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Introduction

SARS-COV-2 infection is known to cause tissue damage in several organs outside of the respiratory tract. The pathogenesis of tissue damage is hypothesized to be caused by direct viral damage, endothelial injury, and ischemic or thrombotic events. Gastrointestinal symptoms were first characterized mainly as diarrhea and diffuse abdominal pain and discomfort, which can be hard to interpret in the setting of a generalized inflammatory response; gallbladder injury and inflammation causing acute acalculous cholecystitis has been scarcely reported. (1-9)

Methods

Here we discuss six cases of patients presenting with symptoms of acute cholecystitis, during their medical attention at a third level hospital. All patients underwent several imaging studies, and all of them were found compatible with acute cholecystitis; some of them had an imaging report of lithiasic cholecystitis, while the rest were reported with biliary sludge. Five out of the six patients underwent laparoscopic cholecystectomy; biopsies were taken, consistently those, with acalculous cholecystitis. The remaining patient died of acute sepsis prior to surgery, after a percutaneous cholecystostomy tube was placed.

Discussion

In our series, most of the patients had prolonged fasting in common, since most of them required invasive or non-invasive mechanical ventilation, 5 of 6 developed multiple-focus pneumonia and acute respiratory distress syndrome. Fasting correlated with the development of gangrenous ischemia in the gallbladder, which manifested as a late complication due to SARS-CoV-2 infection. In recent studies, the development of this complication has been related to the relationship between the existence of angiotensin-converting receptors-2 (ACE2) in the gallbladder and the replication of viral proteins, which favors proinflammatory state. In this report, almost all patients showed a cholestatic pattern; and this complication developed in average, 3 weeks after the onset of SARS-CoV-2 symptoms, besides in most cases a negative test was already shown at the time of the complication.

Conclusion

Acalculous cholecystitis is one of the extrapulmonary complications that has been seen in patients with SARS-CoV-2 infection -similar to other infections (viral mainly)-, not being the most common, but one of those that has generated a higher mortality rate in patients due to its late diagnosis and non-specific clinical dilemmas in certain occasions (1-9).

References:

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Data	Patient 01	Patient 02	Patient 03	Patient 04	Patient 05	Patient 06
Age	78 y/o	46 y/o	81 y/o	52 y/o	67 y/o	64 y/o
Sex	Male (M)	Male (M)	Male (M)	Female (F)	Female (F)	Male (M)
Immunocompromised	Age / COVID relapse	Unknown	Colorectal Cancer Stage III (2.5 years before)	DM2 in well control	Kidney Transplant / chronic renal failure	Pulmonary Embolism (previous) / acute pancreatitis
ICU	No	Yes	Yes	Yes	Yes	No
aMV*	Yes	Yes	Yes	Yes	Yes	No
Use of Vasoconstrictors	Yes	Yes	Yes	Yes	Yes	No
Use of Early Antibiotic Therapy**	Yes	Yes	Yes	Yes	Yes	Yes
Use of Tocilizumab	No	Yes	Yes	Yes	No	Yes
Use of Ruxolitinib (or Baricitinib) ***	No	Yes	N/A	N/A	N/A	No
Use of Remdesivir****	No	No	No	No	No	Yes
Steroid Use (MPDN)*****	Yes	Yes	Yes	Yes	Yes	Yes
Surgery	Yes (open)	Yes	Yes (laparoscopic)	Yes (open)	Yes (open)	Yes (laparoscopic)
Associated Thrombosis	No	No	No	No	No	Pulmonary Embolism 2 years before
Medical Outcome	Discharged	Death	Death	Death	Discharged	Discharged

* aMV: assisted Mechanical Ventilation

** Antibiotics initiated in any moment before the diagnosis of Acalculous Cholecystitis

*** In 2020, some patients with severe COVID 19 were started on oral Ruxolitinib (or through NG tube) or with Baricitinib

**** In our series, Remdesivir was started to be used broadly, by the end of 2021.

***** MPDN: Methylprednisolone was used in our series, instead dexamethasone due to metabolic risks due to the latter, mainly in people with previously known Diabetes Mellitus (Type 2)

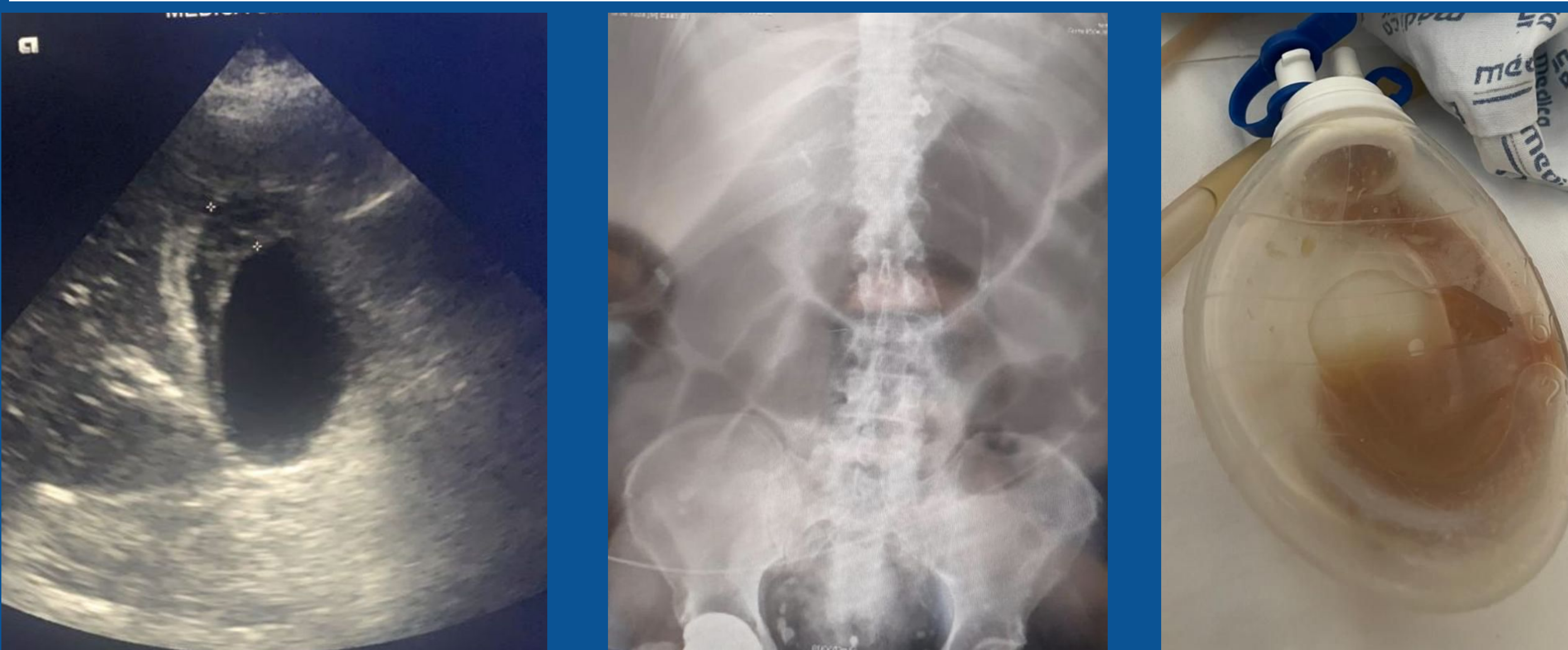


Fig. 1-3: Abdominal (US) scan showing thickened-wall gallbladder with biliary sludge; intestinal ileum (common clinical presentation) and after surgery inflammatory (purulent) biliar drainage