Case Report

Access this article online
Website: www.afrjpaedsurg.org
DOI: 10.4103/0189-6725.132835
Quick Response Code:

Paediatric penetrating thoraco-abdominal injury: Role of minimallly invasive surgery

Jack Donati-Bourne, Mohammad I. Bader, Dakshesh Parikh, Ingo Jester

ABSTRACT

We report two cases of penetrating thoraco-abdominal injuries who presented to our trauma centre. One with stab to lower left chest and the other one had pallet injury to right upper abdomen. The clinical presentation, radiological investigations and operative intervention are reviewed.

Key words: Laparoscopy, minimally invasive, penetrating injuries, thoraco-abdominal

INTRODUCTION

The conventional surgical management for penetrating wounds to the trunk, for much of the 20th century, was deemed to be routine exploratory laparotomy. Surgical management of penetrating trauma has recently been challenged by the sophisticated radiological imaging, minimally invasive techniques and adult experiences. We present two such cases managed with minimally invasive surgery.

CASE REPORTS

The present case is about a 15-year-old patient who presented with a left lower lateral chest wall stab injury. Clinically, he had tender abdomen. A computed tomography (CT) scan showed localized air at the penetration site but no pneumothorax. Initial diagnostic laparoscopy revealed the tract via pleural cavity through diaphragm into the stomach. Laparoscopically, both the diaphragm and stomach injuries were repaired [Figures 1-3]. No drains were kept post-operatively. He was discharged after being monitored for evidence of infection and development of pneumothorax.

An 8-year-old child was shot just below the angle of scapula. Initial X-ray revealed the pellet was situated near the cardiophrenic angle very close to heart. A CT scan localise the pellet on the lateral aspect next to the right lobe of liver and within the peritoneal cavity. Therefore, instead of thoracoscopy, laparoscopy was performed but no injury was found. On table X-ray confirmed the pallet to be above the diaphragm which was retrieved through a small diaphragmatic incision. The diaphragm was repaired with no drains. She recovered well and discharged with no complications.

DISCUSSION

Penetrating trauma accounts for up to 20% of all paediatric trauma admissions.[1] It is often difficult to evaluate the extent of intraabdominal injuries even with sophisticated radiological investigations. Exploratory laparotomy is considered as a gold standard, but it is associated with significant morbidity and mortality.[2] Minimally invasive approach is a safe option is hemodynamically stable patients.[3,4] Laparoscopy was

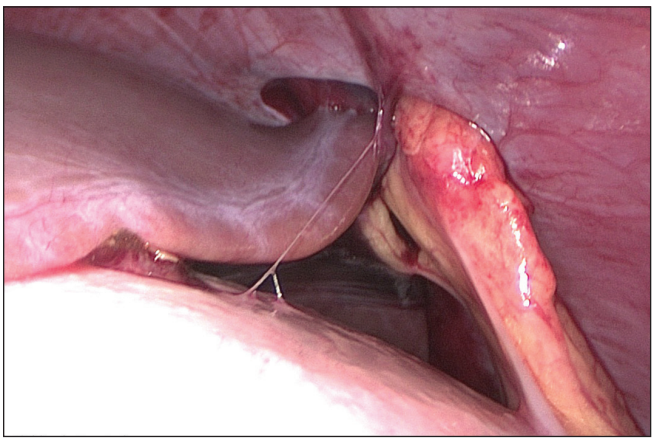


Figure 1: Perforation sealed by omentum

Department of Paediatric Surgery, Birmingham Children's Hospital NHS Foundation Trust, Birmingham, United Kingdom

Address for correspondence:
Mr. Ingo Jester,
Department of Paediatric Surgery, Birmingham Children's Hospital NHS Foundation Trust, Birmingham, United Kingdom.
E-mail: ingo.jester@bch.nhs.uk

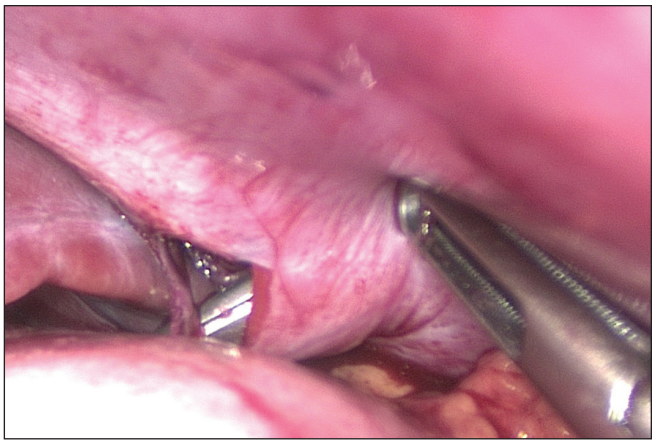


Figure 2: Stab tract

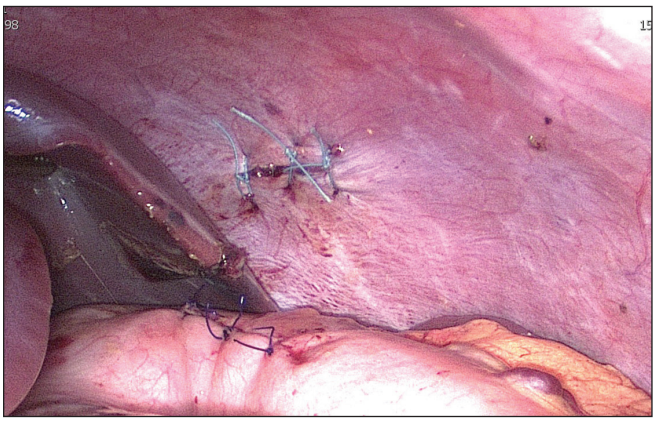


Figure 3: Defect repaired

first used for trauma in 1956.[3] It is viable alternative in patients following penetrating thoraco-abdominal trauma where the nature of intraabdominal injuries is unclear. In our first case, a large tract could be found on laparoscopy through diaphragm into the stomach. In addition to its diagnostic advantage it also offers the therapeutic benefit of repair of the injuries identified.[3,4] It is very useful for early diagnosis of hollow viscus injury and occult diaphragmatic injuries. This decreases the morbidity due to late diagnosis in these cases.[4,5]

Gunshot wound can be very misleading for external body surface. Laparoscopy can identify any peritoneal breach. Sometimes, it is not possible to locate the path of trajectory but an on table radiography is useful adjuvant in those cases in locating pallets.

The major drawback to laparoscopy is the possibility of missing injuries to the solid organs, small bowel, mesentery, ureters and bladder. One report suggests that diagnostic laparoscopy can miss significant injuries in up to 19% of the patients.[6,7]

CONCLUSION

Minimal invasive surgery can play a significant role in the management of penetrating injuries in children. On table imaging can be useful adjuvant for localising foreign body that might have migrated. Negative laparoscopy can avoid an unnecessary exploratory laparotomy. Conversely a positive finding may allow either a therapeutic intervention or direct appropriate open surgery.

REFERENCES

1. Cotton BA, Nance ML. Penetrating trauma in children. Semin Pediatr Surg 2004;13:87-97.
2. Ross SE, Dragon GM, O'Malley KF, Rehm CG. Morbidity of negative coeliotomy in trauma. Injury 1995;26:393-4.
3. Carnevale N, Baron N, Delany HM. Peritoneoscopy as an aid in the diagnosis of abdominal trauma: A preliminary report. J Trauma 1977;17:634-41.
4. Feliz A, Shultz B, McKenna C, Gaines BA. Diagnostic and therapeutic laparoscopy in pediatric abdominal trauma. J Pediatr Surg 2006;41:72-7.
5. Gaines BA, Ford HR. Abdominal and pelvic trauma in children. Crit Care Med 2002;30 11 Suppl:S416-23.
6. Ahmed N, Whelan J, Brownlee J, Chari V, Chung R. The contribution of laparoscopy in evaluation of penetrating abdominal wounds. J Am Coll Surg 2005;201:213-6.
7. Ivatury RR, Simon RJ, Stahl WM. A critical evaluation of laparoscopy in penetrating abdominal trauma. J Trauma 1993; 34:822-7.

Cite this article as: Donati-Bourne J, Bader MI, Parikh D, Jester I. Paediatric penetrating thoraco-abdominal injury: Role of minimallly invasive surgery. Afr J Paediatr Surg 2014;11:189-90.

Source of Support: Nil. **Conflict of Interest:** None declared.