

Postoperative Adhesive Small Bowel Obstruction Presenting as Acute Urinary Retention

Syed Ahmed Zaki¹, Dinesh Banur², Nazima Chaudhary³, Sleiman Gebran⁴

ABSTRACT

Postoperative adhesions are commonly seen after most abdominal surgeries. The majority of patients with intra-abdominal adhesions remain asymptomatic; however, some patients may develop symptoms ranging from mild abdominal pain to sometimes life-threatening complications. The most severe complication seen in association with postoperative adhesions is small bowel obstruction (SBO). This complication is rarely seen in the pediatric age-group. Adhesions have the potential to cause bowel obstruction. In addition, they can also affect the normal intestinal motility and transit leading to constipation. Several studies reported in literature show a strong association between constipation and the urinary disorders, such as incontinence and urinary urgency. We herein report a case of a boy who developed adhesive SBO with segmental ileal dilatation leading to constipation, urinary symptoms, and finally presenting to our hospital as acute urinary retention.

Keywords: Adhesion, Constipation, Ileal dilatation, Small bowel obstruction, Urinary incontinence, Urinary retention.

Indian Journal of Critical Care Medicine (2022): 10.5005/jp-journals-10071-24259

BACKGROUND

Abdominal adhesions are fibrous bands that span two or more intra-abdominal organs and/or the inner abdominal wall (i.e., peritoneal membrane). These adhesions are commonly seen after abdominal surgeries.¹ They develop as part of the normal healing process occurring after peritoneal damage. The severity and extent of adhesions varies, with the majority not manifesting clinically.² Postoperative adhesions in adults can present as SBO (transient, partial, or complete), persistent or intermittent bloating, alteration in bowel habits (constipation or frequent loose stools), nausea, secondary infertility, chronic abdominal, and pelvic pain.^{1,2} However, adhesive intestinal obstruction is less commonly seen in the pediatric age-group.² We herein report a child with postoperative adhesive SBO presenting as an acute urinary retention.

CASE DESCRIPTION

A 7-year-old boy born of non-consanguineous marriage presented with severe abdominal pain, vomiting for 1 day, and urinary retention for 18 hours. He was also constipated for 3 days at the time of presentation. The patient had a significant postnatal history and was operated on day 2 of life for ileal atresia. He underwent resection and primary anastomosis with intensive care stay for 30 days. He was apparently doing well till 3 years of age when he developed intermittent mild abdominal pain and was treated symptomatically. Later on, he developed constipation and was treated on and off by laxatives with temporary relief. However, over the last 3 months, the patient developed frequent urination and urge incontinence. He received antibiotics empirically for urinary tract infection (UTI) without any relief. Because of the recent onset urinary symptoms not attributed to UTI, the urodynamic study and the ultrasound (US) abdomen were requested; US abdomen was normal and the urodynamic study showed a small capacity overactive bladder. The child presented to us after 2 days of the urodynamic study with acute urinary retention. The

¹Department of Pediatrics, All India Institute of Medical Sciences, Bibinagar, Hyderabad, India

^{2,3}Department of Pediatrics, NMC Royal Hospital, Abu Dhabi, United Arab Emirates

⁴Department of Pediatric Surgery, NMC Royal Hospital, Abu Dhabi, United Arab Emirates

Corresponding Author: Syed Ahmed Zaki, Associate Professor, Department of Pediatrics, All India Institute of Medical Sciences, Bibinagar, Hyderabad, Phone: +91 9900864534, e-mail: drzakisyed@gmail.com

How to cite this article: Zaki SA, Banur D, Chaudhary N, Gebran S. Postoperative Adhesive Small Bowel Obstruction Presenting as Acute Urinary Retention. *Indian J Crit Care Med* 2022;26(6):739–741.

Source of support: Nil

Conflict of interest: None

possibilities considered were possible trauma causing urethral stricture during the urodynamic study and pressure effects of chronic constipation.

On examination, the child was afebrile, with respiratory rate, 20/minutes; heart rate, 90/minutes; and blood pressure, 90/60 mmHg. His weight and height were between the 25th and 50th percentiles for height/age index by gender. On the abdominal examination, there was generalized tenderness without guarding or rigidity. There was dullness in the suprapubic region suggestive of bladder distension. There was no other organomegaly, neurological, respiratory, and cardiac examinations were normal. Bladder decompression was performed by catheterization (250 mL output of clear urine), followed by marked pain relief after the procedure. Complete blood count, renal function tests, liver function tests, and inflammatory markers were normal. Urine microscopy and culture were normal. A plain abdominal radiograph was performed in supine and standing positions which showed dilated small bowel loops with air fluid levels. Fecal loading of the colon was also seen. In view of air fluid levels, barium meal study was done



Fig. 1: Barium meal with follow through showing marked segmental dilatation of the ileum



Fig. 2: X-ray abdomen supine and erect showing dilated small bowel loops with air fluid levels. Fecal loading of the colon is seen

which showed marked segmental dilatation of the ileum distally [Figure 1](#). Abdominal adhesions were suspected in view of the radiological findings and the past history of abdominal operation. Laparotomy was done which showed segmental dilatation (around 30 cm) of the distal ileum at a distance of 20 cm for the ileocecal valve. The old anastomosis was patent. There were extensive abdominal adhesions. Adhesiolysis of small bowel along with resection of the distended ileum and end-to-end anastomosis was performed. He was discharged on laxatives and is currently doing well on follow-up. The urinary symptoms and abdominal pain had subsided on follow-up.

DISCUSSION

The incidence of adhesive intestinal obstruction in children varies from 2.2 to 8.3%.^{2,3} Despite several advances in surgical techniques including laparoscopy, there is little change in the epidemiology

and understanding of the pathophysiology of adhesions.^{1,4} The timing from the initial operation to the presentation remains variable and can range from 7 days to 12 years.² In Janik et al. series, adhesive intestinal obstruction developed within 2 years in 80% of their patients.⁵ Abdominal adhesions have no specific laboratory features and are not readily visible by currently available imaging methods.¹ Thus, patients may experience protracted symptoms, delayed diagnosis, and adverse medical outcomes. Our patient was operated on day 2 of life and gradually developed abdominal adhesions which started manifesting clinically at 3 years of age. Initially, he had vague symptoms of abdominal pain which progressed to constipation with urinary symptoms (urge incontinence and frequent micturition) and finally acute urinary retention. During this period, he was investigated and treated several times for constipation and UTI but remained undiagnosed for adhesive disease. The majority of children with intra-abdominal adhesions are asymptomatic.^{1,2} Some of the risk factors for the development of symptomatic “adhesive disease” include infection, hypoxia, and multiple surgeries.² Adhesions that develop after appendectomy and procedures involving the left side of colon and rectum have been found to have enhanced predilection for intestinal obstruction.⁶ Although a conservative treatment does not remove the cause of the obstruction, the surgery can induce new adhesions. Thus, the management of SBO caused by adhesions remains controversial and difficult.^{1,2,7}

Adhesions have the potential to interfere with the normal intestinal motility and transit leading to altered bowel habits and constipation.¹ Similarly, due to adhesions, our patient had gradually developed constipation with X-ray abdomen showing fecal loading [Figure 2](#). Although rare, constipation has been reported to cause acute urinary retention in children.⁸ The association of constipation with urinary disorders such as incontinence and urgency is well established.^{8,9} Children with constipation have been found to have large volumes of residual urine and urinary tract dilatation, including the ureteropelvic tract.¹⁰ The pathophysiologic association of voiding disorders seen in children with constipation has been attributed to several factors. During the pelvic floor formation, there is a close embryological association (clauca) between the bladder and the rectum, sharing the same innervation, nerve roots S2 to S4. These nerve roots are responsible for controlling the motor function of the internal anal and urinary sphincters.^{8,10,11} Experiments with rats showed that the distension of rectum with a balloon results in diminished bladder contractility.¹¹ Chronic fecal retention can also result in the involuntary contraction of the pelvic floor muscle and the external anal sphincter, thereby making bladder emptying difficult.^{12,13} Additionally, due to the close anatomical association, the presence of impacted stool in the rectum (and in our case, also the dilated segmental ileum) reduces the bladder functional capacity. This results in a feeling of earlier bladder emptying, that is, increased frequency and hesitancy.^{12,13} Moreover, a chronically full rectal ampulla can lead to invaginations in the posterior wall of the bladder and urethral obstruction.¹³ All the above factors may have played a role in causing urinary symptoms and acute urinary retention in our patient.

CONCLUSION AND CLINICAL SIGNIFICANCE

A past history of abdominopelvic surgery in a child and presence of symptoms such as chronic abdominal pain, constipation, and/or urinary symptoms should alert the pediatrician to consider a

possible diagnosis of adhesive intestinal disease. A high index of suspicion will help in early detection of cases and thereby reduce the morbidity and mortality. Patients should be counseled regarding the possibility of adhesions and the associated risk during preoperative explanation of the planned procedure.

ORCID

Syed Ahmed Zaki  <https://orcid.org/0000-0003-2652-4585>

REFERENCES

1. Tabibian N, Swehli E, Boyd A, Umbreen A, Tabibian JH. Abdominal adhesions: a practical review of an often overlooked entity. *Ann Med Surg (Lond)* 2017;15:9–13. DOI: 10.1016/j.amsu.2017.01.021.
2. Al-Salem AH, Oquaish M. Adhesive intestinal obstruction in infants and children: the place of conservative treatment. *ISRN Surg* 2011;2011:645104. DOI: 10.5402/2011/645104.
3. Wilkins BM, Spitz L. Incidence of postoperative adhesion obstruction following neonatal laparotomy. *Br J Surg* 1986;73(9):762–764. DOI: 10.1002/bjs.1800730929.
4. Pouly JL, Darai E, Yazbeck C, Benifla JL, Dechaud H, Wattiez A, et al. Postoperative abdominal adhesions and their prevention in gynaecological surgery: II. How can they be prevented? *Gynecol Obstet Fertil* 2012;40(7–8):419–428. DOI: 10.1016/j.gyobfe.2011.10.001.
5. Janik JS, Ein SH, Filler RM, Shandling B, Simpson JS, Stephens CA, et al. An assessment of the surgical management of adhesive small bowel obstruction in infants and children. *J Pediatr Surg* 1981;16(3):225–235. DOI: 10.1016/s0022-3468(81)80669-0.
6. Diamond MP, Freeman ML. Clinical implications of postsurgical adhesions. *Hum Reprod Update*. 2001;7(6):567–576. DOI: 10.1093/humupd/7.6.567.
7. Tabchouri N, Dussart D, Giger-Pabst U, Michot N, Marques F, Khalfallah M, et al. Only surgical treatment to be considered for adhesive small bowel obstruction: a new paradigm. *Gastroenterol Res Pract* 2018;23;2018:9628490. DOI: 10.1155/2018/9628490.
8. Traslaviña GA, Del Ciampo LA, Ferraz IS. Acute urinary retention in a pre-school girl with constipation. *Rev Paul Pediatr* 2015;33(4):488–492. PMID: 26298658.
9. Vaz GT, Vasconcelos MM, Oliveira EA, Ferreira AL, Magalhães PG, Silva FM, et al. Prevalence of lower urinary tract symptoms in school-age children. *Pediatr Nephrol* 2012;27(4):597–603. DOI: 10.1007/s00467-011-2028-1.
10. Chang SJ, Hsieh CH, Yang SS. Constipation is associated with incomplete bladder emptying in healthy children. *Neurourol Urodyn* 2012;31(1):105–108. DOI: 10.1002/nau.21225.
11. Miyazato M, Sugaya K, Nishijima S, Morozumi M, Ohyama C, Ogawa Y. Rectal distention inhibits the spinal micturition reflex via glycinergic or GABAergic mechanisms in rats with spinal cord injury. *Urol Int* 2005;74:160–165. DOI: 10.1159/000083288.
12. Halachmi S, Farhat WA. The impact of constipation on the urinary tract system. *Int J Adolesc Med Health* 2008;20(1):17–22. DOI: 10.1515/ijamh.2008.20.1.17.
13. Chase JW, Homsy Y, Siggaard C, Sit F, Bower WF. Functional constipation in children. *J Urol* 2004;171(6 Pt 2):2641–2643. DOI: 10.1097/01.ju.0000109743.