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Case Report

Inverted bladder diverticulum with sigmoid colon herniation masquerading as bowel and bladder obstruction

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ABSTRACT

Urinary bladder diverticula can be congenital or acquired, and the latter tends to occur in older men and results from urinary obstruction. Primary bladder diverticula are congenital, smooth walled, solitary in nature and rarely diagnosed in adults. An internal hernia (IH) is a protrusion of intestines or other abdominal organs through a normal or abnormal orifice in the peritoneum or mesentery, occasionally leading to strangulation or incarceration. Internal hernias (IH) are rare causes of acute abdomen and intestinal obstruction in adults. Here we present a case report detailing the authors' surgical experience with inverted bladder diverticulum, presenting as internal hernia with sigmoid colon herniating through it, with features of acute intestinal obstruction and urinary dysfunction.

Keywords: Bladder diverticulum, Voiding dysfunction, Internal herniation, Intestinal obstruction, Management

INTRODUCTION

Primary bladder diverticula are congenital, smooth walled, solitary in nature and rarely diagnosed in adults.[1]

Bladder diverticula are usually classified as either innate or uninheritable. Hutch diverticula are congenital juxta meatal bladder diverticula near the Vesicoureteral junction, which occur almost exclusively in males with an incidence of 1.7%.[2]

Urinary bladder diverticula can be congenital or acquired, and the latter tends to occur in older men and results from urinary obstruction. Here we present a case report detailing the authors' surgical experience with inverted bladder diverticulum, presenting as internal hernia with sigmoid colon herniating through it, showing features of acute intestinal obstruction and urinary dysfunction.

CASE REPORT

A 63-year-old male presented with history of constipation, and increased frequency of urination and poor urinary stream, for 6 months.

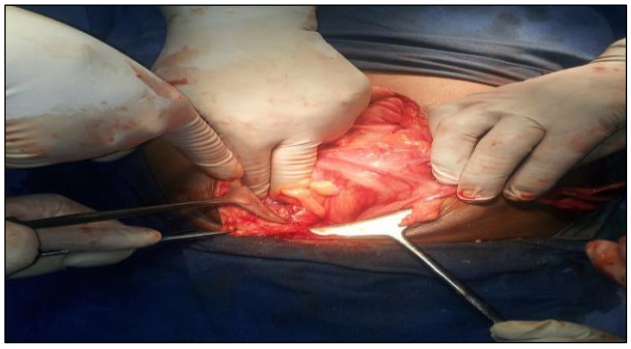

Figure 1: Sigmoid herniation into bladder.

He also presented with abdominal pain for 1 day, associated with vomiting and obstipation. He gives no history of any comorbidity, previous surgical intervention, or trauma. On general physical examination, pulse rate was 98/minute and blood pressure 130/80 mm of Hg.

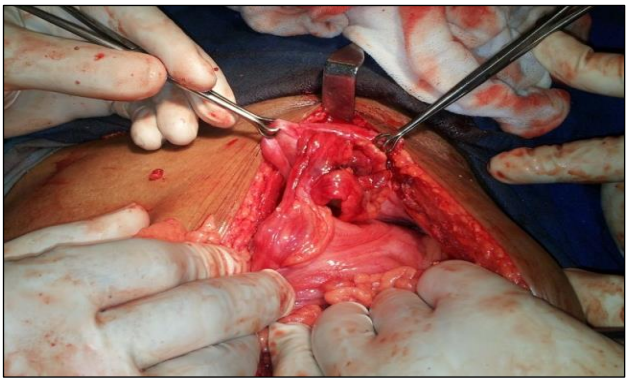

Figure 2: Hernia reduced.

Patient was afebrile and tachypnoeic. Examination of abdomen showed diffuse tenderness with absent bowel sounds; digital rectal examination was normal. Rest of the systemic examination revealed no abnormality.

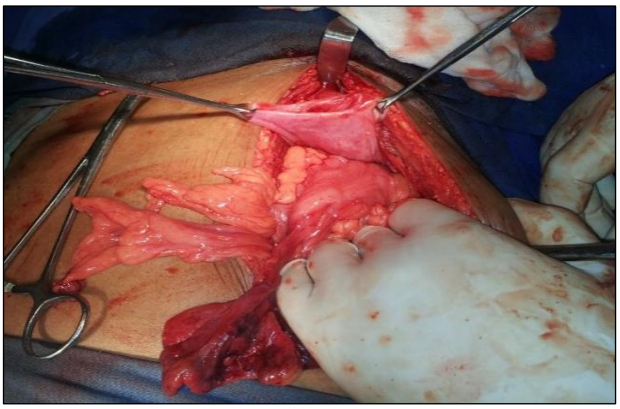

Figure 3: Inverted bladder diverticulum.

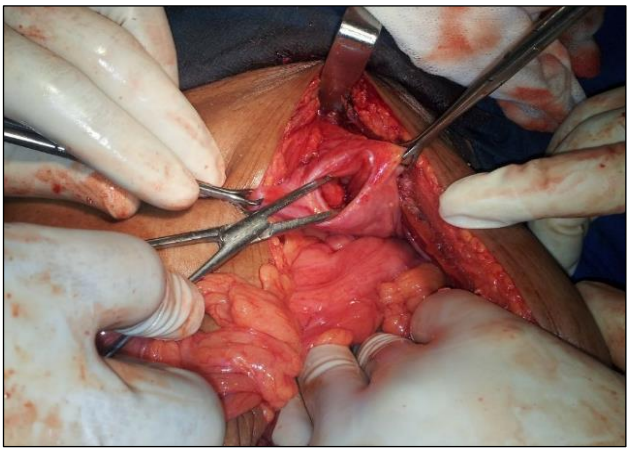

Figure 4: Urinary bladder with defect.

Abdominal radiography in the upright position showed dilated small intestinal loops with multiple air-fluid levels suggesting intestinal obstruction.

Ultrasonography of the abdomen revealed gaseous distension of the bowel loops. Routine blood investigations were within normal limit.

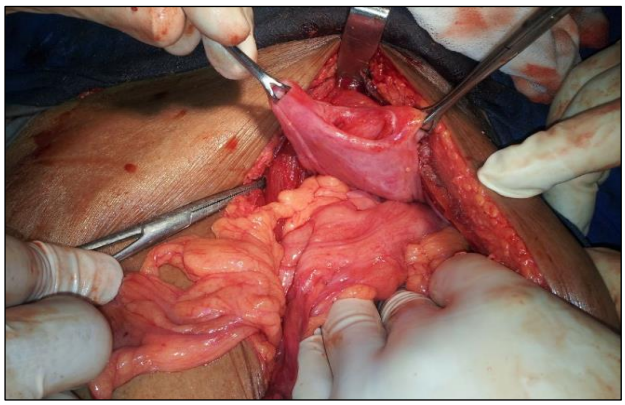

Figure 5: Urinary bladder with defect.

In view of intestinal obstruction, patient was taken up for emergency exploratory laparotomy. Intra-operatively, inversion of a bladder walls out pouching, with herniation of the sigmoid colon through the diverticulum causing large bowel obstruction, and decreased lumen of the urinary bladder (due to posteriorly located diverticulum) were noted.

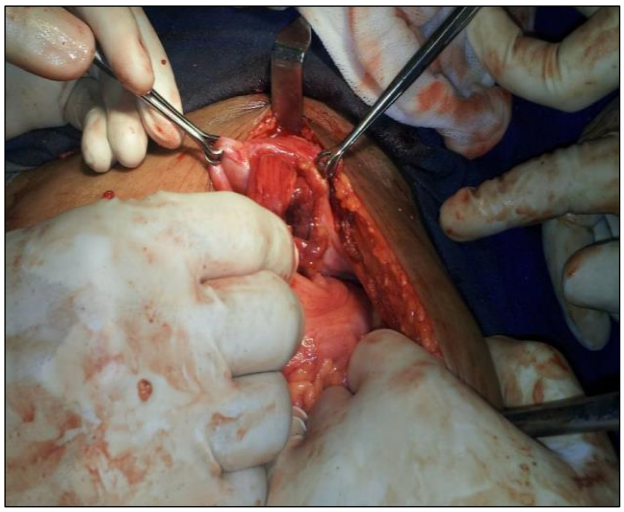

Figure 6: Repair done in layers.

The herniation was reduced, and the bladder diverticulum was repaired in 2 layers. Patient recovered well post-operatively and was discharged but was lost to follow-up.

DISCUSSION

A diverticulum is an out pouching of the lining or the entire wall of any hollow organ in the body. Primary

bladder diverticula are congenital, smooth walled, solitary in nature, and rarely diagnosed in adults.[1] Bladder diverticula are usually classified as either innate or uninheritable. Hutch diverticula are congenital juxta meatal bladder diverticula near the Vesicoureteral junction, which occur almost exclusively in males with an incidence of 1.7%.[2] Nonheritable bladder diverticula develop because of bladder outlet obstruction or bladder disorder. These occur in 1.7% of the paediatric population.[3] Most bladder diverticula are symptomless and ordinarily discovered through investigations for hematuria, lower urinary tract symptoms or infection. Large diverticula may present with symptoms including hematuria, urinary tract infection, urinary retention, neoplasm formation, or even acute abdomen due to rupture.[4] Some may also be found incidentally upon imaging.

An internal hernia (IH) is a protrusion of intestines or other abdominal organs through a normal or abnormal orifice in the peritoneum or mesentery, occasionally leading to strangulation or incarceration. Internal hernias (IH) are rare causes of acute abdomen and intestinal obstruction in adults. IH has a reported autopsy incidence of 0.2 to 0.9% and is the cause of small bowel obstruction in 0.6 to 5.8% of the cases.[5]

Presentation of an inverted bladder diverticulum as internal hernia, with protrusion of sigmoid colon through it, is a rare presentation. Preoperative suspicion and diagnosis in an emergency setting are difficult due to rarity of the entity, nonspecific clinical presentation, and limited utility of imaging in cases of acute intestinal obstruction.[6]

Acute abdomen is seen with ischemia and late cases of perforation.[7] Symptom severity relates to duration and reducibility of the hernia, and the presence or absence of incarceration and strangulation.[8] Bladder diverticula can be managed in many ways, like conservative non-operative management, or surgical excision. Indications for surgically treating bladder diverticula include presence of urinary infection, stones, and malignancy. Malignancy will be of noted concern with reference to bladder diverticulum, because of the dearth of a muscular layer on the far side of the bladder wall, leading to augmented risk of extension of malignancy outside the bladder.

Reduction of the strangulated intestinal segment should be done as early as possible to prevent intestinal ischemia, necrosis, and perforation and, thereby, reduce resection rates.[9] Open bladder diverticulectomy is the most invasive intervention and might be performed by either a transvesical or extravesical approach. Giant urinary bladder diverticulum should be considered in the presence of intra-abdominal cystic lesion to avoid unnecessary paracentesis.[5] Small sized diverticulum resolves spontaneously with relief of bladder outlet obstruction, whereas surgery is needed in large-sized diverticulum, if symptomatic.[6]

Bladder diverticula are usually asymptomatic and found incidentally while the patient is being evaluated for an unrelated complaint. However, the larger the size of the diverticulum, the more likely it is for symptoms to be present.[10]

Clinical presentation of internal hernia is nonspecific. Imaging has been of limited utility in cases of acute intestinal obstruction; moreover, interpretation of imaging features is operator dependent. Thus, internal hernias are usually detected at laparotomy, and preoperative diagnosis in an emergency setting is either difficult or, most of the time, not suspected.

This case report has described the rare manifestations of inverted bladder diverticulum, presenting as internal hernia with intestinal obstruction and bladder dysfunction, which was detected incidentally during the exploratory laparotomy for acute intestinal obstruction.

CONCLUSION

Bladder diverticula in adult men usually occur in the setting of bladder outlet obstruction. Most bladder diverticula are symptomless and are incidentally discovered on analysis for hematuria, bladder outlet obstruction, or urinary tract infection.

Inverted bladder diverticulum presenting as internal hernia should be kept in the differential diagnosis of acute intestinal obstruction in adults with no previous history of surgery or trauma. Since physical examination findings are nonspecific, a high index of clinical suspicion along with urgent CT is suggested to aid in the preoperative diagnosis of Internal Hernias. Early surgical intervention is crucial to avert the high risk of associated morbidity and mortality.

While conducting emergency laparotomy for intestinal obstruction, the rare type of Internal Hernia, as seen in our case, should be kept in mind. Indications for surgically treating bladder diverticula include urinary infection, stones, and malignancy.

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