Traumatic Pseudo-aneurysm of the Hepatic Artery in a 12 Year Old Child, Case Report and Literature Review

Abstract: Background: COVID 19 pandemic has caused additional challenges and insurmountable psychosocial impact for patients with opioid use disorders. The particularly challenging group include those seeking treatment with medication for OUD patients. This article discusses the bi-directional effects between opioid use disorder patients and covid 19. Method: PubMed and Google Scholar were searched with the following keywords- “COVID-19”, “opioid use disorder”, “pandemic”, “behavioural addiction”, “opioid”, “opioid agonist therapy”. Results: People with opioid use disorder are at a heightened risk of acquiring and increased severity of COVID 19 infections due to compromised immunity, homelessness or housing instability, lockdown and social distancing leading to failure of rehabilitation strategies, mucociliary dysfunction, cardiopulmonary morbidities, etc. Conclusion: COVID 19 pandemic and opioid use disorder is on the verge of the collision so every effort must be taken by the government and health care sector to prevent a big wave of opioid overdose and relapse in our community.

Keywords: Traumatic; pseudo-aneurysm, hepatic artery, child.

INTRODUCTION

The pseudo-aneurysm is defined as a blood mass formed following a vascular wound and retained by the tissues surrounding the affected vessel. The hepatic artery and its branches tend to become the first location of splanchnic aneurysms (Shanley, C. J. et al., 1996). Post-traumatic pseudo-aneurysm of the hepatic artery remains a rare entity, found in nearly 1.2% of abdominal trauma with liver damage (Crocce, M. A. et al., 1994). We report the case of a young patient treated for abdominal trauma with Post-traumatic pseudo-aneurysm of the hepatic artery.

OBSERVATION:

We report the case of a 12-year-old patient, with no particular known history, admitted to our structure for abdominal trauma following a bicycle accident. The initial clinical examination found a conscious patient, hemodynamically and respiratory stable, normally colored conjunctivae with significant sensitivity and no defense in the right hypochondrium. An abdominal scan (Fig 1) showed a hepatic fracture grade 3 affecting segments V-VI and VIII, the presence of abundant peritoneal effusion with a laceration of the cephalic portion of the pancreas. The biological assessment found an Hb at 9.3 g/dl with 300,000 platelets, the crasis assessment was normal, the lipasemia at 7 and hepatic cytolysis markers at 3 times normal. Surgery was not retained and the patient had symptomatic treatment. Following the installation of an episode of hematemesis, the patient had an esogastroduodenal fibroscopy, which had objectified bleeding in the fundus. The patient was put on a proton pump inhibitor at a curative dose with antiemetic drugs. Because of the persistence of hematemesis, worsening abdominal pain, installation of subicetus and hemodynamic instability, the patient was transferred to intensive care where he received mechanic ventilation and transfusion of 2 red blood cells and 2 Fresh frozen plasma, as well as hemodynamic support by norepinephrine, in addition to anti fibrinolitiks in order to stabilize the patient's condition. Our young patient was admitted within an hour to the operating room for exploration. The laparotomy revealed the presence of a hemoperitoneum of average abundance, bleeding with ulceration at the level of the gastric antrum with distension of the gallbladder. Surgical hemostasis was ensured by stitches in X. The evolution was marked by the non-improvement which was manifested by the persistence of digestive bleeding with anemia.

Received: 25.03.2022
Revision: 29.03.2022
Accepted: 05.04.2022
Published: 10.04.2022

Author Details
El Hadloussi Abdelaziz1, Afrikh Mohammed2, Abidi Asmae3, El Hamdouchi Hajar1, N’joumi Younes4, Aziza Bentalah1, Alae El Koraichi1 and Salma Es-Sherif Kettani1

Corresponding Author*
El Hadloussi Abdelaziz

How to Cite the Article:

Copyright @ 2022: This is an open-access article distributed under the terms of the Creative Commons Attribution license which permits unrestricted use, distribution, and reproduction in any medium for non commercial use (NonCommercial, or CC-BY-NC) provided the original author and source are credited.

DOI: 10.47310srjcms.2022.v02i02.007
An abdominal ultrasound was performed after the patient's transfusion which found an hypoechoic image next to the vessels of the hepatic pedicle, leading to the suspicion of a pseudoaneurysm of the hepatic artery. Arteriography (Fig 2) with catheterization of the hepatic artery confirmed the presence of a 3 centimeter pseudoaneurysm supplied by a branch of the right hepatic artery. An embolization by synthetic material was carried out, having allowed a spectacular improvement of the patient's condition within 6 hours. The patient left intensive care 72 hours after embolization.

**DISCUSSION:**

The pseudo-aneurysm is defined as a blood mass formed following a vascular wound and retained by the tissues surrounding the affected vessel. It differs from the true aneurysm which is limited by the vascular wall or one of its layers and notably includes dissecting and sub-adventitial aneurysms. The hepatic artery and its branches tend to become the first location of splanchnic aneurysms (Shanley, C. J. et al., 1996). Post-traumatic pseudo-aneurysm of the hepatic artery remains a rare entity, found in nearly 1.2% of abdominal trauma with liver damage (Croce, M. A. et al., 1994). It is most often associated with significant liver damage (Quincke, H. 1871), as is the case of our patient. Until today, only twenty cases have been published (Chigot, V. et al., 2003). The causes were once dominated by contusions and abdominal wounds of traumatic origin, cholepancreatic surgery, liver transplantation, laparoscopic surgery. More rarely, the pseudo-aneurysm of the hepatic artery is of mycotic origin, congenital in the context of certain vasculitis (Mahi, M. et al., 2001). Note that the initial restorative treatment of post-traumatic liver damage can also contribute to the development of these false aneurysms (Croce, M. A. et al., 1994).

It is noted that this entity is asymptomatic in 90% of cases, but it can sometimes manifest itself by pain in the right hypochondrium, cholestatic jaundice (50%), and digestive hemorrhage carrying out a triad, described under the name of "Triad of Quincke". Anemia or a palpable tumor mass can also be found in certain clinical forms (Quincke, H. 1871). The time elapsed between the trauma and the discovery of the aneurysm goes from a few weeks to several months, making it difficult to establish the diagnosis (Iccario, V. et al., 1995). The worst complication remains aneurysmal rupture (which is the case in our observation). The patient presente hemorrhagic shock, with a pejorative prognosis and a high mortality rate despite the progress of medical and surgical procedures (Shanley, C. J. et al., 1996). Rupture can occur in the free peritoneum or in adjacent organs: bile duct, gastrointestinal tract, portal vein or Wirsung duct. Aneurysmal thrombosis is often asymptomatic and even constitutes a mode of cure.
The confirmation of the diagnosis goes through the realization of a paraclinical assessment, based on:

- X-ray of the abdomen without preparation sometimes shows calcifications projecting onto the right hypochondrium, reproducing the circumference of the false aneurysm.
- Abdominal ultrasound reveals the presence of a formation with fluid content next to the vessels of the hepatic pedicle or in continuity with them, but cannot in itself define the vascular nature of the lesion. It must be coupled with color Doppler or, at best, Doppler in power-energy mode, which confirms with great specificity the vascular nature of the sac and its circulating nature.
- It allows to guide a possible percutaneous embolization and to control the effectiveness of the treatment and the evolution of the aneurysmal sac.
- Computed tomography performed in helical mode before and after intravenous injection of contrast product and acquisition in the arterial phase, identifies the lesion with great anatomical precision: intense contrast enhancement of the aneurysm in the arterial phase.
- Arteriographic examination provides rich anatomical information relating to the hepatic aneurysmal sac and any associated lesions, but remains invasive and should be reserved for cases where embolization is planned (Mahi, M. et al., 2001).

The therapeutic strategy is not codified. It varies on a case-by-case basis.

Surgery has been supplanted by interventional radiology, which consists of embolization of the feeder artery on either side of the false aneurysm (Tétreau, R. et al., 2007) or by placement of a stent (Singh, C. S. et al., 2006). It should be noted that surgery is still indicated in certain difficult cases or in an emergency situation (Acharki, M. et al., 2009).

Regarding the management of hemorrhagic shock, and especially in children, as is the case in our observation. It is important to make the diagnosis quickly, something that is not easy especially in a pediatric environment because of the pathophysiological particularities of the child, particularly in cases of internal bleeding. In infants and young children, blood pressure is maintained longer than in adults and adolescents due to very intense sympathetic vasoconstriction in response to hypovolemia. Tachycardia is the first sign to look for. Management combines hemostasis of the bleeding lesion and hemodynamic resuscitation to maintain satisfactory cellular oxygenation.

CONCLUSION:
Post-traumatic pseudo-aneurysm of the hepatic artery remains a rare entity, found in nearly 1.2% of abdominal trauma with liver damage. It is noted that this entity is asymptomatic in 90% of cases. The time elapsed between the trauma and the discovery of the aneurysm goes from a few weeks to several months, making it difficult to establish the diagnosis.

In our case we had been confronted to the worst complication called aneurysmal rupture, with a pejorative prognosis and a high mortality rate despite the progress of medical and surgical procedures. The good management makes it possible to save the patient.

REFERENCES: