

SARS-COV2 Infection Revealing a Thymic Cyst

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Abstract

Case Report

The COVID-19 pandemic is an unprecedented global health crisis, Thoracic imaging has demonstrated its valuable role in the development of this pneumopathy. But has also allowed the evidence of asymptomatic attacks. We report the observation of a patient whose thoracic scan performed during his covid infection, revealed a thymic cyst, which is a very rare congenital tumor in adults.

Keywords: COVID 12, chest CT, thymic, cyst, tumor, surgery.

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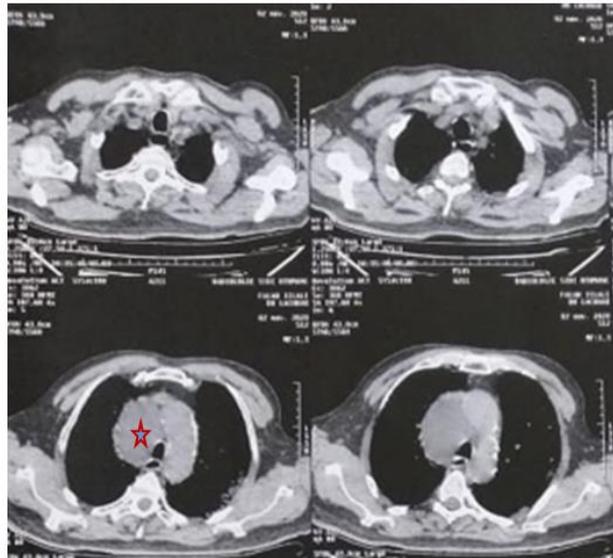
INTRODUCTION

The COVID-19 pandemic is an unprecedented global health crisis. The initial chest CT scan plays a pivotal role in the triage of patients arriving at the emergency room. It can also reveal other abnormalities that may have gone unnoticed and asymptomatic. We report the observation of a patient with an intra thoracic thymic cyst discovered incidentally, following a SARS-COV 2 infection, and whose evolution was good.

MEDICAL OBSERVATION

This is a 68 year old patient, ex-smoker with 6 PA weaned for 13 years, diabetic and hypertensive well monitored. The clinical symptoms were flu-like symptoms and dyspnea classified as stage 3 mMRC. A covid 19 PCR was performed and found to be positive, as well as a thoracic CT scan showing covid 19 viral involvement estimated at 25-50%, with bilateral ground-glass areas predominantly sub pleural with a crazy paving aspect at the bases. This examination also revealed a medium mediastinal mass, roughly oval and well limited, with liquid density, not enhanced after injection of contrast medium, 7 cm in diameter, pushing the trachea and the superior vena cava to the left (Figure 1). The patient was hospitalized in an intensive care unit

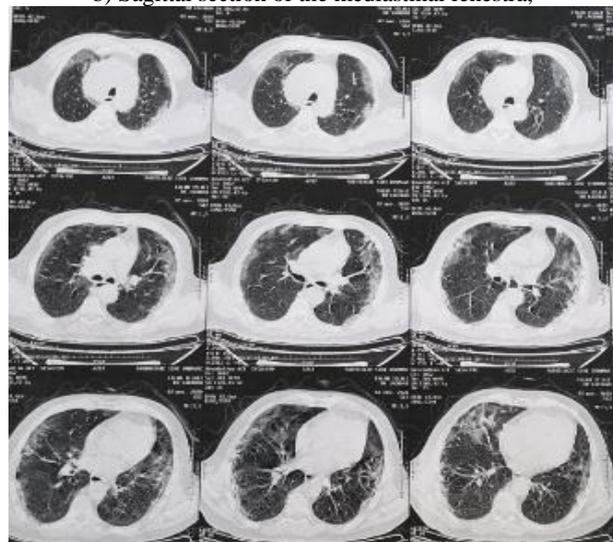
and put on oxygen therapy and symptomatic treatment according to the national protocol for the management of covid 19 viral infection. The evolution was marked by a good clinical and radiological improvement. The bronchoscopy performed at D45 of the viral infection showed a diffuse first degree inflammatory state, and the spirometry was borderline normal. The surgical intervention was decided during the multidisciplinary consultation meeting. A left posterolateral thoracotomy was performed to preserve the dorsalis major muscle. The surgical exploration found a mediastinal cyst close to the left lobar bronchus, with a thick mucoid fluid content. The anatomopathological study of the surgical site was in favor of a cystic formation bordered by a regular and generally preserved respiratory epithelium and resting on a fibrous wall composed of a few congestive vessels and a discrete inflammatory infiltrate essentially lymphocytic. The histology of the sequestered area resected at the level of the thymic lodge showed a pulmonary parenchyma made up of a few bronchial tubes lined with a regular respiratory epithelium with edematous and congestive areas of the parenchyma (Figure 2). The diagnosis retained was therefore a thymic cyst. The patient's postoperative course was simple with a good clinical and radiological evolution after 9 months (Figure 3).



a) Cross section of the mediastinal fenestra,



b) Sagittal section of the mediastinal fenestra,



c) Cross section of the parenchymal fenestra

Figure 1: Chest CT scan showing the middle mediastinal mass and peripheral ground glass appearance



Figure 2: The operating room

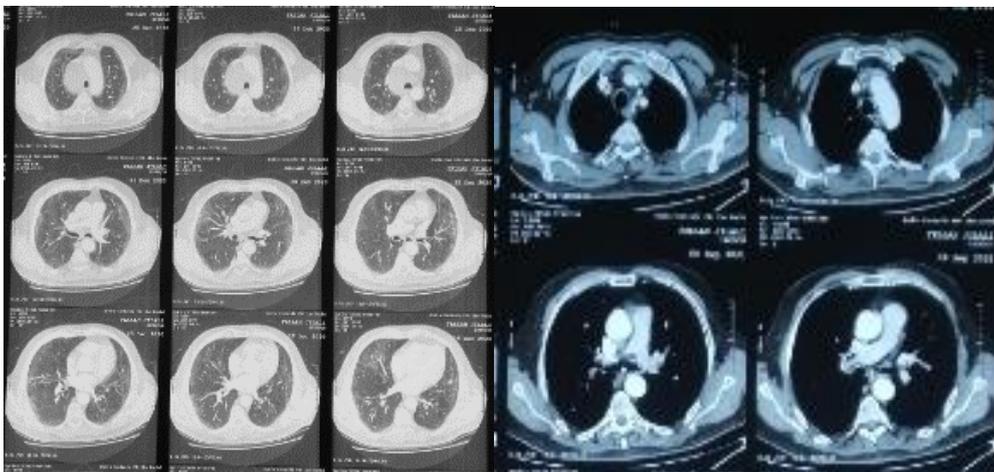


Figure 3: Control CT scan of the chest

DISCUSSION

The thymic cyst is a rare congenital tumor, representing 1% of cystic cervical masses in children. These cysts are extremely rare in adults [1-5]. It usually affects children between 4 and 7 years of age with a slight male predominance [5, 6]. The left side is involved in 68% of cases [2, 9, 10]. This tumor can occur at any level of the thymus migration pathway, from the mandibular angle to the upper mediastinum [1,10]. The pathogenesis is explained either by a defect in thymic migration during organogenesis or by cystic degeneration of thymic residues even with normal thymus migration [4, 5, 7, 10]. Graeber [7] divides thymic cysts into three categories: congenital, neoplastic and degenerative. The latter two are favored by thymic radio-chemotherapy. Clinically, thymic cysts are asymptomatic in 90% of cases [3, 7], such as the case in our observation where the thymic cyst was discovered by chance during a COVID 19 infection. Complications, mainly compressive, are rarely revealing [5, 7]. Approximately 10% of patients may

present with dyspnea, stridor, dysphagia, upper respiratory tract infection and neck pain [6, 7]. In rare cases, these cysts enlarge rapidly and can cause severe life-threatening symptoms through compression of mediastinal elements, intermittent brachiocephalic vein obstruction [5] or compression of the right ventricle [9, 10]. Mediastinal extension is found in about 50% of cases and should be systematically sought [10, 11]. The radiological differential diagnosis is with branchial cysts, cystic lymphangiomas, lymphomas, cervical bronchogenic cyst, dermoid cyst, cystic hygroma and teratomas [12]. In the majority of cases, Doppler ultrasound confirms the cystic nature of these tumors [10, 11]. The radiological differential diagnosis is with branchial cysts, cystic lymphangiomas, lymphomas, cervical bronchogenic cyst, dermoid cyst, cystic hygroma and teratomas [12]. In the majority of cases, Doppler ultrasound confirms the cystic nature of these tumors [10, 11]. A cervico-thoracic CT scan with PDC injection is requested as a second line of treatment when there is a doubt about mediastinal extension or about the anatomical relationships of this tumor,

especially with the vessels of the neck [9]. The final diagnosis will only be established by anatomopathological examination, after surgical removal [7]. This tumor, uni or multilocular, is defined histologically by the presence of a clear or most often blackish fluid content with sometimes necrotic debris and cholesterol crystals. Hassall's corpuscles, always evident, are a pathognomonic feature. The wall is made of squamous, cuboidal epithelium, its thickness may range from a few millimeters to 1 cm. The thymic components are intimately related to this wall. The presence of parathyroid tissue has been reported in the literature. The main theory is the ability of thymic cells to differentiate into parathyroid cells [12, 13]. A complete surgical removal of the tumor lesion involving the thymus should be performed, despite the benign histological appearance at the extemporaneous examination, in order to remove any associated tumor contingent and to prevent any recurrence [14, 15]. The prognosis of this pathological entity is excellent with a very low risk of local recurrence. No case of malignant degeneration has been reported [7].

CONCLUSION

CT imaging plays a key role in the management of COVID-19 pneumonia. In our case, the CT scan revealed a thymic cyst, which is a rare etiology of cervical masses and even exceptional in adults. The prognosis remains favorable with a very low risk of recurrence or malignant degeneration.

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