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Case Report

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Acute Acalculous Cholecystitis in Patient with Severe Coronavirus Disease 2019 (Covid-19): Case Report

(*Acute Acalculous Cholecystitis In COVID-19 Infection*)

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Abstract

Acute Acalculous cholecystitis (AAC) is a potentially fatal gallbladder infection occurring in severely ill patients. Combining it with other serious conditions such as advanced forms of SARS-COV infection19 will worsen the prognosis of these patients. Difficulties in the diagnosis of AAC due to the infectious syndrome overwhelmed by the SARS-COV19-related severe inflammatory syndrome are often encountered. The various stages of medical and surgical management in the intensive care unit and operating room will be impacted by the COVID19 context with the difficulty of respiratory and hemodynamic management of these patients and the precautions to be taken to minimize transmission of the infection.

The authors propose this rare clinical case to illustrate the data in the literature for the etiopathogenic understanding of AAC and its management in the context of C0VID 19.

Keywords: *Acute Acalculous cholecystitis, SARS-COV 19, Inflammatory Syndrome, cholecystectomy.*

Introduction

Acute Acalculous cholecystitis (AAC) is an inflammation of the gallbladder, whether or not associated with an infection of its contents, in the absence of vesicular lithiasis. It is a rare condition, occurring in 0.2 to 1% of resuscitation patients [1]. It is related to intrinsic risk factors, including fasting and parenteral nutrition, but also systemic risk factors related to a precarious hemodynamic state. AAC is responsible for significant morbidity and mortality, with a mortality rate of 40% [2]. The authors propose to report a rare observation of AAC, occurring in a field of a Sars-Cov-2 infection, while specifying the particularities of its management.

Case Report

Monsieur D.A, 65 years old, chronic smoke, follow-up for high blood pressure and carrier of ischemic heart disease, admitted for Sars-Cov-2 infection. He had presented 2 days before his admission a febrile syndrome, night sweats, asthenia, abdominal pain and diarrhea. A notion of contact with a confirmed Covid-19 case had been noted. The diagnosis of Covid-19 was based on a positive PCR on a nasopharyngeal swab. The initial chest CT scan showed typical lesions, consistent with a CORADS 5 (Figure 1).

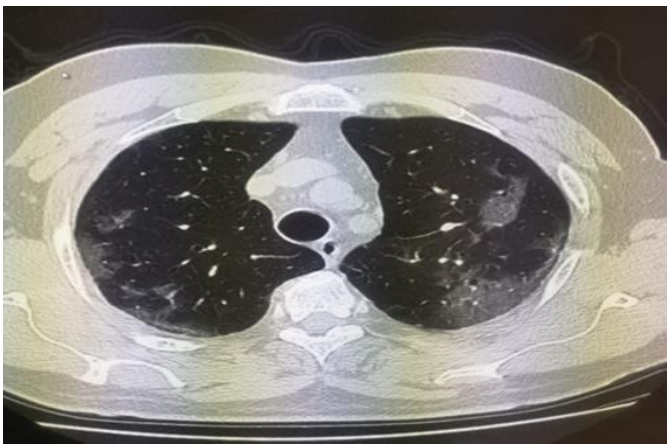

Figure 1: Axial section thoracic scanner showing opacities in frosted glass, mainly posterior, peripheral and sub pleural seat.

Bioassay had shown a moderate inflammatory syndrome with a CRP at 56 mg/L. The patient was placed on specific treatment with hydroxychloroquine and azithromycin, with vitamin supplementation and preventive

anticoagulation. The evolution was marked, 7 days after admission, by clinical aggravation and installation of major respiratory distress, dyspnea and desaturation, requiring intubation and mechanical ventilation. The chest CT scan showed an aggravation of the lesions and the appearance of frosted glasses and crazy paving, rated CORADS 5 (figure2).

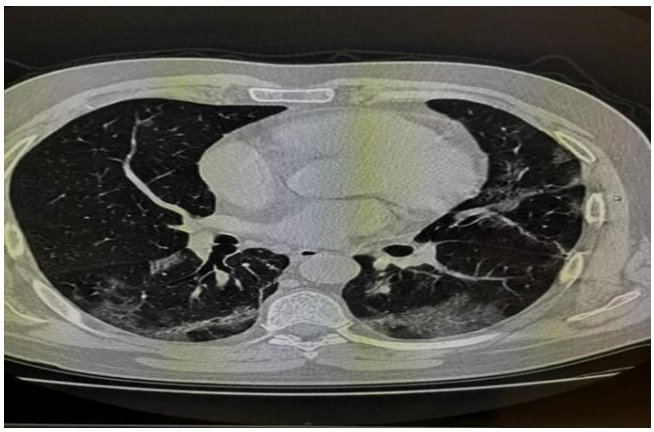

Figure 2: Thoracic CT scan which shows areas of frosted glass of the 2 lower lobes with the appearance of intralobular crosslinks achieving a crazy-paving appearance testifying to the severity of the attack. Note the linear aspect of the condensation on the right.

The inflammatory syndrome had also worsened, with CRP at 333 mg/L, hyperleukocytosis at 17760/mm3, procalcitonin at 3.7 ng/mL, ferritinemia at 3730 ng/mL and D-Dimer at 4212 ng/mL. In addition, lymphopenia was noted at 820/mm3 and renal function was initially conserved. It was decided to administer an antiviral treatment, based on Lopinavir/Ritonavir, combined with corticosteroid therapy and anticoagulation with LMWH at a curative dose. In the absence of any improvement and the onset of renal failure, Tocilizumab-based treatment was administered. Subsequently, 3 days later, the patient developed abdominal distension with resumption of febrile syndrome and worsening of the inflammatory syndrome. Abdominal ultrasonography was performed, showing a peritoneal effusion of great abundance, a thickened-walled gallbladder with perivesicular emphysema bubbles, with no apparent lithiasis (figure.3).

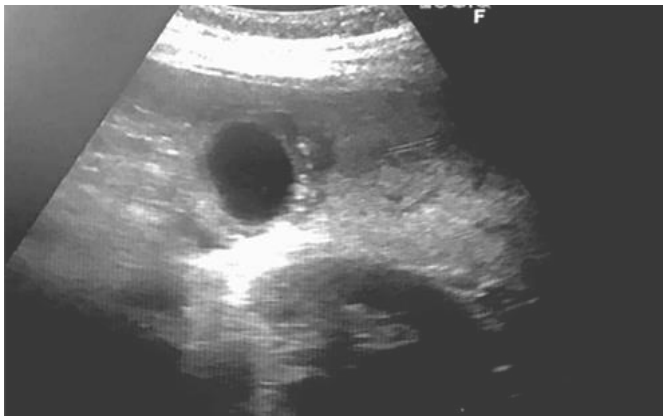

Figure 3: Emphysematous cholecystitis: thickening of the wall of the gallbladder, hypoechoic, circumferential and symmetrical, it measures 15 mm giving it a laminated appearance. Individualization within this thickening of hyperechoic spots with diffraction of echoes in relation to air.

Abdominal CT scan could not be performed. The patient had been placed on tri-antibiotic therapy, Imipenem, Amikacin, Teicoplanin and an antifungal agent by (Fluconazole). The doses were adjusted according to the glomerular filtration rate. Subcostal laparotomy was indicated. General anesthesia was performed with the necessary Covid-19 protective measures. Surgical examination showed (figure 4) an inflamed, thick-walled, non-narrowed gallbladder with abundant ascites. A cholecystectomy was performed without opening the anatomical part, given the Covid-19 context. The immediate post-operative follow-up was marked by stabilization of the hemodynamic and respiratory state, improvement in gastric parameters, and a decrease in CRP to 196 mg/L, but the inflammatory syndrome persisted and even worsened. The patient had died 3 days later in a multivesicular failure table.

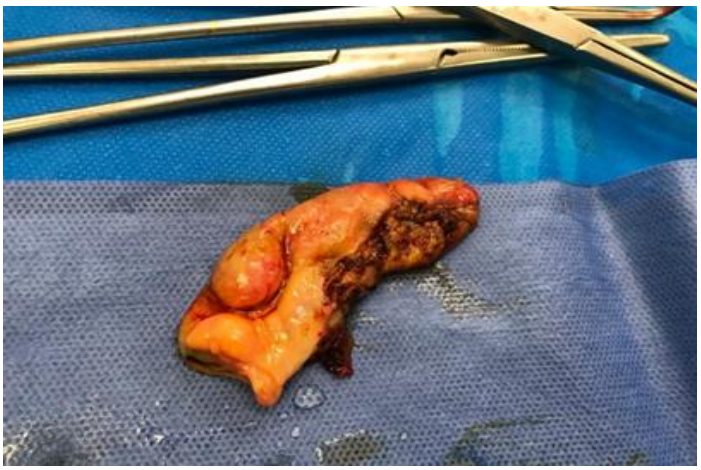

Figure 4: The cholecystectomy room.

Discussion

The incidence of AAC is 0.2 to 1% [1,2,3], this incidence varies according to the associated pathological context: it can reach 3% in postoperative cardiovascular surgery, 3.5% in severe burn patients [3]. AAC occurs most frequently in men over 60 years of age [2]. The frequent association of a cardiovascular field (hypertension, angina) is observed in 35 to 56% of resuscitative AAC, and diabetes in 15 to 25% of cases [2]. The incidence of AAC-related complications remains high, with a mortality rate as high as 40% [1,3].

The pathophysiology of AAC is multifactorial. Biliary stasis and ischemia contribute to it. Biliary stasis is caused by prolonged fasting, parenteral nutrition and certain pharmacological agents (analgesics, opioids). Ischemia may occur as a result of inflammatory and/or septic attacks of the initial pathology. These two physiopathogenic phenomena are favored and aggravated by certain pathological situations frequently encountered in the intensive care unit (sepsis, burns, diabetes, mechanical

ventilation, prolonged fasting, major surgery, heart failure, etc.) [3,4].

The diagnosis of AAC must be made without delay because ischemia can progress rapidly to gangrene and perforation. Physical examination and laboratory tests can be suggestive but are difficult to interpret due to the combination of co-morbidities. These examinations are dominated by ultrasonography, which is an innocuous, reproducible, highly sensitive examination [5,10], and capable of identifying other adjacent pathologies. It allows the diagnosis and suggests the gangrenous nature in complicated forms. The main criteria evaluated in ultrasonography are the thickness of the vesicular wall, the presence of sludge, perivesicular effusion, interparietal gas, a flaky aspect of the vesicular wall and the presence of an ultrasound Murphy. The CT scan, which is more difficult to access for these patients due to the severity of the terrain, is the second-line examination in the specific diagnosis of cholecystitis acquired in resuscitation. It is particularly suitable for detecting inflammation, periventricular effusion, significant changes in the vesicular wall or another intra-abdominal cause of sepsis. Hepatobiliary scintigraphy, classically described as the third diagnostic possibility [5]. the difficulty of performing it does not offer a place for the diagnosis of AAC in the intensive care unit patients.

The treatment is essentially surgical [5,10], with three treatment options: surgical cholecystectomy, percutaneous drainage and endoscopic gallbladder drainage. This surgical treatment must be preceded by rapid medical preparation based on hydroelectrolytic rebalancing and correction of pre-existing defects, broad-spectrum antibiotic therapy covering anaerobic germs and possibly correction of blood cramps. In addition to the particularities linked to this rare pathology, there is also the particular context of COVID 19 with its impact on patient prognosis and the course of care. Our case had several factors raised in the literature [6, 7] favoring the onset of AAC: his cardiovascular history, the impact of the inflammatory syndrome with the cytokine storm presented by our patient on the alteration of gallbladder contraction and vascularisation, aggravating the phenomena of ischemia reperfusion which will lead to the onset of AAC. The other factors favoring AAC in our patient included: prolonged fasting, mechanical ventilation, parenteral nutrition and especially severe sepsis linked to the SARS-CV virus19. The diagnosis of AAC in our case was oriented by the onset of fever, abdominal distension and an increase in the CRP level, confirmed by a bedside ultrasound. These evocative signs are not always obvious and can be drowned out and linked to SARS-COV19 infection, hence the interest of mastering good sonographic practices in the follow-up of intensive care unit patients.

Abdominal CT scanning is not always possible in this pathological context given the hemodynamic instability of these patients who are often hypoxic and under catecholamines, and this was the case of our patient whose gasometric parameters evoked severe acidosis with hypoxia and hypercapnia and was under high doses of norepinephrine. The surgical indication was taken after a collegial decision and preparation of the COVID+ patient circuit, and preparation of the entire environment in the operating room [8, 9], starting with the protection of personnel and the availability of all PPE (personal protective equipment), minimizing the number of staff members in order to reduce the risk of contamination [9], verbalization and display of all procedures (dressing, transport, waste management...) developed by the hospital's hygiene team and infectious diseases specialists. For the operating theatre, a negative pressure operating room outside the circulation areas should be designated for this particular situation [9], and suction devices should be used intensively to remove body fluid and smoke to prevent airborne viral transmission [9]. In our case exploratory laparotomy was chosen instead of laparoscopic procedures because of the manageable operating time and the uncertainty of airborne transmission, and because our patient, like all serious COVID19 patients, was very hypoxic and at risk of being aggravated by the side effects of pneumoperitoneum. And we suggest that teams planning to perform minimally invasive procedures need to pay more attention to the establishment and removal of artificial pneumoperitoneum, as well as any air leakage from trocar sites.

The major anesthetic constraint was the management of severe intraoperative hypoxia by adjusting ventilatory parameters according to gasometry data. Surgical exploration discovered a distended gallbladder with thickened wall, without gangrene, with abundant ascites. Elsewhere we have found that wearing full PPE is quite uncomfortable, and practice in such conditions can be more difficult and technically demanding than usual. And even experienced anesthetists and surgeons must be wary of the disturbances caused by the mist that forms on glasses and visors.

Conclusion

SARS-VOC 19 infection in its severe forms and CA are two severe pathologies responsible for a heavy morbidity and mortality. The clinical picture of CA may be drowned in the severe inflammatory syndrome of the first entity leading to unexplained aggravation. Hence the importance of a good knowledge of the particularities of these serious pathologies in order to improve the management of our patients.

The authors have no conflicts of interest to disclose.

References

1. T. Degroote · V. Chhor · M. Tran · F. Philippart · C. Bruel. Acute Cholecystitis in Critically-Ill Patients. Méd. Intensive Réa (2019) 28:443-450
2. E. Vibert, D. Azoulay. Alithiasic cholecystitis in adults: etiologies, diagnosis and treatment. The letter from the hepato-gastroenterologist. n°3-vol. IV-June 2001.

3. Kim SJ, Lee SJ, Lee SH, Lee JH, Chang JH, Ryu YJ, (2018). Clinical characteristics of patients with newly developed acute cholecystitis after admission to the intensive care unit. Aust Crit Care 32(3): 223–228
4. Walsh K, Goutos I, Dheansa B, (2018). Acute acalculous cholecystitis in burns: a review. J Burn Care Res 39: 724–728.
5. Kalliafas S, Ziegler DW, Flancbaum L, Choban PS, (1998) Acute acalculous cholecystitis: incidence, risk factors, diagnosis, and outcome. Am Surg 64: 471–475.
6. Balmadrid B, (2018) Recent advances in management of acalculous cholecystitis. F1000 Research 7 :1660.
7. Laurila JJ, Ala-Kokko TI, Laurila PA, Saarnio J, Koivukangas V, Syrjälä H, (2005) Histopathology of acute acalculous cholecystitis in critically ill patients. Histopathology 47: 485–492.
8. Yunhe Gao, MD, Hongqing Xi, MD, PhD, and Lin Chen, MD, PhD. Emergency Surgery in Suspected COVID-19 Patients with Acute Abdomen: Case Series and Perspectives. Ann Surg. 2020 APR 13.
9. Shuai Zhao, MD, Ken lings, Anesthetic Management of patients with COVID19 Infection during Emergency Procedures. Journal of cardiothoracic and vascular Anesthesia. 34(2020) 1125-1131.
10. Charles C.Owen, Rajeev Jain. Acute Acalculous Cholecystitis: Current Treatment Options in Gastroenterlogy. 2005, 8: 99-104.