

Hemoperitoneum after percutaneous liver biopsy. Videolaparoscopic management



Ann. Ital. Chir., 2006; 78: 65-67

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BACKGROUND: *Percutaneous liver biopsy is a safe procedure, with a low rate of major complications. Among these massive hemoperitoneum is the most life threatening, and its management sometimes leads to an emergency invasive surgical approach.*

CASE REPORT AND RESULTS: *The following case highlights the possible role of laparoscopy in diagnosis and treatment of this condition. In this patient a significant intraperitoneal bleeding developed from a liver lesion 48 hours after needle-biopsy. Videolaparoscopic exploration evidenced a grade III laceration of the right lobe, successfully managed with coagulation and apposition of an absorbable haemostatic gauze. Peritoneal toilette and multiple drains completed the procedure. No surgical complications developed and the patient was discharged on 5th post-operative day.*

DISCUSSION: *Minimally invasive surgery has been, in this case, an adequate alternative for the treatment of this bleeding complication of liver biopsy, offering advantages in terms of low morbidity, quick recovery and satisfying cosmetic results.*

CONCLUSIONS: *Laparoscopy is gaining a prominent role in penetrating liver trauma, whenever conservative or angiographic management fails, and should be considered as the first surgical attempt especially in patients with stable hemodynamics despite active intraperitoneal bleeding.*

KEY WORDS: Bleeding complications, Laparoscopy, Liver biopsy.

Introduction

Percutaneous liver biopsy (PLB) is an in or out-patient procedure diffused in most hospitals. A particularly elevate number of biopsies in our area depends on endemic infection by hepatitis B and C viruses. Nowadays it is a very safe procedure, and the actual risk of bleeding is estimated to range between 0.04 and 0.16% in non-malignant disease¹. Major bleeding generally requires a prompt surgical solution, and it has been traditionally managed by a wide laparotomy. After the initial experiences as a diagnostic and therapeutic tool in penetrating abdominal stab wounds, minimally-invasive procedures are gaining consense, even if we found only one

other case report in Literature concerning bleeding after PLB managed by means of laparoscopy².

Case report

A 45 years old woman, with a history of non-insuline-dependent-diabetes mellitus (NIDDM) was admitted with abdominal pain two days after an in-patient PLB, performed with a tru-cut needle under ultrasound -guidance. In fact the patient was affected by HCV infection, and the study of liver morphology was necessary in order to begin interferon therapy. Pain was referred as continuous, located in the upper right quadrant, and no abnormalities were present in laboratory findings and abdomen US (absence of intra-hepatic hematomas, small fluid collection in Douglas, hemoglobin -Hgb- value 10.4 g/dl, hematocrit -Hct- 30%, normal coagulation values). After 24 hours of observation the patient had a syncope, with an initial hemodynamic shock, promptly reversed after infusion bolus (1000 ml of crystalloid solution). Hgb and

Pervenuto in Redazione Giugno 2006. Accettato per la pubblicazione Luglio 2006

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Hct values dropped to 8.7 g/dl and to 25.5%; abdomen CT with contrast media evidenced a liver laceration in VI-VIIIth segment, and a fluid collection (showing a density compatible with blood) of more than 2000 ml, situated in Douglas, around the liver, the spleen and the intestine. The patient was then transferred to the operating theatre for surgical exploration. Pneumoperitoneum was obtained using a standard umbilical Hasson "open technique". The initial exploration evidenced a massive hemoperitoneum (more than 2000 ml) and a grade III laceration (glissonian tear over a large parenchymal hematoma) with interest of VI and VII hepatic segment, about 8 cm long and 3 cm wide, showing active bleeding. Three other trocars were placed, one (5 mm) in the right flank, one (5 mm) under the xyphoid prominence, and one (10 mm) in the left sub costal position, along the hemiclavear line. Clots were washed out and an active oozing bleeding was evidenced; a gauze was placed over the laceration and the patient was positioned in right decubitus (about 30 degrees) in order to obtain compression on the lesion. Then we proceeded to aspiration and wash-out of blood from the entire cavity, and only after about 15 minutes we returned to the hemorrhagic focus, that had almost completely coagulated in the meantime. Bipolar cauterization of superficial and sub-glissonian vessels and apposition of an absorbable haemostat (oxidized regenerated cellulose - Surgicel® by Ethicon) completed hemostasis and multiple drainages were positioned in the right paracolic gutter, the sub and supra-hepatic space, the splenic fossa and the Douglas space. The patient was transfused intraoperatively with 2 units of packed blood cells, and didn't require any other transfusion, remaining her Hgb values stable around 9.5 g/dl. Drainages were removed after three days, one day after canalization and reprise of oral intake, and was discharged on 5th post operative day, completely asymptomatic.

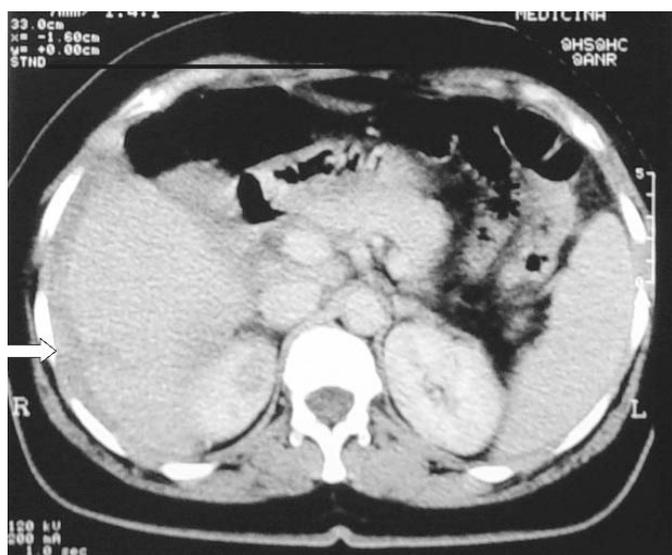


Fig. 1: CT scan with evidence of hemoperitoneum and VI segment liver lesion.

Discussion

This potentially fatal complication of PLB is rare, but can occur even more than 24 hours after the event³, especially in case of expanding subcapsular hematomas, as in the present case. Higher risk of bleeding is related to age, sex, malignancy and number of needle passes¹. In this patient no predictable risk factors were evidenced. The incidence of hemorrhagic events is very low, and mortality doesn't exceed 1/10000⁴. Despite this, the traditional management implies laparotomy, ligation or direct coagulation of bleeding vessels, followed by drainage and the wash out of blood from the cavity. In order to prevent this situation various authors have proposed laparoscopic (or mini-laparoscopic) guided biopsy⁵, but for its costs the procedure remains limited to high-risk patients. Along with the increasing experience gained in emergency laparoscopy, including that of stab wounds and spleen ruptures⁶, some papers have reported mini-invasive procedures in PLB complications: one case, similar to the present one, has been described by Femi-Pearse², concerning a liver lesion managed with coagulation and fibrin-gluze deposition after failure of conservative and angiographic attempt. Three cases of hemobilia and bile peritonitis managed in laparoscopy (cholecystectomy and ligation of the right branch of the hepatic artery) are described by Gama-Rodrigues⁷. In our case the angiographic embolization was not feasible, for emergency ambulance transfer to the reference hospital was not safe in a potentially unstable patient. The diagnostic sensibility of ultrasound may be low in particularly obese or gas filled abdomens⁸ (as evidenced in our case, where the first US didn't show the sub capsular hematoma which was likely to be present at the time), so we suggest CT scan for its higher accuracy in diagnosis of suspected liver lesions. In regard of post-operative adhesions, laparoscopy has demonstrated its advantages⁹ in terms of lower occlusion rate and better wash out of every part of the cavity where fluid collections can be found, and the correct positioning of multiple drainages (that we recommend for the complete washout of the cavity) is easy and made under direct vision. The operating table and trocar positions may resemble those of the laparoscopic right adrenalectomy or cholecystectomy (depending on the site of lesion), with the patient in left anti-Trendelenburg decubitus, and the mobilization of the right hepatic lobe required is minimal. The use of haemostatic re-absorbable gauze associated to compression on the hemorrhagic lesion is a common practice in traditional surgery, and can be easily applied also in laparoscopy: this can sometimes be an alternative to the use of more expensive fibrin glue or similar devices. Advantages may be obtained even in terms of operative time as a sub-costal incision closure can require as long as half an hour, especially in obese patients (in this case the operating time was 75 minutes). The laparoscopic

aspirator can easily be connected to an auto-transfusion device, to minimize the need for intra-operative blood request. Reprise of oral intake is fast (usually in 2nd post operative day) if no complications occur, and discharge might be very quick.

Conclusions

We acknowledge that this pathology represents the optimal indication for diagnostic and therapeutic laparoscopy between the stab wounds of the abdomen, for the complete mini-invasive management is likely to succeed in a high percentage of cases, in consideration of the very high invasiveness of the traditional surgical alternative, that requires wide incisions in order to obtain a proper light in an area of difficult direct vision.

Riassunto

PREMESSA: La biopsia epatica percutanea è oggi una procedura sicura, gravata da una minima percentuale di complicanze maggiori. Tra queste l'emoperitoneo massivo è senza dubbio tra le più temibili, necessitando talora di un approccio chirurgico invasivo d'urgenza.

CASO CLINICO E RISULTATI: Il caso descritto illustra il possibile ruolo della laparoscopia nella diagnosi e nel trattamento di questa complicanza. Questa paziente aveva sviluppato un significativo sanguinamento a 48 ore di distanza dall'ago-biopsia. L'esplorazione videolaparoscopica evidenziava una lacerazione epatica destra di III grado, risolta con diatermocoagulazione e apposizione di garza emostatica riassorbibile. L'intervento è stato completato con la toilette peritoneale ed il posizionamento di drenaggi multipli. Non vi sono state complicanze post-operatorie e la paziente è stata dimessa in quinta giornata.

DISCUSSIONE: L'approccio chirurgico mini-invasivo è stato, in questo caso, un'alternativa valida per il trattamento di questa complicanza emorragica da biopsia epatica, con evidenti vantaggi in termini di morbidità, degenza e soddisfazione estetica.

CONCLUSIONI: La laparoscopia sta guadagnando crescenti consensi nel trattamento del trauma penetrante del fegato, ogni qualvolta l'approccio conservativo o angiografico fallisca, e dovrebbe essere considerato il trattamento d'elezione, specialmente nei casi ad emodinamica stabile nonostante il sanguinamento attivo intraperitoneale.

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