

# Right Paraduodenal Hernia Causing Acute Intestinal Obstruction Leading To Perforation

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## Abstract

An internal hernia is the protrusion of an intraperitoneal viscus in a congenital or acquired foramen or retroperitoneal fossa. Paraduodenal hernias are the most common type among internal hernias and are rare causes of small-bowel obstruction. The right-sided paraduodenal hernia into the fossa of Waldeyer is less common than the left-sided one. Herein, we report a case of acute complete dynamic small-bowel obstruction leading to perforation due to a right paraduodenal hernia.

## INTRODUCTION

Internal hernias are uncommon and the herniation occurs through a defect, which is congenital or created during previous surgery. The presentation can be varied from chronic recurrent abdominal pain to acute intestinal obstruction, and internal hernias are the cause in 5.8% of acute small-bowel obstruction.<sup>1</sup> Electively, contrast enhanced CT is the investigation of choice while in emergency settings and diagnosis is made at laparotomy.

## CASE PRESENTATION

A fifty-five-year-old male presented to the emergency department of Pt. B.D. Sharma P.G.I.M.S. Rohtak with complaints of sudden-onset severe colicky pain in the abdomen with generalised distension for two days, vomiting for two days and inability to pass stools and flatus for two days. There was no history suggesting any chronic illness or abdominal operative procedure. On examination, the patient had tachycardia with a pulse rate of 98 per minute, his blood pressure was 130/80mm Hg, and his respiratory rate was 18 per minute. The abdomen was distended with stretched umbilicus, temperature was normal and there was no guarding or rigidity; however, the patient had tenderness all over the abdomen. The whole abdomen was tympanic and bowel sounds were increased to 6-7 per minute. The patient was resuscitated with intravenous fluids, Ryle's tube and Foley catheter were put in and symptomatic treatment was given. Investigation revealed a raised white blood count (14000/cumm); the remaining blood profile was within

normal limits. Plain abdominal X-ray (erect) showed multiple air-fluid levels [Figure1] and supine X-ray showed dilated jejunal and ileal loops [Figure2]. Ultrasonography revealed dilated bowel loops. The patient was diagnosed as a case of acute complete dynamic small-bowel obstruction and emergency laparotomy was planned.

A midline laparotomy was done and retroperitoneal herniation of small bowel in the right paraduodenal region was found. The contents were reduced by gentle traction to the gut, leaving a large redundant peritoneal sac [Figure3, Figure4]. Thereafter, upon exploring the contents, a small perforation in the jejunum was noted, which was repaired with single-layer interrupted sutures. The sac was obliterated by placating the sac with catgut 2/0 sutures. The rest of the abdominal contents were found to be normal. An abdominal drain was put into the pelvis and the abdomen was closed with single-layer continuous sutures. The postoperative period was uneventful and patient was discharged on the 7<sup>th</sup> postoperative day.

**Figure 1**

Figure 1: Abdominal X-ray (erect) showing multiple air-fluid levels



**Figure 2**

Figure 2: Abdominal X-ray (supine) showing dilated jejunum and ileum



**Figure 3**

Figure 3: Redundant right paraduodenal sac



### Figure 4

Figure 4: Redundant right paraduodenal sac. This peritoneal sac had contained almost the whole jejunum and parts of the ileum.



### DISCUSSION

Internal hernias are rare and found in 0.2-0.9% of population; they can be congenital or acquired.<sup>2</sup> They occur at various sites like paraduodenal (53%), pericaecal (13%), foramen of Winslow (8%), transmesenteric and transmesocolic (8%), intersigmoid (6%) and retroanastomotic (5%), transomental (1-4%), supramesocolic and pelvic (6%).<sup>3</sup>

Right paraduodenal hernia occurs when the bowel herniates through Waldeyer's fossa (a defect in the jejunal mesentery) posterior to the superior mesenteric artery and inferior to the third part of duodenum, into the right half of the transverse mesocolon or behind the ascending mesocolon.<sup>4</sup>

Embryologically, at 6 weeks, the midgut herniates into the umbilical cord and rotates 90° in it, while returning back it again rotates 90° and finally another 90° in the abdomen to rotate a full 270° counter-clockwise around the superior mesenteric artery; if the pre-arterial segment fails to rotate the small bowel is entrapped in the right mesocolon and a right paraduodenal hernia results.<sup>5</sup> It is also called a mesentericoparietal or congenital mesocolic hernia.

Paraduodenal hernias are associated with a lifetime risk of intestinal obstruction up to 50% and a mortality rate of 20%.<sup>6</sup> The presentation can be varied from recurrent abdominal pain with nausea, vomiting and upper abdominal discomfort to acute intestinal obstruction; 5.8% of acute small-bowel obstructions are caused by internal hernias.<sup>1</sup> This condition, if not diagnosed timely, can result in

increased morbidity and mortality. Computerised tomography is the investigation of choice in elective settings, but in emergent situations like intestinal obstruction, diagnosis is made at laparotomy. At surgery, a finding known as empty abdomen is noted with small bowel enclosed in a peritoneal sac and the last part of the ileum present in the peritoneal cavity.<sup>6</sup> Treatment described at laparotomy is reduction of contents if possible, otherwise incising the neck of the sac, taking care of the nearby superior mesenteric vessels and reduction.<sup>7,8</sup> The redundant sac is closed or widened. Right mesocolic herniation is repaired by displacing the colon towards the right side and leaving the small bowel on the right side.<sup>9</sup> In our case, the jejunum and proximal ileum were contained in the peritoneal sac in the fossa of Waldeyer and there was a small perforation in the jejunum inside the sac, along with leaked fluid from the perforation. As it was contained in the sac, there were no abdominal signs of perforation peritonitis. Although paraduodenal hernias are known, the literature is silent about presentation with a complication like perforation peritonitis within the sac.

### CONCLUSION

Right paraduodenal hernias are a rare cause of intestinal obstruction and are difficult to diagnose in emergency settings. They carry high morbidity and mortality rates; therefore, early intervention is required and treatment includes urgent laparotomy with reduction of the contents of the sac and obliteration of redundant sac.

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