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A THRILLING TALE OF RETAINED FOREIGN BODY

Medical Science

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ABSTRACT

Intra-abdominal impalement injuries caused by a penetrating foreign body are rare and often fatal. The mechanism of injury is usually associated with vascular and organ damage, and the course is dynamic, with high morbidity and mortality. Post-traumatic presence of glass piece in the peritoneal cavity after an old impalement injury is rare. We present a case of 55-year-old gentleman who fell over a fish tank and sustained injuries to the back and presented one week later with abdominal pain. He was treated elsewhere with primary suturing of the laceration on his back. Clinical examination was unremarkable except for mild tenderness in left hypochondrium. Radiological investigations revealed an intra-abdominal foreign body. Patient underwent emergency laparotomy and glass piece was lodged between spleen and splenic flexure of colon, which was retrieved in one piece. To our surprise, none of the viscera were injured. Seemingly minor impalement injuries could have caused serious organ damage. However trivial the injury might be, every patient, must be suspected of having a retained foreign body. Accurate visual, manual, and instrumental wound exploration is always necessary. Diagnostic imaging is of utmost importance.

KEYWORDS

Impalement injury, Glass, Foreign Body, Abdominal trauma

INTRODUCTION

Impalement injuries are caused by objects that penetrate and remain imbedded in the human body. Intra-abdominal impalement injuries are uncommon and often lead to complex surgical problems, pressing immediate measures and intensive care, failure of which leads to the mortality and morbidity of the patient.[1] The extent of damage caused depends on the energy of the injury, the track of penetration, and the structure and size of the foreign body.[2]

Serious complications from this type of injury are not uncommon and include infections, damage to the genitourinary system, gastrointestinal tract, and major vasculature.[3] In this case report we present a case of retained foreign body following a fall, its presentation, management and outcome.

Case Report:

A 55-year-old gentleman sustained injury to his back by accidentally slipping and falling over a glass fish tank that shattered into pieces, at his residence. The only tell-tale sign of his trauma was a seemingly innocent laceration measuring about 7 cm over his left upper back closer to the midline. He was taken immediately to the emergency department of a nearby hospital, where he was sutured after an antiseptic wash by an unsuspecting physician. No additional imaging investigations were done and patient was sent home with a prescription.

Figure 1 Entry wound treated with a primary suturing.

The patient presented one week later to our emergency department with mild abdominal pain in the upper abdomen. There was no known comorbid illness. Clinical examination was unremarkable except for mild tenderness in the left hypochondrium and sutured wound in the back. Plain radiograph of the abdomen showed a shockingly large radio-opacity with well-defined margins in the left upper quadrant.

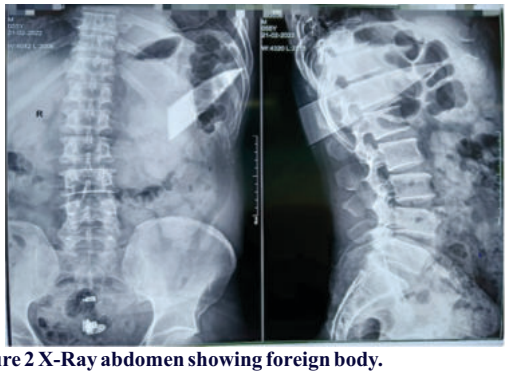

Figure 2 X-Ray abdomen showing foreign body.

Hence Non-Contrast Computed Tomography of the abdomen was taken which revealed a hyperdense triangular foreign body 15.6 cm long which had pierced the posterior abdominal wall, traversed the spleen on its lateral aspect and came to hinge on the anterior abdominal wall. There was no free fluid in the abdomen.

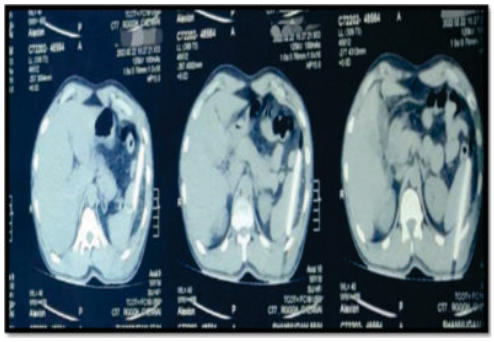

Figure 3 Computed tomography scan of abdomen showing foreign body present intraabdominally, supposedly traversing the spleen.

Patient was immediately prepared for emergency exploratory laparotomy. Intraoperatively the foreign body was identified to be a glass piece, which had lodged itself between the spleen and the splenic flexure of the colon. Miraculously, the patient had escaped without any solid organ or hollow viscus injury and the foreign body was retrieved in one piece after mobilisation of the splenic flexure of colon. Post operatively the patient recovered well and was discharged on sixth post operative day.

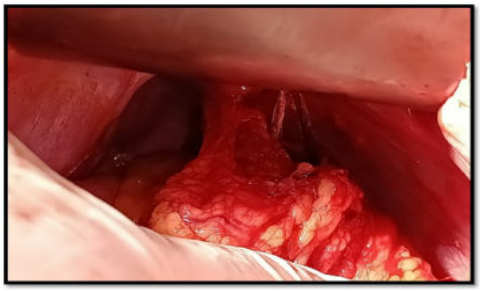

Figure 4 Intra operative image showing the glass piece with omentum wrapped around it.

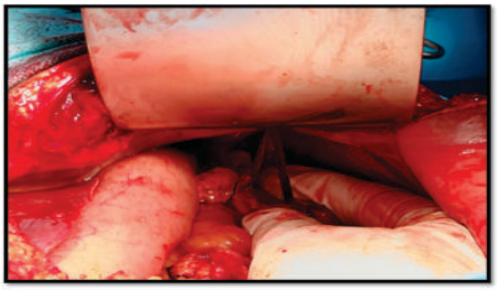

Figure 5 Retrieval of glass piece.

Figure 6 Shard of glass removed from peritoneal cavity

DISCUSSION:

Impalement injuries are one of the most difficult challenges for trauma surgeons owing to a high incidence of visceral or vascular injuries with significant morbidity and mortality. Foreign bodies may be found in the peritoneal cavity after impalement injuries, abdominal surgery and those inserted via the rectum. Impalement injuries can be divided clinically into three main types based on the mechanism of injury. The impact of a decelerating human body against an immovable object causes type I impalement injuries. A classic example would be collisions and falling from a height onto something immobile. When a mobile object strikes a stationary patient, type II impalement injuries result. This kind of injury may be caused by homicidal assaults or sexual misconduct. The impact between a moving patient and a moving object causes type III impalement injury, which combines the mechanisms of type I and type II impalement injuries.[4]

Patients should undergo basic trauma protocols including complete physical examination and necessary radiological investigations for accurate diagnosis and management.[2] Few specific instructions have to be adhered while managing a patient with an impaled object. Manipulation and removal of the object has to be avoided at all costs, since it can lead to breakage or splintering of the object.[5] The impaled object has to be stabilized to prevent its movement while shifting the patient, as it can withdraw the tamponade effect leading to enormous bleeding.[6] A multidisciplinary team may be necessary because frequently multiple organ systems are involved. Hemodynamic stability at the time of hospital admission does not consistently rule out vascular damage and is frequently deceptive.[7]

Plain radiograph of the local part is the gold standard investigation to look for retained foreign bodies and have been more useful in detecting retained foreign body in deep wound than in superficial wound.[8,9] The accuracy of plain radiograph in detecting glass fragments of size larger than 2 mm is 100%.[9] The incidence of infection secondary to retained glass foreign bodies is meagre due to its inert nature compared to organic matter such as wood.[10] Incision for exploration must provide adequate exposure for vascular control, complete visualization of the path taken by the object and facilitate for removal of the foreign body under direct vision. On few occasions, unconventional or non-standard incisions may be required.[1,2] Our patient had an impaled shard of glass in his abdominal cavity which was missed, and was identified after one week using a simple radiograph of the abdomen. Five similar cases who had retained glass pieces in the abdominal cavity which were identified months after the trauma, have been reported in the literature.[11]

CONCLUSION:

Abdominal impalement injuries are rare conditions and their morbidity and mortality rates depend on the structure damaged. They have a preferable outcome if principles of minimal manipulation, preoperative planning, a multidisciplinary approach and proper wound care are followed.12 Even a small torso wound in an asymptomatic patient must be suspected of having a foreign body and serious visceral injury. Imaging tests are an important diagnostic method when a post-traumatic foreign body is suspected, especially when the fascia is damaged. This case depicts the huge help that a simple x-ray image can give us.

REFERENCES:

1. Horowitz MD, Dove DB, Eismont FJ, Green BA. Impalement injuries. J Trauma [Internet]. 1985;25(9):914–6
2. Mohan R, Ram DU, Baba YS, Shetty A, Bhandary S. Transabdominal impalement: absence of visceral or vascular injury a rare possibility. J Emerg Med [Internet]. 2011;41(5):495–8
3. Oya S, Miyata K, Yuasa N, Takeuchi E, Goto Y, Miyake H, et al. Impalement injury to the left buttock with massive bleeding: a case report. Nagoya J Med Sci. 2013; 75(1–2): 147–52.
4. Gölder SK, Friess H, Shafighi M, Kleeff JH, Büchler MW. A chair leg as the rare cause of a transabdominal impalement with duodenal and pancreatic involvement. J Trauma [Internet]. 2001;51(1):164–7.
5. Ketterhagen JP, Wassermann DH. Impalement injuries: the preferred approach. J Trauma. 1983;23(3):258–9.
6. Thomson BNJ, Knight ASR. Bilateral thoracoabdominal impalement: Avoiding pitfalls in the management of impalement injuries. The Journal of Trauma: Injury, Infection, and Critical Care [Internet]. 2000;49(6):1135–7.
7. Brown CVR, Velmahos GC, Neville AL, Rhee P, Salim A, Sangthong B, et al. Hemodynamically "stable" patients with peritonitis after penetrating abdominal trauma: identifying those who are bleeding: Identifying those who are bleeding. Arch Surg [Internet]. 2005;140(8):767–72.
8. Lacey D, Evans G, Sandin R. Penetrating injuries: how is it to see glass (and plastic) on radiographs? Br J Radiol. 1985;58:27–30.
9. Orlinsky M, Bright AA. The utility of routine x-rays in all glass-caused wounds. Am J Emerg Med [Internet]. 2006;24(2):233–6
10. Trott A. Wounds and lacerations: emergency care and closure. St Louis (Mo)7 Mosby-Year Book; 1997.
11. Luks B, Dworzyńska A, Dobrogowski M, Pomorski L. Discovery of a glass splinter in the abdominal cavity after an old impalement injury: A case report and literature review. Am J Case Rep [Internet]. 2020;21