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LAPAROSCOPIC REPAIR OF INTRAPERITONEAL BLADDER INJURY IN A TRAUMA PATIENT: CASE REPORT.

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Abstract: Isolated bladder injury following blunt abdominal trauma is less common and usually managed surgically by open laparotomy. Laparoscopic repair of intraperitoneal bladder Injury is a safe technique which possess many advantages over standard laparotomy, in appropriate patients. We repaired an isolated intraperitoneal bladder injury of a 27-year-old road traffic accident victim successfully using laparoscopic technique and the patient had minimal morbidity following surgery. We recommend the consideration of laparoscopic bladder repair in appropriate patients with intraperitoneal bladder injury.

Introduction

The incidence of bladder injury in trauma cases is less than 2%. Bladder injuries can be classified as intraperitoneal and extraperitoneal injuries. Out of the two, extraperitoneal bladder injury is more common and generally occur with pelvic fractures whereas intraperitoneal bladder injury is less common and usually present as isolated bladder injury. Surgical intervention is indicated for intraperitoneal bladder injury in order to close the defect, prevent contamination and peritonism. Previously the standard approach was exploratory laparotomy, but nowadays with the presence of laparoscopic techniques, exploratory laparoscopy with bladder repair is a better method to practice considering its advantages over the standard laparotomy. Here we describe the use of exploratory laparoscopy with bladder repair in a hemodynamically stable patient with an isolated bladder injury.

Case Study

We report the case of a 27-year-old male with no other comorbidities presented to the A&E following a road traffic accident where a motorbike was hit by a car. He was the motorbike rider and was thrown off from the motor bicycle and had impact to abdomen. Upon arrival he was drowsy, but neurologically normal and hemodynamically stable. He had minor lacerations over the lower limbs. He was complaining of lower abdominal pain and on examination abdomen was mildly distended and suprapubic tenderness was present. But no obvious features of peritonism. A FAST scan was done and it showed free fluid in the abdomen. Pelvic and Lower limb x-rays were taken and showed no evidence of fractures. As there were no pelvic fractures and clinical evidence of urethral injury, a foley catheter was inserted which revealed gross haematuria, but the urine output was inadequate. Therefore, a decision was made to take the patient for exploratory laparoscopy as we had a suspicion of a bladder injury.

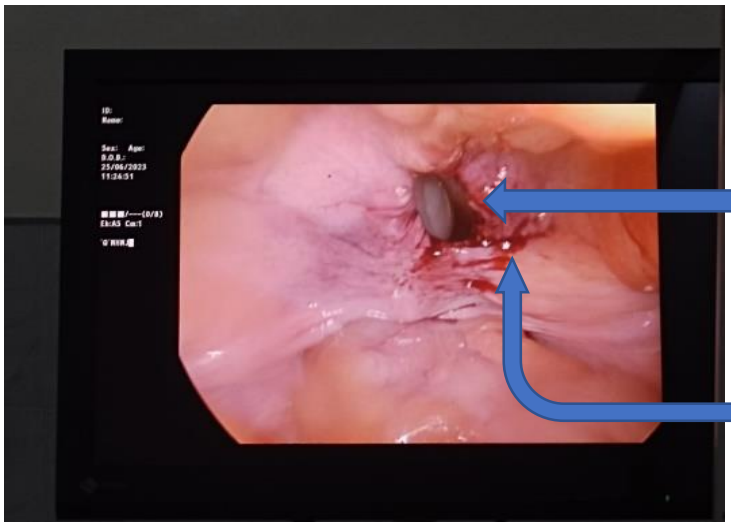

Figure 1 - Foley catheter bulb was seen through the bladder wall defect

Exploratory laparoscopy was carried out under general anesthesia where we accessed the abdomen through a sub umbilical 10mm port and pneumoperitoneum created. Two 5mm ports inserted to Left Iliac fossa and Right iliac fossa. Upon entering the abdomen blood-stained fluid collection was noted in the pelvis and a 3-4cm bladder laceration was found. The foley catheter was visualized within the bladder defect. No other solid organ damage or any evidence of bowel injury was present. Decision was made to proceed with the bladder repair laparoscopically. Peritoneal lavage was done and the bladder injury was repaired with continuous 3-0 Vicryl suture material for mucosa and seromuscular layer separately in 2 layers. Intraoperative leak test was done with diluted betadine solution which showed no obvious leakage. A pelvic drain was placed.

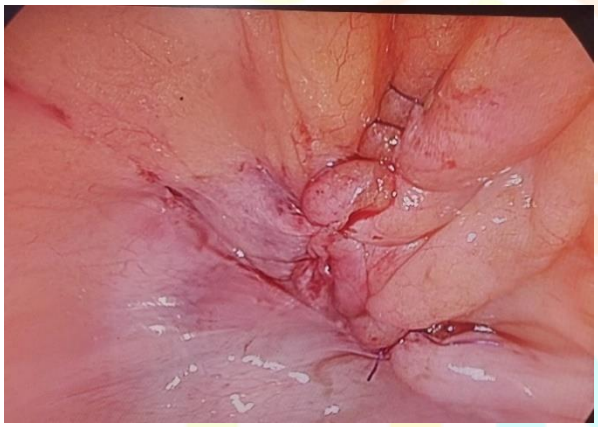

Figure 2 - After procedure

Postoperatively patient had an uneventful recovery. He was given intravenous antibiotics for 2 days and the pelvic drain was removed in 48 hours as output was nil. Patient was discharged on postop day 3 and was asked to keep the urinary catheter for 2 weeks. A cystogram was done after 2 weeks to exclude any leakage and was negative. Therefore, the foley catheter was removed and patient had almost normal activity after surgery.

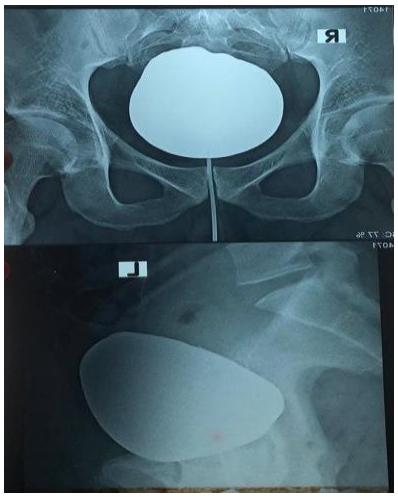

Figure 3 - Cystogram after 2 weeks showing intact bladder wall without any leakage.

Discussion

The incidence of bladder injuries in patients with blunt trauma is around 1.5%.Bladder injuries following trauma are often accompanied by pelvic fractures, urethral injuries or other visceral organ damage making the management more challenging to the surgeon. Isolated bladder injuries are less common and the management is more straight forward. Nowadays the presence of any concurrent injuries can be excluded by FAST scans,CT scans, CT urethrogram etc prior to the surgery which helps in confirmation of an isolated bladder injury and thus reduce the necessity of an exploratory laparotomy.

The most common sign of bladder injury is gross haematuria. But heamaturia can also occur with kidney or ureter injuries.In our case we didn't have a suspicion of renal injuries as the FAST scan didn't show any renal injuries and also the patient had resolving heamaturia whereas in renal injuries they usually get persistent haematuria.

Even in the presence of minor renal injuries (grade 1-2) or minor liver injury without any active bleeding, can be managed laparoscopically in facilitated centers with good expertise, considering its advantages over standard laparotomy.Use of laparoscopy has many advantages such as faster recovery and shorter hospital stay, less pain and decreased use of post operative analgesia, faster return to activities of daily living ,less chance of scar complications such as infections, incisional hernias ,keloid scars and better cosmetic outcome.It also reduce the chance of developing post operative adhesions, which is one of the commonest cause for intestinal obstruction.

No perioperative complications were noted in almost all the cases with laparoscopic bladder repair that has been reported including our case.Post operatively they may develop urinary tract infections as the urinary catheter has to be kept for 2weeks. There are no data available for long term outcomes for patients who have undergone laparoscopic bladder repair.

Our patient had an early recovery with no complications considering the fact that he was young and healthy with no other comorbidities. However the outcome in older patients with multiple comorbidities is doubtful.

Conclusion

We have described the case of succesful laparoscopic repair of an intraperitoneal bladder rupture.This approach may be consdered in patients with isolated bladder injuries as well as patients with minor liver or renal injuries who are haemodynamically stable, considering its advantages over laparotomy with regards to fast recovery and minimizing wound complications.

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