

contraindicated in unstable patients, Cheli et al.¹⁰ associated the traditional thoracotomy approach with the use of 30° optics due to the inability to visualize and access the bleeding point. Kuzniec et al.⁷ presented the repair of a ruptured SVC using VATS in a stable patient as the first approach to treatment, with good results.

In our opinion, and although the experience is limited, VATS for the repair of a ruptured SVC secondary to the insertion of a central venous catheter in stable patients without cardiac tamponade is an alternative that provides direct visualization of the affected hemithorax in order to control the bleeding point, remove the venous catheter, directly repair the SVC and evacuate the hemothorax with good results.

Acknowledgements

The authors would like to thank the Vascular Surgery Department for their time, dedication.

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2173-5077/

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Posttraumatic Thoracobiliary Fistula[☆]

Fístula biliorráica postraumática



Thoracobiliary fistula is a rare entity that can be caused spontaneously by hepatobiliary infections or, even less frequently, secondary to surgical manipulation or trauma.

A 20-year-old patient was admitted to the emergency department with a gunshot wound. The entry wound was in

the left paravertebral area of L2, and the exit wound was through the fifth intercostal space on the midline of the right clavicle. Chest radiography showed grade 2 right hemothorax, for which a right pleural drainage catheter was inserted. Subsequently, a thoracoabdominal CT scan revealed findings

[☆] Please cite this article as: Semaan L, Muñoz W, Villafañe D, García Franco CE. Fístula biliorráica postraumática. *Cir Esp.* 2020;98:366-367.

compatible with grade IV hepatic and renal trauma. There was also evidence of residual pleural effusion after placement of the chest tube. Given the patient's clinical and analytical stability, we decided to manage the hepatic and renal trauma conservatively. On the third postoperative day, discharge with bile-type characteristics was found in the pleural drainage collection bag. Conservative treatment was maintained for one week, observing progressive clinical and radiological thoracic deterioration. For this reason, we conducted exploratory video-assisted thoracoscopy and found exudate containing blood and bile located in the posterior pleura region, which required pleural decortication. We also found a wound in the right diaphragm measuring approximately 5 cm in length. During recovery, the patient's progression was slow but adequate from a clinical, analytical and radiological standpoint. The last chest tube was removed when the discharge was less than 50 cc in 24 h, and chest x-ray showed adequate lung re-expansion that correlated with the patient's clinical improvement. He was discharged on the fourteenth postoperative day.

Thoracobiliary fistulae can be classified into 2 groups: biliopleural and biliobronchial. The latter presents higher morbidity and mortality, depending in the complications involved.¹ In the literature, different etiologies have been found for thoracobiliary fistulae: 1) congenital; 2) liver abscesses or hydatid cysts; 3) obstruction of the biliary tract; and 4) liver trauma, which can be a) iatrogenic after surgical or invasive procedures (hepatectomies, radiofrequency, etc.) or b) penetrating trauma.^{2,3} The latter, thoracoabdominal penetrating trauma, is usually very rare.³ It occurs due to a right diaphragmatic injury that creates contiguity between the torn liver and the pleural space. The pathophysiology in this case is as follows: first, we have a liver laceration and diaphragmatic tear secondary to trauma; consequently, we have a biliopleural fistula due to the passage of the bile leaked from the liver laceration, through the torn diaphragm and into the pleural space. In acute situations, early signs and symptoms have been described, such as pain in the right hypochondrium radiating towards the right shoulder, jaundice and, on certain occasions, bilio-cutaneous fistulae. On chest radiography, it is common to observe an elevated right hemidiaphragm, pulmonary atelectasis and pleural effusion.

In reviewing the treatment received by patients with biliopleural fistula, we observed 3 forms of management: surgical, conservative or combined.^{2,3} Surgical treatment usually involves: pulmonary decortication and suture of the diaphragmatic perforation. Conservative treatment uses the chest tube and bile decompression by means of ERCP. In this case, the patient benefited from combined management—initially

conservative with pleural drain placement, and, when this failed, video-assisted thoracoscopic pleural decortication. The tear was not sutured because it was moderate in size and the liver closed the defect from below. Likewise, this defect in the diaphragm allowed the bile to drain through the pleural catheter that otherwise would have leaked into the peritoneal cavity and generated disorders that would be difficult to manage.

If we had opted for closure of the diaphragm defect, we understand that an abdominal drain would have been necessary to evacuate the existing bile leak. This maneuver would have increased the risk of iatrogenesis, while the previous hepatic and abdominal trauma were being resolved conservatively. Said risk of iatrogenesis, in our opinion, would be have been greater than the possible risk of real, but rare, late-onset diaphragmatic hernia in right-side tears covered by the liver.

If conservative management does not prove effective, we stress the importance of trying to manage these patients with minimally invasive surgery. If the decision is delayed too long, this could lead to decortication via thoracotomy once biliothorax has become established.

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2173-5077/

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