CASE REPORT

Gallbladder perforation following transarterial chemoembolisation; a rare but serious complication

Eu Jin Lim,^{1,2} Manfred Spanger,^{2,3} John S Lubel^{1,2}

¹Department of Gastroenterology, Box Hill Hospital, Box Hill, Victoria, Australia

²Eastern Health Clinical School, Monash University, Box Hill, Australia

³Department of Radiology, Box Hill Hospital, Box Hill, Victoria, Australia

Correspondence to

Dr Eu Jin Lim, Department of Gastroenterology, Box Hill Hospital, Nelson Road, Box Hill, Victoria, 3128, Australia; ejlim@rocketmail.com

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ABSTRACT

Transarterial chemoembolisation (TACE) is the mainstay of treatment for large or multifocal hepatocellular carcinoma (HCC). However, this procedure is not without potential complications. We report the case of a 72-year-old man with cirrhosis with HCC treated by TACE using drug-eluting beads. He developed persistent fever and severe right upper quadrant pain post-procedure. CT abdomen revealed a large fluid collection closely abutting the gallbladder and tracking inferiorly along the right flank. This fluid collection originated from the gallbladder and contained locules of gas with a contrast-enhancing wall, consistent with an infected biloma. These imaging findings confirmed gallbladder perforation complicating TACE. The development of gallbladder perforation post-TACE from acute ischaemic cholecystitis producing gallbladder wall necrosis is exceedingly rare. The presence of gallbladder perforation must be recognised in patients with persisting symptoms and imaging evidence of a perihepatic fluid collection because specific treatment with intravenous antibiotics and percutaneous drainage of the biloma is necessary.

BACKGROUND

Transarterial chemoembolisation (TACE) is the mainstay of treatment for large or multifocal hepatocellular carcinoma (HCC) not amenable to surgical resection. However, this procedure is not without potential complications.

The development of gallbladder perforation post-TACE, as a result of acute ischaemic cholecystitis (AIC) producing gallbladder wall necrosis, is exceedingly rare. The presence of gallbladder perforation must be recognised in patients with persisting symptoms because specific treatment with intravenous antibiotics and percutaneous drainage of the biloma is necessary.

CASE PRESENTATION

A 72-year-old man with cryptogenic cirrhosis was found to have three non-arterially enhancing lesions in his right lobe of liver on triple-phase CT scan, the largest of which was 6 cm. The presence of HCC was confirmed on histology. The patient underwent TACE with drug-eluting beads. A day after the procedure, he developed a fever of 38.5°C and severe right upper quadrant pain, tenderness and guarding. These symptoms persisted for 48 h despite intravenous fluids and analgesia.

INVESTIGATIONS

A CT abdomen was performed on day 3 post-TACE, which revealed an 11.4×9.3×8.9 cm fluid collection closely abutting the gallbladder and tracking inferiorly along the right flank (figure 1, white arrows). This fluid collection originated from the gallbladder and contained locules of gas with a contrast-enhancing wall, consistent with an infected biloma. These imaging findings confirmed gallbladder perforation complicating TACE.

A follow-up CT abdomen done on day 8 post-TACE revealed a distended gallbladder with a thickened and oedematous wall, as well as interruption of the wall at the gallbladder fundus with gas locules and fluid (figure 2, white arrows) consistent with the site of the gallbladder perforation.

TREATMENT

The patient was started on intravenous antibiotics and the biloma was percutaneously drained under ultrasound guidance. Bilious fluid was aspirated, and a drain tube left in situ. Upon instituting therapy, his fever and abdominal pain

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Figure 1 Axial CT image of the abdomen. Arrows indicate the fluid collection originating from the gallbladder consistent with an infected biloma.

promptly resolved. He continued to drain approximately 300 ml of brown bilious fluid over 2 days before output ceased, and the drain was removed.

DISCUSSION

TACE is the mainstay of treatment for large or multifocal HCC not amenable to surgical resection. The combination of delivering chemotherapy in a high dose to the HCC locally and occluding the hepatic artery branch that feeds the HCC results in the promotion of tumour necrosis, and has been shown to improve overall survival.¹ However, this procedure is not without potential complications, the most common of which is the post-embolisation syndrome. This is associated with transient fever, right upper quadrant pain and raised transaminases that resolves without specific treatment and occurs in approximately 80% of TACE procedures.² However, when these symptoms persist, a search must be made to determine the underlying cause. We present a rare

Figure 2 Coronal CT image of the abdomen. Arrows indicate the distended gallbladder with a thickened and oedematous wall, as well as interruption of the wall at the gallbladder fundus, with gas locules consistent with the site of gallbladder perforation.

case of a patient who developed persistent fever and abdominal pain post-TACE and was subsequently found to have gallbladder perforation complicating the TACE and required specific treatment.

AIC has been reported post-TACE with an incidence of 4.9% in one study,³ but this condition appears to be self-limiting and does not require any intervention. Hepatic abscesses and bilioenteral, biliopleural and biliocutaneous fistulae have all been reported in the literature. In contrast, the development of gallbladder perforation post-TACE, as a result of AIC producing gallbladder wall necrosis, is unreported. The presence of gallbladder perforation must be recognised in patients with persisting symptoms and imaging evidence of a perihepatic fluid collection because specific treatment with intravenous antibiotics and percutaneous drainage of the biloma is necessary.

Multiple choice questions

I) What is the appropriate treatment of a 5 cm HCC in a patient with underlying cirrhosis?

1. Surgical resection
2. Radiofrequency ablation
3. Percutaneous ethanol injection
4. TACE
5. Liver transplantation

Answer: 4

II) Which is not a contraindication for TACE?

1. Portal vein thrombosis
2. Multifocal HCC confined to a single lobe
3. Decompensated cirrhosis
4. HCC with significant arteriovenous shunting
5. Uncontrolled sepsis

Answer: 2

III) What is the most common cause of abdominal pain and fever post-TACE?

1. HCC perforation
2. Hepatic abscess
3. AIC
4. Gallbladder perforation
5. Post-embolisation syndrome

Answer: 5

Learning points

- ▶ TACE is the mainstay of treatment for large or multifocal HCC, but this procedure may lead to potential complications.
- ▶ The most common complication is the post-embolisation syndrome, which is associated with fever, right upper quadrant pain and raised transaminases that resolves without specific treatment.

- ▶ However, if these symptoms persist, there must be a high index of suspicion for an underlying cause that requires specific intervention.
- ▶ Gallbladder perforation complicating TACE must be recognised in patients with persisting symptoms and imaging evidence of a perihepatic fluid collection because specific treatment with intravenous antibiotics and percutaneous drainage of the biloma and/or surgery is necessary.

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correcting the paper, and approved the final draft submitted.

Patient consent Obtained.

Competing interests None.

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