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Pseudo aneurysm of the right hepatic artery after laparoscopic cholecystectomy. A case Report

Pseudo anévrisme de l'artère hépatique droite après cholécystectomie laparoscopique. A propos d'un cas

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ABSTRACT

Pseudo aneurysms after laparoscopic cholecystectomy are rare and manifest as late hemobilia which is difficult to diagnose and manage. This condition mainly affects the right branch of the hepatic artery and the prognosis is poor. We report the case of an patient diagnosed with a pseudo aneurysm 10 days after laparoscopic cholecystectomy. Following radiological exploration, hemobilia was identified on the 10th postoperative day. In this case, selective embolization was not possible and therefore a ligation of the right hepatic artery was performed. The postoperative period was marked by the reappearance of hemobilia evoking the diagnosis of vascular shunts in the hepatic hilum, and double ligation of the right hepatic artery was required.

Keywords: Pseudo aneurysm; laparoscopic vascular trauma; right hepatic artery trauma; Hemobilia.

RESUME

Les pseudo-anévrismes après cholécystectomie laparoscopique sont rares et se manifestent par une hémobilie tardive difficile à diagnostiquer et à prendre en charge. Cette affection touche principalement la branche droite de l'artère hépatique et le pronostic est sombre. Nous rapportons le cas d'un patient diagnostiqué avec un pseudo-anévrisme survenu 10 jours après une cholécystectomie laparoscopique. Après exploration radiologique, une hémobilie a été identifiée au 10ème jour postopératoire. Dans ce cas, l'embolisation sélective n'a pas été possible et une ligature de l'artère hépatique droite a été réalisée. La période postopératoire a été marquée par la réapparition d'hémobilies évoquant le diagnostic de shunts vasculaires dans le hile hépatique, et une double ligature de l'artère hépatique droite a été nécessaire.

Mots-clés : Pseudo-anévrisme ; traumatisme vasculaire laparoscopique ; traumatisme de l'artère hépatique droite ; Hémobilie.

INTRODUCTION

Laparoscopic cholecystectomy carries the risk of iatrogenic vascular and biliary trauma, especially in countries where this technique is not commonly practiced. Pseudo aneurysms represent one of these rare but poor prognostic complications; they are difficult to diagnose because they are asymptomatic [1]. The potential evolution of pseudo aneurysms towards rupture requires rapid diagnosis and management. Surgery is the last resort if interventional radiology fails [2].

CASE REPORT

A 44 years old woman with a medical history of gravidic hypertension, operated for vesicular lithiasis for which laparoscopic cholecystectomy was performed. The surgeon noted a hemorrhagic accident which he controlled with several clips. On the 10th postoperative day, the patient presented with a hemorrhagic syndrome with melena, hematemesis, jaundice, dark urine and discolored stools. She was readmitted to the hospital in her home town.

A biological examination was performed identifying a cholestasis syndrome made of: total bilirubin at 2xN, direct bilirubin at 3.5xN, PAL at 3.5xN and a hepatic cytolysis syndrome: TGO at 2xN, lipasemia at 19xN. An abdominal CT scan was performed and identified dilation of the intra- and extra-hepatic bile ducts without detectable obstruction with stage B pancreatitis.

The patient was referred to our center where a fibroscopy was performed to explore her bleeding and identified erythematous antral gastritis and a blood clot attached to the papilla asserting the diagnosis of hemobilia [1].

Hepatic echodoppler was performed and identified a vascular structure on the hepatic hilum dilated at 20 mm, partially thrombosed, with arterial flow corresponding to an aneurysm of the partially thrombosed hepatic artery. An abdominal angioscan confirmed the diagnosis of a false aneurysm with the presence of surgical metal clips around the right hepatic artery and the absence of a biliary fistula (figure 1). The patient was put on proton pump inhibitor and sandostatin.

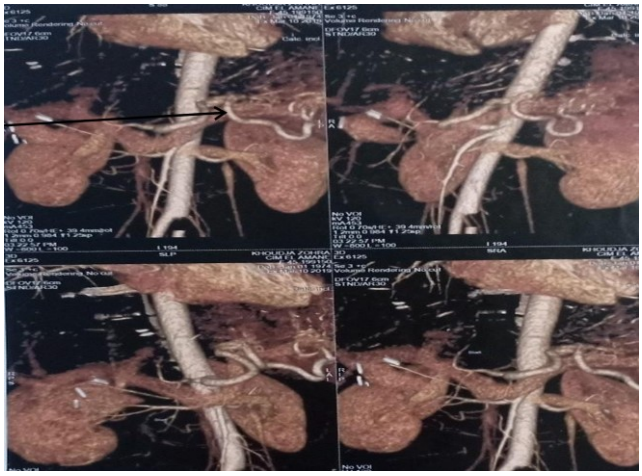

Figure 1. Coeliomesenteric angioscan showing a pseudo aneurysm of the right hepatic artery, the latter arising from the superior mesenteric artery.

Due to the unavailability of an embolization center, the patient was brought to the operating room for surgical exploration which revealed aneurysmal sac in the hepatic hilum, and an undilated bile duct and clear bile. Dissection of the hepatic hilum elements, dissection of the common hepatic artery, gastro duodenal artery, dissection and ligation of the right hepatic artery arising from the superior mesenteric artery without sectioning was performed.

In our case, since arterial embolization was not possible, we decided to perform a surgical procedure in which a ligation of the right hepatic artery was performed. On the tenth postoperative day, the reappearance of hemobilia was noted, highlighting the importance of the vascular anastomoses within the hepatic hilar plaque, particularly between the right and left hepatic arteries [3]. Consequently, proximal and distal ligation of the right hepatic artery has become the treatment of choice, successfully performed in our case. Patient who progressed well postoperatively and was discharged after 7 days [4].

DISCUSSION

Pseudo aneurysms are distinguished from true aneurysms by the wall of the artery which is preserved, pseudo aneurysms are blood masses caused by vascular trauma surrounded by the tissues surrounding the affected vessel. Hepatic arteries tend to become the first location of traumatic aneurysms due to the development of numerous radiological techniques, particularly laparoscopic techniques on the liver and interventional radiology and hepatobiliary surgery [5-8]. Their evolution is classically described as an increase in size with a risk of rupture in the bile ducts, portal system, jejunum, or peritoneal cavity. However, in the absence of complications, these false aneurysms remain asymptomatic or discovered either on the appearance of clinical signs: hepatic colic, jaundice and haemobilia, the triad of Quincke [2, 9, 10].

A recent study showed that laparoscopic cholecystectomy was associated with an increased risk of hemobilia compared to the conventional open approach [1, 11, 12]. Laparoscopy has replaced the open route for cholecystectomy but the risk of biliary injury is increased. It is 0.5% while it is of 0.2% by open approach [13].

The mortality rate in the laparoscopic approach is around 20% in case of rupture [3, 14].

The exact incidence of these traumas under laparoscopy is not known. On the one hand, this type of accident is rarely published; on the other hand it is likely that ligation of the right branch of the hepatic artery can sometimes go unnoticed [6]. The importance of clinical manifestations as well as their early or delayed onset depends on the mechanism, location and complexity of the lesions.

In our case report, the injury to the arterial wall resulted in the formation of a false right branch aneurysm of the hepatic artery which was revealed secondarily by a hemobilia. Several cases of post cholecystectomy aneurysms have been described [15]. Pulsed echodoppler can guide the diagnosis of arterial aneurysm and guide percutaneous embolization [3, 15] Coeliomesenteric arteriography is the essential examination to make the diagnosis and identify the lesion and specify its exact location [3, 16].

Radiological embolization provides the most effective way to control the bleeding. This will avoid the surgical difficulties associated with inflammatory lesions of the hepatic pedicle and the risk of injury to the hepatic artery or the main bile duct during dissection [5], it is considered the most effective therapeutic weapon for treating pseudo aneurysm [17]. Having become the therapy of choice after selective catheterization, the use of micro-coils allows the exclusion of the false aneurysm and the preservation of the arterial branch. Success rates range from 81 to 96% [18]. Percutaneous embolization represents an effective alternative in interventional radiology centers [17].

CONCLUSION

Laparoscopic cholecystectomy carries the risk of trauma to the hepatic artery, particularly its right branch. Hemobilia is the main clinical sign and the diagnosis is made by mesenteric arteriography. The importance of the vascular anastomoses of supplements (shunts) within the hepatic hilar plaque, in particular between the right hepatic artery and the left hepatic artery, imposes a double high and low ligation with respect to the pseudo aneurysm of the right hepatic artery or the left hepatic artery.

DECLARATION D'INTERETS

Les auteurs ne déclarent pas de conflits d'intérêts en rapport avec cet article.

REFERENCES

1. Green MH, Duell RM, Johnson CD, Jamieson NV. Haemobilia. Br J Surg. 2001 Jun;88(6):773-86. doi: 10.1046/j.1365-2168.2001.01756.x.
2. Régent D, Laurent V, Meyer-Bisch L, Barbary-Lefèvre C, Corby-Ciprian S, Mathias J. La douleur biliaire: comment la reconnaître? Comment l'explorer? [Biliary colic: imaging diagnosis]. J Radiol. 2006 Apr;87(4 Pt 2):413-29. French. doi: 10.1016/s0221-0363(06)74024-0.
3. Abboud B., Ghossain A., Thome C., Atallah N., Abi Ghanem S., FARAH P. Anévrisme de l'artère hépatique traité par embolisation. J. Chir (Paris), 13 1, N' 5, 252-256, 1994
4. Harlaftis NN, Akin JT. Hemobilia from ruptured hepatic artery aneurysm. Report of a case and review of the literature. Am J Surg. 1977 Feb;133(2):229-32. doi: 10.1016/0002-9610(77)90087-3.
5. Pilleul F, Forest J, Beuf O. Angiographie par résonance magnétique dans les anévrismes et pseudoanévrismes des artères splanchniques. J Radiol. 2006;87(2 Pt 1):127–31.

6. Shanley CJ, Shah NL, Messina LM. Common splanchnic artery aneurysms: splenic, hepatic, and celiac. Ann Vasc Surg. 1996 May;10(3):315-22. doi: 10.1007/BF02001900.

7. Fabian TC, Croce MA, Stanford GG, Payne LW, Mangiante EC, Voeller GR, Kudsk KA. Factors affecting morbidity following hepatic trauma. A prospective analysis of 482 injuries. Ann Surg. 1991 Jun;213(6):540-7; discussion 548. doi: 10.1097/00000658-199106000-00003.

8. Marcheix B, D.C., Cron C, et al, Embolisation transhépatique percutannée d'un pseudoanevrysme posttraumatique de l'artère hépatique. Ann chir 2004 Doi : 10.1016/j.anchir.2004.10.003 P.603-606

9. SANDBLOM P. Hemorrhage into the biliary tract following trauma; traumatic hemobilia. Surgery. 1948 Sep;24(3):571-86.

10. Quinke H. Ein Fall von Aneurysma der Leberarterie. Klin Wochenschr. 1871;88:773–86

11. Stewart BT, Abraham RJ, Thomson KR, Collier NA. Post-cholecystectomy haemobilia: enjoying a renaissance in the laparoscopic era? Aust N Z J Surg. 1995 Mar;65(3):185-8. doi: 10.1111/j.1445-2197.1995.tb00604.x.

12. Iannelli A, Karimdjee BS, Fabiani P, Benizri EI, Converset S, Medjoubi SA, Bornet P, Gugenheim J. Hémobilie par pseudoanévrysme de la branche droite de l'artère hépatique après cholécystectomie coelioscopique [Hemobilia due to pseudoaneurysm of the right hepatic artery following laparoscopic cholecystectomy]. Gastroenterol Clin Biol. 2003 Mar;27(3 Pt 1):341-3. French.

13. Southern Surgeons Club. A prospective analysis of 1518 laparoscopic cholecystectomies. N Engl J Med. 1991 Apr 18;324(16):1073-8. doi: 10.1056/NEJM199104183241601. Erratum in: N Engl J Med 1991 Nov 21;325(21):1517-8.

14. Saltzberg SS, Maldonado TS, Lamparello PJ, Cayne NS, Nalbandian MM, Rosen RJ, Jacobowitz GR, Adelman MA, Gagne PJ, Riles TS, Rockman CB. Is endovascular therapy the preferred treatment for all visceral artery aneurysms? Ann Vasc Surg. 2005 Jul;19(4):507-15. doi: 10.1007/s10016-005-4725-3.

15. Kelley CJ, Hemingway AP, Mcpherson GA, Allison DJ, Blumgart LH. Non-surgical management of post-cholecystectomy haemobilia. Br J Surg. 1983 Aug;70(8):502-4. doi: 10.1002/bjs.1800700815.

16. Mk. Lahlou - A. Akhadar - B. Chad - E. Mohammadine S. Benamer - A. Essadel - A. Taghy - A. Zizi - A. Belmahi , Médecine Du Maghreb 1998 N°72 Hemobilie Post Cholecystectomie A Propos D'un Cas.

17. Iaccarino V, Marano I, Santini G, Della Noce M, Trivellini V. Trattamento non chirurgico degli pseudoaneurismi dell' arteria epatica e dei suoi rami [Non-surgical treatment of pseudoaneurysm of the hepatic artery and its branches]. Radiol Med. 1995 Jun;89(6):841-5. Italian.

18. Genyk YS, Keller FS, Halpern NB. Hepatic artery pseudoaneurysm and hemobilia following laser laparoscopic cholecystectomy. A case report. Surg Endosc. 1994 Mar;8(3):201-4. doi: 10.1007/BF00591830.

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