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The art of intervention: Describe a case where interventional radiology played a major role in treating the patient and what you learnt?

Thirty year old male presented with right upper quadrant abdominal pain, 4 days post elective laparoscopic cholecystectomy. Ultrasound abdomen demonstrated a large volume of free fluid. He was haemodynamically stable. Interventional Radiology (IR) was requested for ultrasound guided drain, which drained dark blood. Later the redivac bottle was changed on the ward and instantly filled with blood. The patient became tachycardic, blood pressure remained stable. It was clear there was a potential underlying bleed. Inserting the abdominal drain had likely released the tamponade, the patient clinically deteriorated.

Urgent CT-angiogram demonstrated a contrast blush in arterial phase from the cystic artery with significant haemoperitoneum suggestive of ruptured cystic artery pseudoaneurysm. The patient was transferred directly to IR for embolisation. Emergency theatre remained on standby and the anaesthetic team was called for assistance. Fluoroscopy confirmed active bleeding from cystic artery. Endovascular microcatheterisation of cystic artery enabled two 3x2mm microcoils to be deployed. Haemostasis achieved.

Visceral artery aneurysms are rare, Incidence at post-mortem is 0.01%-0.2%⁽¹⁾. Hepatic artery and its branches are the secondly most common affected⁽²⁾. Pseudoaneurysms are caused by surgical intervention or trauma,⁽³⁾ majority presenting clinically at rupture⁽⁴⁾. Bergey et al. 1995 claim to report the first case of cystic artery aneurysm as a complication of laparoscopic cholecystectomy. Few cases have been subsequently reported. Pseudoaneurysm of the cystic artery can present acutely with biliary colic, obstructive jaundice and upper gastrointestinal bleeding; 40% of cases present with all features, known as Quinke's triad⁽⁶⁾. In the reported literature aneurysms are typically recognised 3-7 weeks after surgery^(5,7).

IR was pivotal in this case, highlights the importance of radiology for management of rare presentations in surgical patients. This patient had 4 radiology investigations in <10hrs. Open surgery would have been the only other management for this man, associated with higher risks of general anaesthetic and longer recovery. Laparoscopic surgery would not be an option as pneumoperitoneum would not have been achievable. Endovascular visceral aneurysm repair has lower mortality and morbidity compared to open surgical approaches⁽⁸⁾.

Intervention radiology is advancing to the point where embolisation for these rare life threatening bleeds is possible without surgery, but success is not guaranteed. Emergency theatre was put on hold with the team of surgeons on standby had the embolization been unsuccessful.

Endovascular embolisation is a superior first line management for patients with visceral artery pseudoaneurysms⁽⁸⁾. Endovascular management of emergency cases is set to increase. With the expansion of interventional radiology as a specialty and greater provision of 24hr on-call services⁽⁹⁾.

Isolated in the IR suite out of hours can feel very vulnerable; there needs to be development of radiology departments at the centre of hospitals so that interventional radiologists feel better supported by anaesthetic and surgical colleagues to achieve the best possible outcomes for patients.

Key Personal learning points from this case:

- To be aware of rare post-operative complications and acute presentation
- The importance of clear communication between surgeons and IR.
- The range of endovascular management IR can offer.
- Act quickly, patients with life threatening bleeds deteriorate quickly.

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