

## Haemobilia following blunt liver injury

G L Laing, D L Clarke, L Ferndale, D Reitz, V Manchev

*Grey's and Edendale Hospitals, Pietermaritzburg, KwaZulu-Natal*

G L Laing, MB ChB, FCS (SA)

D L Clarke, MB ChB, FCS (SA), MBA, MMedSci, MPhil

L Ferndale, MB ChB, FCS (SA)

D Reitz, MB ChB, FC Rad Diag (SA)

V Manchev, MB ChB

**Corresponding author:** G L Laing ([grantandjulia@gmail.com](mailto:grantandjulia@gmail.com))

Blunt liver trauma is commonly managed by non-operative measures. We report a case of an American Association for the Surgery of Trauma grade III liver injury and its complications, successfully managed by a combination of minimally invasive interventions.

*S Afr J Surg* 2012;50(4):136-137. DOI:10.7196/SAJS.1442

The conservative management of blunt hepatic trauma is well established. Nonetheless, complications such as the development of complicated bile collections and traumatic pseudo-aneurysms can arise following a conservative management course. We present a patient who developed two distinct complications of blunt hepatic injury, both of which were successfully treated with a combination of interventional radiological and endoscopic procedures.

### Case report

A 25-year-old man presented with progressive right upper quadrant (RUQ) pain. He had been assaulted and sustained focal blunt abdominal trauma 10 days previously.

On examination he had a pulse rate of 100/min and a blood pressure of 195/90 mmHg. Abdominal examination elicited mild RUQ tenderness. A contrasted abdominal computed tomography (CT) scan confirmed the presence of a large, sub-capsular collection, with a CT number of 18 Hounsfield units, suggestive of a biloma (Fig. 1, a). No features of arterial contrast extravasation were visible

on the CT images. Ultrasound-guided percutaneous drainage of the sub-capsular collection was performed, confirming a biloma. Subsequent recorded drainage of bile averaged 500 ml/day without tapering, indicating a persistent biliary fistula. Endoscopic retrograde cholangiopancreatography (ERCP) and papillotomy were therefore performed, and the biliary drainage resolved.

Three days after the endoscopic procedure, the patient had a significant episode of haemobilia, identified by the contents of the pigtail drain. A catheter-directed angiogram was performed. This demonstrated a pseudo-aneurysm involving a segmental branch of the right hepatic artery (Fig. 1, b). Selective angio-embolisation of the segmental branch resolved this complication (Fig. 1, c). The patient subsequently had complete resolution of the biliary fistula and haemobilia.

### Discussion

Non-operative management of blunt liver trauma in the haemodynamically stable patient without peritoneal signs has

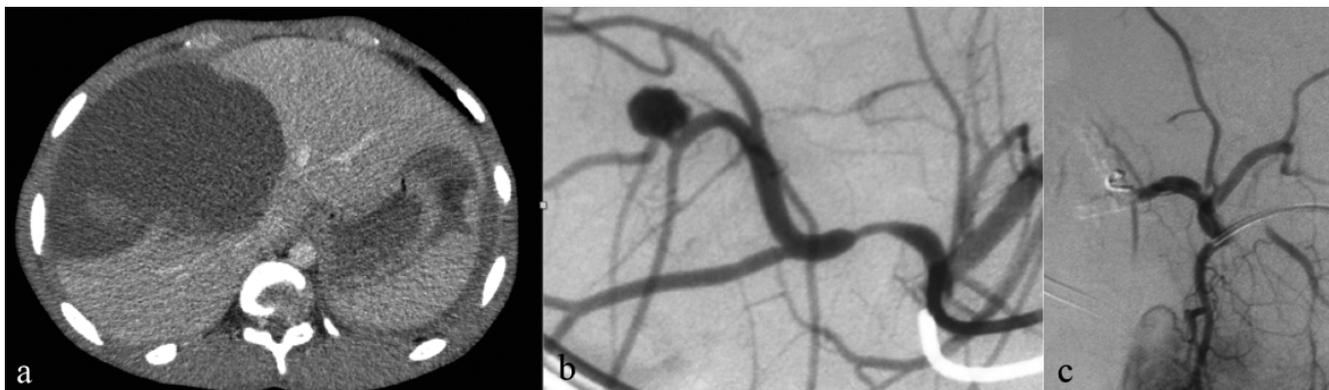


Fig. 1. (a) Contrast CT scan showing features suggestive of a large sub-capsular biloma (18 Hounsfield units); (b) pseudo-aneurysm of segmental branch of the right hepatic artery; (c) post-coil angio-embolisation of hepatic artery pseudo-aneurysm.

become the standard of care. Complications of conservatively treated liver injuries are generally related to either ongoing biliary leakage or ongoing haemorrhage. Injury to a major biliary duct may result in significant biliary leakage.

A collection of bile is referred to as a biloma. A biloma may cause pressure symptoms or may become infected. The principles of management of a biloma are to ensure external drainage of the biliary collection. Most bilomas can be drained percutaneously under radiological guidance. This is frequently sufficient to resolve the problem. If there is a persistent biliary leak, the patient may develop an external biliary fistula. If this does not resolve, the next step is to alleviate the functional distal obstruction of a competent sphincter of Oddi. This is relatively easily achieved by ERCP and papillotomy or by biliary stenting.<sup>1</sup> Once the functional obstruction of the competent sphincter is removed, any ongoing biliary fistula generally resolves.<sup>1</sup> If the fistula persists after endoscopic sphincterotomy, the endoscopic placement of a stent across the injury or open exploration are the next steps in the management algorithm.

Traumatic haemobilia is a rare complication with a prevalence of less than 3% of liver injuries.<sup>2,3</sup> It is potentially

life threatening.<sup>3</sup> Selective arterial angio-embolisation is the intervention of choice in the management of this complication. It has been used extensively locally with excellent results.<sup>3,4</sup> The reported mortality for the operative management of haemobilia is as high as 40%.<sup>2</sup> Our patient is interesting, as he developed both major complications of blunt hepatic trauma and both were treated successfully non-operatively. He is a testament to the success of the serial application of minimally invasive techniques in the treatment of two rare complications of blunt hepatic trauma.

#### REFERENCES

1. Anand RJ, Ferrada PA, Darwin PE, Bochicchio GV, Scalea TM. Endoscopic retrograde cholangiopancreatography is an effective treatment for bile leak after severe liver trauma. *J Trauma* 2011;71(2):480-485. [<http://dx.doi.org/10.1097/TA.0b013e3181efc270>]
2. Martin A, Croce MD, Timothy C, et al. Traumatic hepatic artery pseudoaneurysm with hemobilia. *Am J Surg* 1994;168(3):235-238. [[http://dx.doi.org/10.1016/S0002-9610\(05\)80193-X](http://dx.doi.org/10.1016/S0002-9610(05)80193-X)]
3. Forlee MV, Krige JE, Welman CJ, Beningfield SJ. Haemobilia after penetrating and blunt liver injury: treatment with selective hepatic artery embolisation. *Injury* 2004;35(1):23-28. [[http://dx.doi.org/10.1016/S0020-1383\(03\)00156-6](http://dx.doi.org/10.1016/S0020-1383(03)00156-6)]
4. Moodley J, Singh B, Lalloo S, Pershad S, Robbs JV. Non-operative management of haemobilia. *Br J Surg* 2001;88(8):1073-1076. [<http://dx.doi.org/10.1046/j.0007-1323.2001.01825.x>]