

## TRANSMESENTERIC INTERNAL HERNIA WITH GANGRENE

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### ABSTRACT

Transmesenteric internal hernia are rare cause of intestinal obstruction in children. Simple cases have myriad of non-specific symptoms. Preoperative clinical and radiological diagnosis is challenging. Complications of volvulus, strangulation and gangrene are poor prognostic factors. High index of suspicion, prompt and appropriate surgical intervention in simple and complicated cases improve management outcome. We present a 3years old girl with a transmesenteric hernia complicated with volvulus and gangrene who did well with segmental bowel resection and end to end anastomosis.

**Keywords:** Transmesenteric, Internal hernia, Intestinal, obstruction, Gangrene

### INTRODUCTION

Transmesenteric hernias are rare forms of congenital internal hernias.<sup>1,2,3,4</sup> Previously, they account for 5-10% of all internal hernias in children. The recent increase in Roux-en-Y reconstruction in children has now made them account for 35% of all internal hernias in children.<sup>1,2,5,6,7</sup> Chronic abdominal pain and intestinal obstruction are often the commonest symptoms. Non-specific clinical and radiological signs have made pre-operative clinical and radiological diagnosis most challenging. Most of the diagnosis are made intra-operatively.<sup>1,2,3,5,6,8</sup> Complications of volvulus, strangulation, bowel gangrene and perforation occur in 30-40% of cases<sup>2,5,6,9</sup>. Simple transmesenteric hernias treated

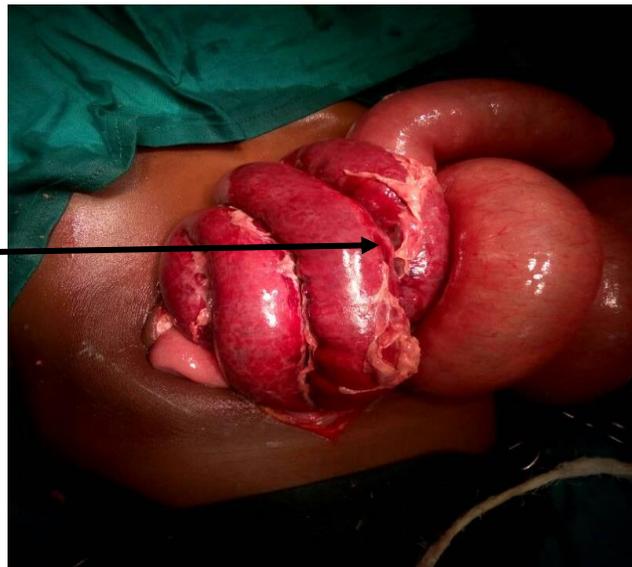
surgically have a general mortality of 15% while complicated cases often have 50% mortality. The mortality is 100% when complicated with gangrene with no surgical intervention instituted.<sup>4,6,8,10,11,12,13</sup> Clinical suspicion, adequate resuscitation and prompt surgical intervention will improve the overall outcome in children.<sup>1,2</sup>

### CASE REPORT

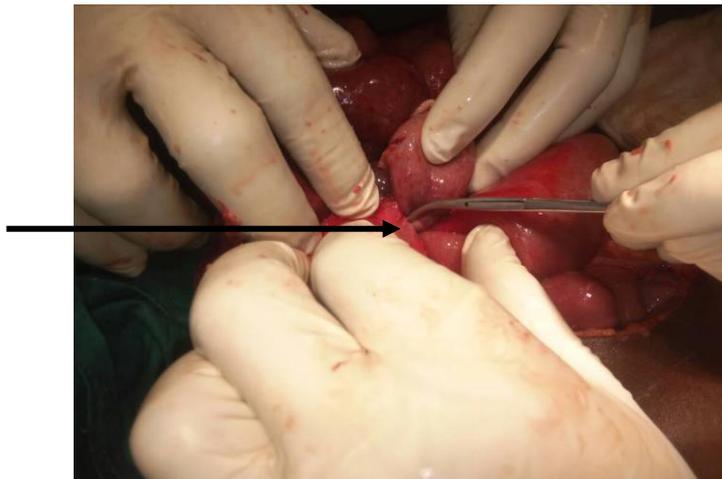
A 3years old girl was referred to our facility with a 3 day history of colicky periumbilical abdominal pain, bilious vomiting, progressive abdominal distension and constipation. Clinical examination revealed a febrile dehydrated child, a grossly distended abdomen with generalized tenderness and an

umbilical hernia with a 2cmx 2cm fascial defect. There were associated hypoactive bowel sounds and tender rectum filled with brownish non-mucoid non-blood stained stool. Plain abdominal X-ray showed multiple air-fluid levels, centrally located dilated loops of small intestine. Abdominal ultrasound showed dilated bowel loops with low peristalsis. Laboratory findings showed anaemia, leukocytosis

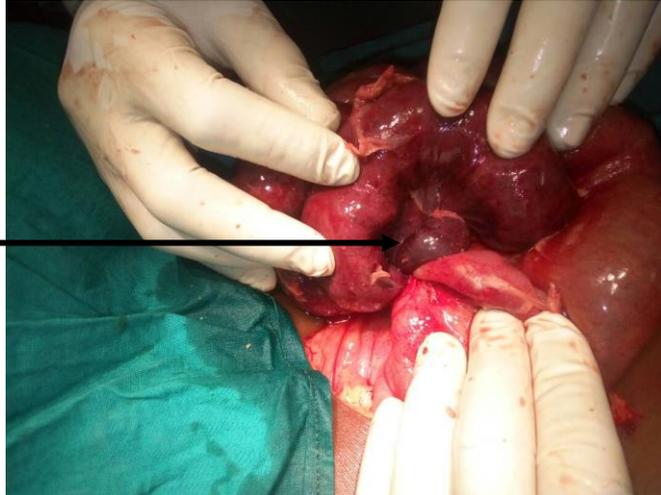
and acidosis. The patient was adequately resuscitated and exploratory laparotomy was done 22 hours post admission through a long midline abdominal incision. Intraoperatively, a 4cm by 2cm mesenteric defect 48cm from the ileocaecal junction was observed. There was a viable herniated segment of ileum and a 20cm of gangrenous adjacent ileum as seen in figures 1, 2, 3& 4.



**Figure 1**



**Figure 2**



**Figure 3**



**Figure 4**

A segmental resection of the gangrenous bowel and the mesenteric defect with an end to end anastomosis

#### **DISCUSSION**

Acute intestinal obstruction is encountered daily in our practice. Congenital internal hernias are rare and

were done. The peritoneal cavity was copiously irrigated with saline. The patient did well and was discharged home 7 days post operatively.

occur in less than 1% of children.<sup>6,7,11,14</sup> They cause 5.8% of all small bowel obstruction in children,<sup>1,4</sup> are often neglected but can have devastating

consequences. Transmesenteric hernias were first described by Rokitansky in 1836.<sup>1,4,10,13,15</sup> Meyers traditionally classified internal hernias into paraduodenal (53%); pericecal (13%); foramen of Winslow (8%); transmesenteric and transmesocolic (5-10%); intersigmoid (6%) and retroanastomotic (5%).<sup>1,2,3,4</sup> The recent increase in procedures requiring roux-en-Y reconstruction in children has now made transmesenteric hernias the commonest(35%) internal hernias in children.<sup>1,2,5,6,7</sup> These hernias characteristically do not have sacs and the defects often have 2-5cm width gaps.<sup>5,7</sup> They can either be congenital or acquired (postsurgical, traumatic or post-inflammatory).<sup>1,4</sup> The congenital defects result embryologically from either regression of the dorsal mesentery, development of a hypoavascular area, rapid lengthening of a segment of mesentery or mesenteric compression by colon during fetal midgut herniation into the yolk sac . They may be syndromic with associated atresia, malrotation, bowel duplication, Hirschsprung's disease or cystic fibrosis.<sup>1,4</sup> Three main types of transmesenteric hernias are commonly seen. These include the transmesenteric, the transmesocolic and the Peterson's type of hernia which herniates behind a Roux-en-Y loop.<sup>1</sup> These hernias can either remain asymptomatic or cause chronic intermittent abdominal pain especially in older children and

bowel obstruction in neonates amongst other symptoms. The most important complications of volvulus, strangulation with possible resultant bowel gangrene and perforation occur in 30-40% of symptomatic cases.<sup>2,5,6,9</sup> The non-specific symptoms and signs coupled with spontaneous reduction make pre-operative clinical diagnosis difficult. Radiological signs with modern imaging techniques such as Computed Tomography (CT) scan are not always apparent even when done at the appropriate time.<sup>1,2,3,5,8</sup> This has often lead to gross mismanagement with catastrophic consequences. Most of the cases are accidentally diagnosed intraoperatively during emergency exploratory laparotomy.<sup>3,7,16</sup> Surgically treated children with simple transmesenteric hernias have a general mortality of 15% while those complicated with volvulus, incarceration and gangrene have a mortality of 50%. All the complicated transmesenteric hernias not surgically treated have a 100% mortality.<sup>4,6,8,10,11,12,13</sup> Children with transmesenteric internal hernias suffer significant morbidity and even death when diagnosis is late and prompt appropriate treatment are not instituted.<sup>17</sup> Therefore, heightened awareness of the possibility of transmesenteric hernias and high index of suspicion of clinical cases coupled with understanding of the

pathology will limit misdiagnosis despite imaging results.<sup>1,2</sup>

## CONCLUSION

Transmesenteric internal hernias are rare cause of intestinal obstruction in children. The incidence is increasing with increase Roux-en-Y procedures. Pre-operative clinical and radiological diagnosis is still a major challenge. Complicated cases are often associated with catastrophic outcome. High index of suspicion, adequate resuscitation and prompt appropriate surgical intervention in suspected cases result in better management outcome.

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