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CASE REPORT

Iatrogenic Bladder injury in an appendicular perforation managed conservatively by bladder drainage using a per urethral catheter

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Abstract

Iatrogenic bladder injuries are a cause of morbidity in pelvic surgeries. Bladder perforation could be extraperitoneal or intra-peritoneal. Clinicaly, extraperitoneal bladder perforation is diagnosed by suprapubic pain, extravasation of urine into scrotum, perineum and thighs and difficulty in voiding whereas intraperitoneal bladder injury is diagnosed by signs of lower abdominal pain resembling acute abdomen. The diagnosis of bladder injury is confirmed by Computerised Cystography. The management of extraperitoneal bladder injury is catheter drainage while intraperitoneal bladder injury is managed by open repair. We present a case of Extraperitoneal iatrogenic bladder injury in a patient who underwent exploratory laparotomy for Appendicular perforation.

Keywords: Urinary Bladder injury, Appendicular perforation, Exploratory laparotomy

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Introduction

Iatrogenic bladder injury has an incidence of 0.5-1.0% [1] according to our review of worldwide literature. The incidence and severity of Bladder injury during exploratory laparotomy depends on a number of factors such as presence/ absence of preoperative catheterisation to empty the bladder, indication for the surgery, experience and expertise of the surgeon, identification and careful separation of bladder from the surrounding structures during pelvic surgeries etc. One of the routine steps followed in pelvic surgeries is to identify the bladder by palpating the Foley bulb in the urinary bladder. However, in an emergency setting where the patient is haemodynamically unstable and in the moment of hurry, these steps may not be followed and hence, may lead to inadvertent consequences of iatrogenic Bladder injury. We present a case of appendicular perforation who underwent exploratory laparotomy with inadvertent bladder injury and its successful management using a per urethral foley catheter. A strong clinical suspicion and judgement is usually needed to diagnose and appropriately manage such injuries.

Case report

A 21-year-old male presented to the casualty of a tertiary government hospital with complaints of right iliac fossa pain and fever since 5 days. Patient was primarily evaluated by General surgery department and patient showed signs of systemic inflammatory response syndrome in the form of tachycardia and tachypnoea. The blood pressure was 100/60 mm Hg. On per abdominal examination, patient had guarding and rigidity in the lower abdomen. Patient was then admitted under General surgery department and started on broad spectrum antibiotics in the form of third generation cephalosporins and metronidazole. Routine laboratory investigations revealed leucocytosis with WBC count being 13300/mm^3 and creatinine was 1.0 mg/dl. Patient underwent Xray abdomen erect which showed multiple air fluid levels. He was further evaluated by ultrasound examination of abdomen and pelvis which revealed free fluid in the pelvis. Patient then underwent Computerised tomography of the abdomen and pelvis- Plain and oral + intravenous contrast which revealed appendicolith with pelvic collection suggestive of appendicular perforation (Figure 1).

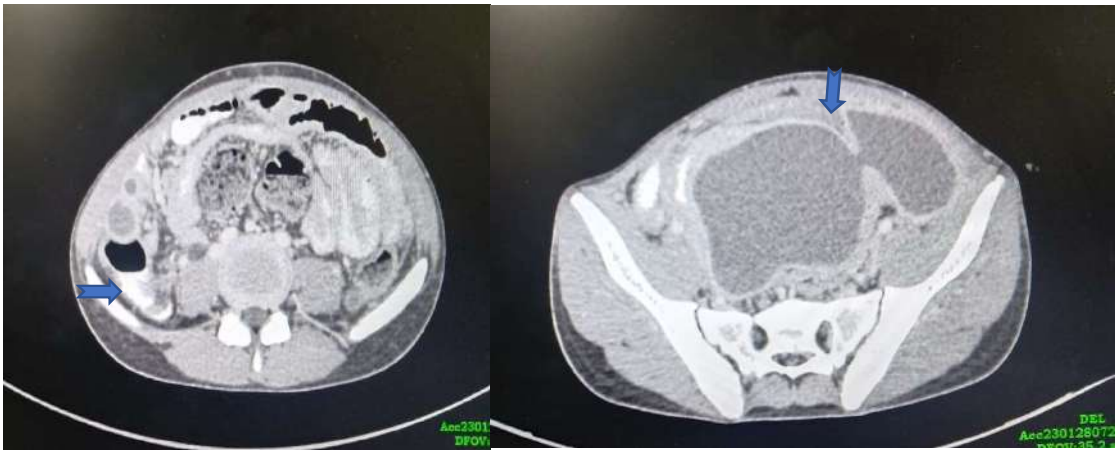

Figure 1a and 1b. CECT abdomen and pelvis suggestive of appendicular perforation with pelvic collection.

Patient then underwent Exploratory Laparotomy through a lower midline vertical incision. Intraoperative findings were suggestive of generalised free fluid in the peritoneal cavity with pus flakes and an appendicular lump. In view of appendicular lump, decision was made to give a peritoneal wash and put two drains; one in the right iliac fossa and one in the pelvis. Postoperatively, patient gradually improved. Both the drains had an output of 40 ml each on first 3 days; serosanguinous in nature. Right iliac fossa drain was removed on post-operative day 3. Per urethral foley catheter was removed on POD3. Patient was adequately mobilised from post-operative day 4 which resulted in increase in drain output to 1100ml on post-operative day-4 which was serous in nature. Post catheter removal, patient voided well for one day but however, on post-operative day-5, patient was not able to pass urine per urethraly and started developing profuse soakage of midline wound with serous fluid. On examination of the wound, there was no evidence of burst abdomen or wound dehiscence. Finally, Foley catheter was re-inserted per urethraly and methylene blue was flushed through it. This resulted in methylene blue leaking from the midline wound but no methylene blue in the pelvic drain. A urology consult was obtained and patient was advised Computerised Tomography Cystography. CT cystography revealed evidence of urinary bladder perforation -about 1.5 cm rent in the dome of the bladder and the extravasated contrast was seen tracking through a linear tract of length 4.4 cm tracking anterior and opening into skin surface near the central surgical scar site. There was no evidence suggestive of contrast extravasating into the peritoneal cavity. These findings were suggestive of extraperitoneal bladder perforation (Figure 2).

Figure 2. CT Cystography showing extra-peritoneal rupture of dome of the urinary bladder with a fistulous tract communicating to anterior abdominal wall skin near the midline surgical scar.

The patient was managed by continuous bladder drainage using a 14 F Foley catheter per-urethraly. After 3 weeks, review CT cystography showed healed bladder peroration and the catheter was removed and patient recovered successfully (Figure 3).

Figure 3. CT cystogram after 3 weeks shows complete healed bladder perforation.

Discussion

Iatrogenic bladder injuries increase significant morbidity for the patient. Hence, preventive measures should be undertaken to prevent such a occurrence. Strong Clinical suspicion is usually required to diagnose it in the early period. The literature review results lead to several important conclusions. First, the problem of iatrogenic injuries is well studied and analyzed. There is a set of preventive measures aimed at reducing the risk of injury. However, all these measures do not exclude urinary system injuries. The human factor, the difficult surgical situation, the imperfection of the technical aspects partially offset the preventive effect. Second, there is a lack of mandatory examination algorithms for the group of patients at risk. Thus, there is a significant problem of the urinary tract iatrogenic injuries, so far not completely resolved [2,3]. Third, patients set to undergo exploratory laparotomy through lower midline vertical incisions especially should have pre-operative bladder catheterisation perurethraly to drain the bladder, identification of the foley bulb in the bladder and careful separation of the bladder, vigilance during surgery to identify and repair iatrogenic bladder injuries etc. would help to decrease the incidence of bladder injuries and its associated morbidity [4,5]. Our case report shows that how this case was diagnosed relatively early and managed appropriately by catheter drainage.

Conclusion

This case report shows that during abdominal surgeries, care must be taken to avoid iatrogenic bladder injuries and in case of untoward consequences, how the injuries should be managed.

Conflicts of interest

The authors declares that they do not have conflict of interest.

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