish the proper treatment¹. Patients with goiter can present with dyspnea due to tracheal compression, usually inspiratory and positional dyspnea². However, longstanding goiter presents asymptomatic along years and dyspnea occurs only during upper airways infections, pneumonia and even after moderate to heavy exertions.

Patient with goiter affected by COVID-19 infection should present with more severe dyspnea, misdiagnosing a mild viral disease that contributed to the dyspnea or lung commitment with poor oxygenation and severe dyspnea³. Intravenous corticosteroid may improve tracheal edema in inflammatory upper airways, postponing the clinical investigation until surgical treatment⁴. Lung imaging evaluation helps to evaluate pulmonary involvement.

Hypercoagulability and frequent venous thromboembolic events are well established in COVID-19, particularly lower extremities and lung thrombosis⁵. Upper limb deep vein thrombosis is also well known in patient with central venous catheters and cancer⁶. Prophylactic anticoagulation is recommended in patient with COVID-19 and high D-dimer concentration, as in the described patient^{1,5}. Thrombolysis is only recommended in the presence of severe symptoms and signs.

In the meantime, patients with goiter may have thrombosis⁷. The patient here described had a giant goiter, with tracheal and esophagus compression, occupying the mediastinum and showed acute deep vein thrombosis of superior venous system (subclavian and jugular veins). Several cases of goiters causing superior vena caval syndrome were described, particularly from iodine insufficient areas and giant goiters⁸⁻¹⁰. Pemberton's sign, a reversible facial congestion after elevation of both arms, is indicative of superior vena cava syndrome due to obstruction of the thoracic inlet¹¹.

Nonetheless upper limb deep vein thrombosis is rarely described in patient with goiter, probably due to the slow growth of the thyroid, which permits the development of collateral circulation and compensation of venous flux compression⁷.

We speculated that COVID-19 pro-thrombotic status combined with low dynamic flow due to the large intrathoracic goiter, particularly in the right side, resulted in the deep vein thrombosis of subclavian and jugular veins in the presented case.

We have been unable to find a previous case report of extensive deep vein thrombosis in a patient with COVID-19 and a giant intrathoracic longstanding goiter.

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Figure Legends

Figure 1: Computed tomography image shows bilateral ground-glass opacities, compatible with COVID-19 lung infection.

Figure 2: Computed tomography images show (A) multinodular goiter, with predominantly right lobe enlargement with tracheal compression (B) multinodular goiter occupying mediastinum

Figure 3: Computed tomography images show (A) thrombosis of right subclavian vein and (B) thrombosis of left internal jugular vein.

Figure 1.

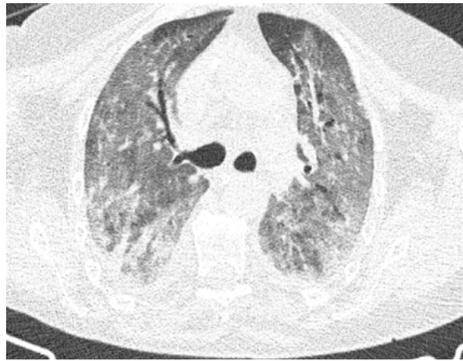


Figure 2 (A)





Figure 2 (B)

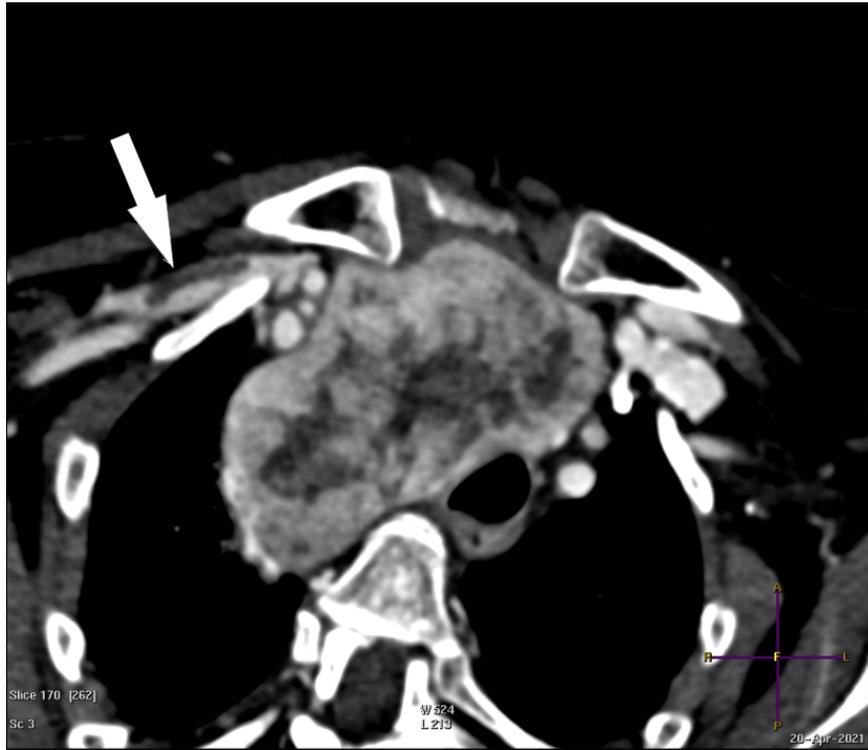




Figure 3 (A)

Figure 3 (B)



