

## Gallbladder Rupture Following Blunt Trauma

A. Rana<sup>1</sup>, A. Sultana<sup>1</sup>, A. Rafeeqe<sup>1</sup>, J. Hanson<sup>2</sup>

1. Emergency Department, Our Lady of Lourdes Hospital, Drogheda, Co. Louth, Ireland.
2. Radiology Department, Our Lady of Lourdes Hospital, Drogheda, Co. Louth, Ireland.

### Abstract

#### *Presentation*

34 year old female presented to the ED with pain across the lower part of her chest and her abdomen after her husband fell on top of her while they were dancing. Her observations were all unremarkable and her abdominal exam revealed a severe generalised abdominal tenderness, most marked in the right upper quadrant.

#### *Diagnosis*

C.T with contrast of her thorax, abdomen and pelvis was requested which revealed significant fluid surrounding the gallbladder with an ill-defined and compressed gallbladder wall consistent with a ruptured gallbladder.

#### *Treatment*

She was administered IV analgesia and antibiotics and referred to the surgical team on call. She then underwent an emergency open cholecystectomy and peritoneal lavage and recovered well following her surgery.

#### *Discussion*

This case highlights the fact that patients with normal initial vital signs or apparently benign mechanism of injury can have significant underlying injuries and these alone should not be used as a false reassurance.

### Introduction

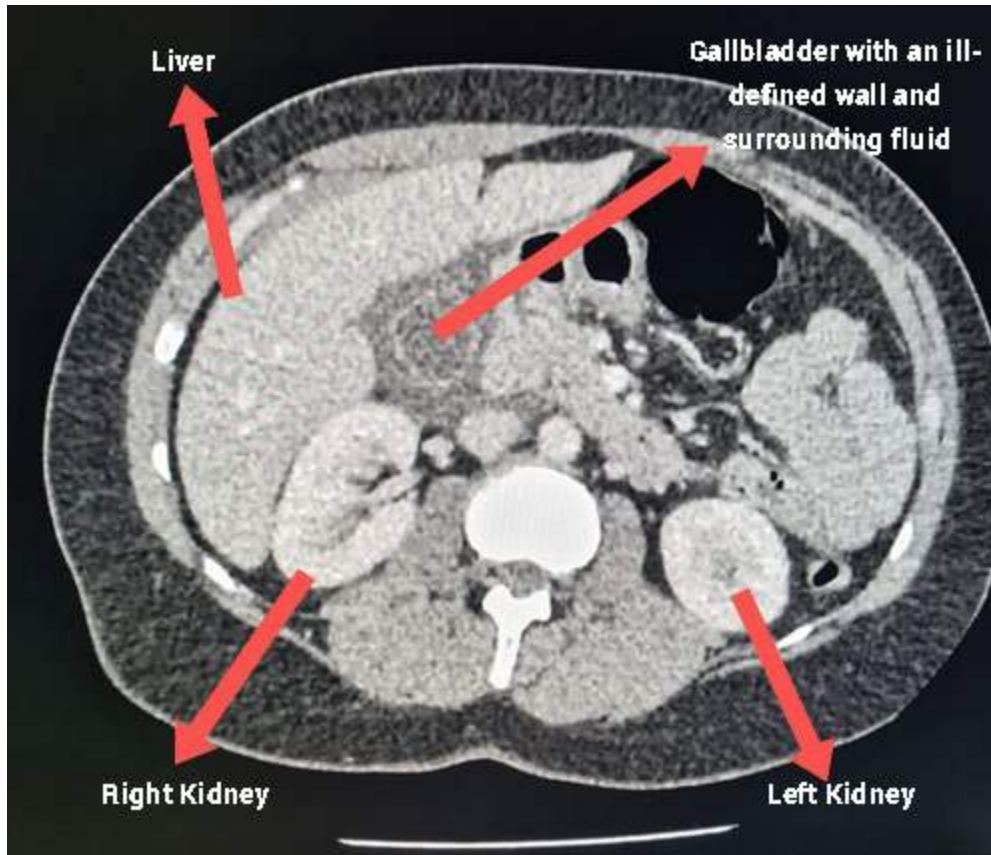
Isolated gallbladder injuries following blunt abdominal trauma are rare. Due to its anatomical location and protective effect from the liver and the surrounding organs it makes it very unusual to have an isolated injury to the gallbladder from a blunt trauma. The overall incidence of such cases is thought to be around 2%<sup>1</sup>. and most of these typically have an associated liver laceration, duodenal perforation or splenic injury<sup>2</sup>. Penetrating injuries are responsible for up to 89% of

these cases further highlighting the rare occurrence of an injury to the gallbladder as a result of a blunt trauma<sup>3</sup>.

### **Case Report**

A 34 year old female with no previous medical history, presented to the Emergency Department complaining of pain across the lower part of her chest and her abdomen (8/10 severity). She admitted to consuming a full bottle of wine in the hours leading up to her presentation and during a celebratory dance with her husband they both fell with her husband landing on top of her as she landed on her back. The husband, of average build and height, weighed around 75 kg, while the patient's weight was approximately 65 kg. Non-accidental injury was initially considered but later ruled out on further investigation. On assessment, her pulse rate was 89/min with a blood pressure of 133/70 mmHg and all the other observations were also within normal limits. Physical examination which was carried out 6 hours after the injury did not show any external signs of injury but revealed bilateral lower chest wall tenderness along with generalised abdominal tenderness, peritonism and guarding, most marked in the right upper quadrant. Analgesia was administered and a CT with contrast of her thorax, abdomen and pelvis was requested.

The CT scan revealed significant fluid surrounding the gallbladder with an ill-defined and compressed gallbladder wall consistent with a ruptured gallbladder. (Figure 1). She was administered IV antibiotics following her scan and referred to the surgical team on call for further management. Decision was made to proceed with an open cholecystectomy given the amount of free fluid on the scan, and to rule out any other injury. She underwent an emergency open cholecystectomy and peritoneal lavage with no immediate or post-operative complications and was eventually discharged three days later.



*Figure 1: Axial View of the CT abdomen at the level of the gallbladder, showing signs of gallbladder rupture.*

## **Discussion**

There have been a very few reported cases of gallbladder rupture secondary to a blunt trauma and the vast majority of these cases have been following a road traffic accident or a fall from a height<sup>4</sup>, making this particular case very unique due to the mechanism involved. To the best of our knowledge and following extensive literature search, this is the first such case of traumatic gallbladder rupture in an adult patient following a simple fall of one person onto another. Symptoms of ruptured gallbladder vary depending on the type and severity of injury ranging from vague right upper quadrant pain to an acute abdomen with or without signs of peritonism and shock.

The literature has shown delayed presentations or missed diagnosis<sup>5</sup>. Various imaging modalities have been used to diagnose such injuries including ultrasound, hepatobiliary scintigraphy and CT scans but contrast enhanced CT scan remains the most effective<sup>6</sup>. The recommended treatment

involves a peritoneal washout and cholecystectomy, however in a few cases with diagnostic uncertainty, exploratory laparotomy has also been performed<sup>7</sup>.

This case highlights the fact that patients with normal initial vital signs can have significant injuries and this should not be used as a false reassurance. It also emphasises the fact that patients with apparently benign mechanism of injuries may have a serious underlying injury and further imaging should be obtained on the basis of clinical findings.

#### **Declarations of Conflicts of Interest:**

None declared.

#### **Corresponding author:**

Abdullah Rana,  
Emergency Department,  
Our Lady of Lourdes hospital, Drogheda,  
Co. Louth,  
Ireland.  
E-Mail: [abdullahbinrauf@hotmail.com](mailto:abdullahbinrauf@hotmail.com)

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