CASO CLÍNICO

Reconstruction of urinary bladder by laparoscopic surgery

Reconstrucción de la vejiga urinaria mediante cirugía laparoscópica

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Resumen

Objetivo: **Demostrar la técnica empleada para tratar por laparoscopía la ruptura de la vejiga urinaria mediante sutura interrumpida.**

Diseño: **Descripción de un caso.**

Descripción del caso: **Se trató de un paciente con trauma de pelvis por compresión. Presentó dolor abdominal intenso en abdomen inferior, hematoma abdominal desde el nivel de la cicatriz umbilical hasta el escroto y perineo. Al colocar un catéter urinario se observó hematuria. La radiografía de pelvis demostró fractura de ésta. El tratamiento inicial fue conservador y consistió en: inmovilización de la fractura, reposición de volumen, vigilancia de los valores de hemoglobina, hematócrito y presión arterial, administración de antimicrobianos. Se realizó después laparoscopia diagnóstica la que reveló: hemorragia de la pared abdominal, una lesión localizada en el polo superior de la vejiga urinaria de aproximadamente 4 cm, parcialmente sellada con ileon. Una vez identificada y expuesta la lesión vesical se procedió a efectuar sutura con puntos separados que tomaban el espesor de la pared vesical sin exponer la sutura a la cavidad urinaria; se empleo Vicryl 3-0.**

El paciente toleró satisfactoriamente el procedimiento y fue egresado del hospital al tercer día del postoperatorio. El control clínico 1 año después fue satisfactorio.

Conclusión: **Es factible efectuar reparación de lesiones de vejiga por vía laparoscópica.**

Abstract

Objective: **To demonstrate the technique used to suture the urinary bladder by laparoscopic surgery.**

Design: **Description of the case.**

Description of the case: **Patient with pelvic trauma due to compression. He presented abdominal pain, stronger in the lower quadrant, abdominal hematoma extended from the umbilical area to the scrotus and perineum. A Foley catheter was inserted in the urinary tract and hematuria was noted. X rays showed a major fracture of the pelvis. Initial treatment was conservative and consisted in immobilizing the fracture, restoring volume, monitoring hemoglobin, hematocrit, and blood pressure, and antibiotic therapy. Afterwards, a diagnostic laparoscopy was performed, which revealed: hemorrhage in the abdominal wall, a lesion located in the south pole of the bladder of approximately 4 cm, partially sealed with ileum. Once the vesical lesion was exposed, we proceeded to close the defect, using standard interrupted suture and external knotting. Care was taken not to expose the suture to the urinary cavity before reinserting it into the front borderline. Vicryl 3-0 suture was used. The patient tolerated well the procedure and was discharged from the hospital on the third day after surgery. Clinical follow-up after 1 year yielded satisfactory results.**

Conclusion: **It is feasible to repair the urinary bladder by means of laparoscopy.**

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Introduction

Urologic lesions consequential to a pelvis fracture are more frequent during automobile accidents, more particularly in pedestrians and motorcyclists. Less frequent causes include items such as falls from high sites, sport accidents and industrial lesions by compression with heavy objects.[1-3]

Calculations indicate that 3% of bone fractures correspond to this lesion.[4,5]

Mortality in this class of fractures ranges between 5% to 20%. On very rare occasions, the traumatic urinary lesions secondary to a pelvis fracture are a direct cause of death. Complications attributed to this type of fracture are very important consequences of the initial treatment.[1,2,6]

The objective of this study was describe the technique used to suture the urinary bladder by laparoscopic surgery.

Description of the case

We performed this operation in one male patient (age 29 years) referred for surgical evaluation after 5 days of hospitalization from a Trauma Service. The case was a patient with trauma of the pelvis by compression after a heavy load (forklift) fell on him and he was trapped for 5 minutes. He coursed with abdominal pain of strong intensity in his lower quadrant, bowel sounds were present, but diminishing, abdominal hematoma extended from the umbilical area to the superior thigh area including both the scrotum and the perineum. Femoral pulses were felt and appeared normal. A Foley catheter was inserted in the urinary tract and hematuria was noted. X-rays showed a major fracture of the pelvis.

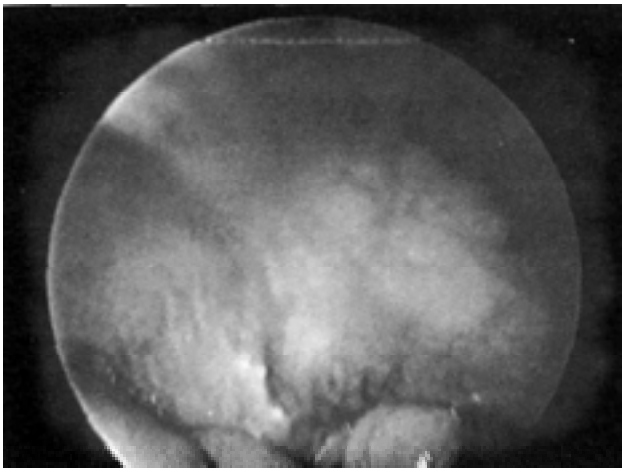

Fig. 1. Lesion: front view.

Presumption diagnosis: Major fracture of pelvis with probable rupture of the hollow viscera (lower urinary tract).

Initial Treatment: The treatment was conservative and included: 1) Immobilizing the fracture by bed rest, 2) Restoring volume, 3) Monitoring hemoglobin, hematocrit and blood pressure, and 4) Antibiotic therapy.

The patient was scheduled for diagnostic laparoscopic surgery. The operation was performed under general anesthesia, with the patient in Trendelenburg position. Preoperative preparation included placement of a Foley catheter, application of elastic compression stockings and continued administration of broad spectrum antibiotics. The surgeon stood to the left of the patient with the first assistant to the right. The camera operator stood next to the assistant to the right, and the monitor was placed at the foot of the patient.

Carbon dioxide insufflation was made through a Veress needle with a small incision just inferior to the borderline of the umbilicus. The pneumoperitoneum was created with intraabdominal pressure of 14 mm Hg. The initial incision site was used to apply the first 10 mm laparoscopic trocar. The second and third ports (of 5 mm) were then placed in both lower quadrants.

Laparoscopic evaluation of the abdomen revealed a moderate amount of infiltrated blood in the abdominal wall, scant hemoperitoneum, and a lesion located on the upper pole of the urinary bladder (approximately 1.5 inches, 4 cm) **(Figure 1)** partially sealed with ileum. Once the problem was identified, careful dissection of the seal of ileum was performed. When the lesion was exposed, the next procedure was to primary close the urinary bladder defect, using the standard interrupted suture and external knotting. Suturing was performed taking all the bladder wall extending through the peritoneal face and coming down to the internal borderline **(Figure 2)**. Care was taken not to expose the suture to the urinary cavity before reinserting it into the front borderline. Vicryl 3-0 suture was selected for this procedure. After the bladder was closed, the suture was tested on three occasions by filling the bladder with saline solution and methylene blue **(Figure 3)**. Urinary drainage with a Foley catheter was continued.

After anesthesia, the recuperated patient tolerated oral liquids without complications. The distention and other signs of peritoneal irritation disappeared, laboratory findings returned to normal. The patient was discharged and sent home 3 days after surgery. The urinary catheter was removed 7 days after of surgery. After removal, urination was spontaneous and without any problems. After 10 weeks, the patient was

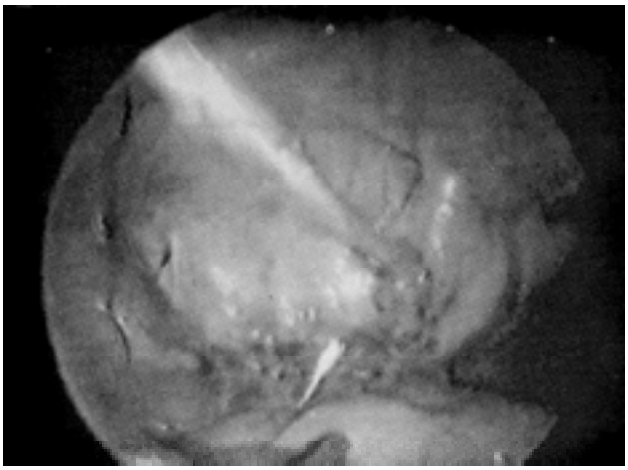

Fig. 2. Suture.

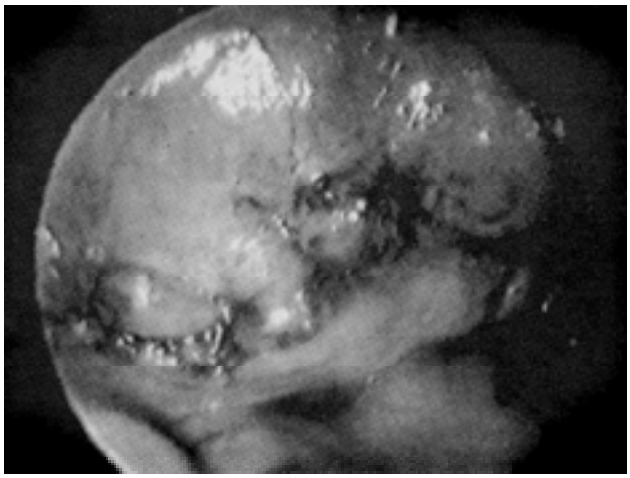

Fig. 3. Testing suture.

rehabilitated. Examinations after 4, 8, and 12 months were normal.

Discussion

It is calculated that 5 to 10% of patients with a major pelvic fracture will produce urinary bladder rupture.[7,8] From these, 50 to 85% will be extraperitoneal lesions; 15 to 45% will be intraperitoneal lesions; and up to 12% will be mixed lesions.[8]

The general recommendation is urological evaluation by radiology in all the patients with pelvis fracture. Micro and macrohematuria, bleeding discharge by the urethra, scrotum or perineal ecchymosis, and failure to palpate the prostate are all signs suggesting traumatic lesion of the urethra or bladder.[2,9] The recommended tests are urography and cystography. Intraperitoneal rupture require exploration and surgical repair.[6] Since 1974, extraperitoneal ruptures are subjected to conservative treatment with urinary discharge and therapy with antibiotics.[3]

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