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HOW TO DIFFERENTIATE FIBROSING PNEUMONITIS RELATED TO SSC AND COVID-19, THROUGH HRCT

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BACKGROUND

Differentiating pulmonary inflammatory impairment related to systemic sclerosis (SSc) from infectious forms, mainly viral, becomes challenging, especially when there is an overlap of clinical and tomographic findings of both diagnoses. Systemic sclerosis related to usual interstitial (UIP) and nonspecific pneumonitis (NSIP) shows initial high-resolution computed tomography (HRCT) with areas of attenuation in peripheral and bibasal ground glass, which progress indolently to traction bronchiectasis (honeycombing and interseptal thickening), usually associated with bilateral pleural effusion and lymph node enlargement, if an active inflammatory process. Viral pneumonias, including COVID-19, tend to develop, from the beginning, with peripheral and bilateral focal opacities and nodular ground glass, which can progress rapidly and dramatically to alveolar consolidation (with air bronchograms) and reticular opacities.

CASE REPORT

P1 - female, 86 years old, SSc with pulmonary fibrosis, systemic arterial hypertension (SAH) and diabetes mellitus (DM), presented in the emergency with episodic dry cough and progressive dyspnea for 3 days. She denied fever or flu-like symptoms. She was tachypneic (40 bpm), SPO₂ 76% in room air, dehydrated and acrocyanotic; pulmonary auscultation with reduced breath sounds globally, fine bilateral crackles up to the right hemithorax apex and up to the middle third of the left. High-resolution computed tomography showed a change in the previous pattern, with reticular infiltrate with areas of ground glass, mosaic perfusion and air bronchograms in both lungs, lymph nodes dispersed in the mediastinal region. Conducted for sepsis with tazocin 4.5g / FA every 8h and then teicoplanin 1,200 mg every 12 h, and for COVID with azithromycin 500 mg once daily and hydroxychloroquine 400 mg every 12 h, in addition to unfractionated heparin (UFH) 8,000 UI every 8 h and methylprednisolone 250 mg once daily. After orotracheal intubation (OIT) on UCI, she needed vasoactive drugs and hemodialysis, and died after 10 days.

P2 - Female, 31 years old, SSc with pulmonary fibrosis, SAH and cardiopulmonary involvement. On the emergency room, she presented with flu-like symptoms for 4 days, use of azithromycin and ivermectin, evolving with progressive dyspnea for 1 day. She was feverish, tachypneic (40 bpm), SPO₂ 85% in room air, dehydrated and acrocyanotic. High-resolution computed tomography showed a change in the previous pattern, with ground glass estimated at 50% of the parenchyma, in addition to extensive bilateral diffuse pulmonary opacities. ECHO with significant concentric left ventricular hypertrophy. Conducted for Severe acute respiratory syndrome with ceftriaxone, 2 g once daily, in addition to the COVID protocol. On the 5th day, she was transferred for ICU, because she needed OIT and vasoactive drugs, Tazocin and a methylprednisolone minipulse treatment. She evolved with superimposed infection and little anti-inflammatory response, and died of pulmonary hemorrhage.

CONCLUSION

In the face of SARS-CoV-2 pandemic, we must suspect and treat "the new on" pulmonary involvement of immunosuppressed scleroderma patients, with or without fibrosing pneumonitis, as by COVID-19, superimposed by bacterial infections and reactivation of the inflammatory process. Patients with SSc and sudden worsening of ventilatory parameters, suspected or confirmed by COVID-19, should be submitted to HRCT, without contrast initially, even in the mild phase and if chest X-ray is undetermined. Clinical discussion - rheumatologist, pulmonologist and radiologist, may be necessary.

Table 1. Clinical-epidemiological aspects.

Aspects	Patient 1	Patient 2
Age (years)	Female	Female
Comorbidities	86	31
Swab test for COVID-19	Systemic sclerosis, pulmonary involvement Systemic hypertension Diabetes type II	Systemic sclerosis, pulmonary involvement Systemic hypertension
Initial symptoms	Not detected	Detected
Symptom onset time (days)	Dyspnea/cough	Dyspnea/asthenia/fever
O2 saturation at admission	3	4
FR (irpm) at admission	76	85
Length of stay in ICU (days)	40	40
Tempo de internação na UTI (dias)	9	8

Table 2. Laboratory aspects.

Aspects	Patient 1		Patient 2	
	Admission	ICU entry	Admission	ICU entry
Hemoglobin	12.7 g/dL	11.8 g/dL	13.9 g/dL	11.1 g/dL
Leukocytes	25,940/ μ L	32,360/ μ L	4,920/ μ L	7,190/ μ L
Lymphocytes	1,038/ μ L	971/ μ L	940/ μ L	503/ μ L
Platelets	362,000/ μ L	372,000/ μ L	156,000/ μ L	245,000/ μ L
CRP	27.76 mg/dL	18.80 mg/dL	11.31 mg/dL	16.50 mg/dL
INR	1.28	1.36	-	1.11
LDH	531 UI/L	397 UI/L	427 UI/L	392 UI/L
D-Dimer	3.34 μ g/mL	10.99 μ g/mL	0.54 μ g/mL	0.27 μ g/mL
Ferritin	294.78 ng/mL	332.01 ng/mL	-	775.8 ng/mL
Troponin	59 ng/L	97 ng/L	-	5 ng/L
Pro-BNP	5,070.0 pg/mL	28,537.0 pg/mL	-	275.8 pg/mL
Procalcitonin	2.97 ng/mL	4.94 ng/mL	-	0.28 ng/mL
Sodium	126 mEq/L	140 mEq/L	-	141 mEq/L
Potassium	3.2 mEq/L	4.0 mEq/L	4.1 mEq/L	5.0 mEq/L
Creatinine	0.89 mg/dL	2.44 mg/dL	1.48 mg/dL	0.94 mg/dL
Urea	25 mg/dL	82 mg/dL	44 mg/dL	38 mg/dL
TGO	29 U/L	31 U/L	-	23 U/L
TGP	18 U/L	21 U/L	-	20 U/L

Patient 1

Figure 1. Evolution: reticular infiltrate with bilateral “frosted glass” areas of hypertransparency, mosaic perfusion and arial bronchograms; important veiling on the right; foci of emphysematous lesions in superior lobes; numerous lymph nodes in the mediastinal region; unmeasured pulmonary parenchyma involvement.

Patient 2

Figure 2. Evolution: multiple frosted glass lung opacities; thickening of interlobular septum in between; mosaic paving pattern with multifocal, bilateral, predominantly peripheral and posterior distribution; scattered bronchiectasis in the lower lobes; 50% pulmonary parenchyma involvement