Inguinal herniation of the bladder in an infant

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***I**nguinal herniation of the bladder is an uncommon finding with fewer than 200 cases reported in the literature. It is found most commonly in older, obese men with lower urinary tract symptoms. We report a case of inguinal herniation of the bladder in a premature infant.*

Key Words: pediatric inguinal hernia, bladder hernia

Introduction

Bladder herniation into the inguinal canal is a rare event. As many as 4% of inguinal hernias may involve the bladder.[1] It mostly occurs in men with a history of infravesical obstruction.[2-4] The increased intraabdominal pressure generated during micturition is thought to play a key role in the development of the hernia. Preoperative diagnosis using ultrasound or CT is possible, however bladder hernias are usually an incidental finding during inguinal hernia repair.[1,2,3,5] While inguinal hernias are common in children, inguinal herniation of the bladder is uncommon in the pediatric population.[6] We report about the initial presentation and management of a bladder hernia in a 6-month-old infant.

Case presentation and management

The male patient was the product of an uncomplicated pregnancy. He was born prematurely at 26 weeks with a birth weight of 700 grams. The mother presented with painless vaginal bleeding, and the patient was delivered emergently after developing decelerations in heart rate. Genitourinary exam shortly after birth revealed bilateral undescended testes and bilateral inguinal hernias. At 7 days of age he developed necrotizing enterocolitis with a bowel perforation and underwent exploratory laparotomy. Forty-eight hours later he was re-explored and a right loop ileostomy was necessary. The postoperative period was uneventful. An abdominal ultrasound was performed at 1 month of age. This study demonstrated Grade I hydronephrosis on the left. A voiding cystourethrogram was subsequently performed. This study demonstrated herniation of the bladder through the right inguinal canal into the scrotum, Figure 1. There was no evidence of infravesical obstruction or other genitourinary anomalies. At 6 months of age, the patient underwent takedown of the ileostomy with small bowel resection, appendectomy, and primary reanastomosis through a horizontal lower right quadrant incision. The right hernia was repaired through the same incision. The right testis was located intraabdominal and a right orchiopexy was performed in the same setting. The bladder was not located in the inguinal canal at the time of surgery. The bladder was filled intraoperatively with no abnormalities noted. The right ureter entered the bladder in the regular position. The large defect at the right internal inguinal ring was repaired intraabdominally with interrupted sutures.

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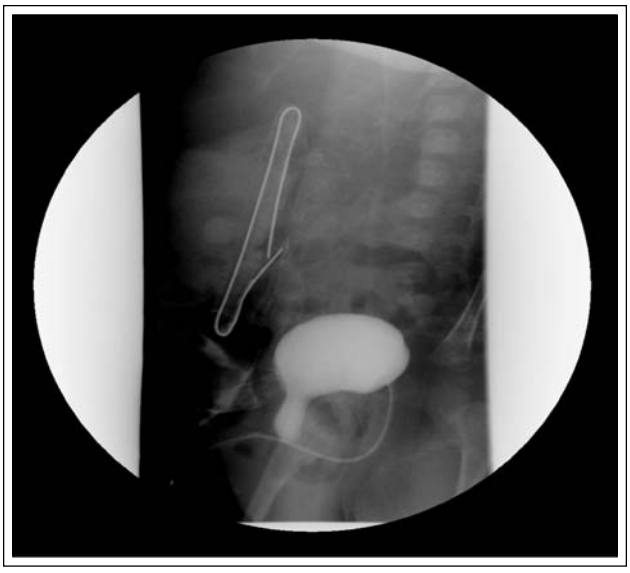

Figure 1. VCUG (lateral view) demonstrating inguinal herniation of the bladder on the right.

The left inguinal hernia was repaired through a separate standard left inguinal incision, and a circumcision was performed. The left testis had descended into the scrotum by the time of surgery. The postoperative course was uneventful. The patient was discharged home on postoperative day 5. Three months postoperatively the patient was doing well and all incisions were healed nicely. There was no sign of a recurrent hernia and both testes were palpable in the scrotum. The patient was voiding normally and was having regular bowel movements. Post-void ultrasonography was performed. This study demonstrated persistent Grade I hydronephrosis on the left and no post-void residual.

Discussion

The bladder is involved in 1%-4% of inguinal hernias in adults. Less than 7% are diagnosed preoperatively.[2] Almost 80% are recognized intraoperatively. The management is identical to standard inguinal hernia repair.[2,3] Intraoperative bladder injuries (up to 12%) usually occur when the herniated bladder is mistaken for the peritoneal hernia sac and resected.[2,4] An additional 16% of bladder hernias are found postoperatively with leakage of urine from the wound or other evidence of an intraoperative bladder injury.[2,4]

The incidence of a congenital inguinal hernia in children is up to 4.4%, and approaches 30% in premature boys.[1,7,8] However, hernias are not associated with other disorders of prematurity such as ventilator dependency, sepsis and necrotizing enterocolitis.[1,9] A variety of structures may be found in the hernia sac including fallopian tubes, ovotestes, or bowel.[5,6] Hydronephrosis has been associated with inguinal herniation of the bladder in adults.[2] Although there is no apparent connection, the work-up for hydronephrosis led to the diagnosis in the present case. In adults the apparent etiology of bladder hernia appears to be associated with infravesical obstruction. Herniation of the bladder has not been reported in children even in the most severe cases of bladder outlet obstruction. Predisposing factors in this case include a preexisting right inguinal defect and a sudden increase in intraabdominal pressure secondary to necrotizing enterocolitis and perforated bowel. Treatment and follow up is similar to standard hernia repair. Routine postoperative follow up should include exclusion of a post-void residual using ultrasound. In children with large inguinal scrotal hernias, the possibility of a bladder hernia should be entertained. □

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