

# Computed Tomographic Appearance of Internal Herniation Through the Sigmoid Mesocolon

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The case of a patient with surgically proven internal herniation of a loop of ileum through the sigmoid mesocolon is described. This 66-year-old man presented clinically with acute lower abdominal pain and an elevated white blood cell count. A computed tomography (CT) scan showed a thickened bowel loop with "bird-beak" appearance in the pelvis, centered towards the medial side and lying aside the effaced sigmoid colon. We think this CT picture is highly suggestive of internal herniation of the ileum through the sigmoid mesocolon, which is a rare clinical entity. [*J Chin Med Assoc* 2005;68(4):195–197]

**Key Words:** computed tomography, internal herniation, sigmoid mesocolon

## Introduction

Sigmoid-mesocolon hernia is an uncommon type of internal hernia (5% of cases). Diagnosis of this rare condition was traditionally established only at operation. However, treatment, which is always surgical, is simple if instituted early.

Three types of sigmoid-mesocolon hernia have been described: intersigmoid; intrasigmoid; and transversosigmoid, which is the rarest. The first 2 types have a hernia sac, while the last type has no definitive hernia sac. Our patient had transversosigmoid hernia and did not have a hernia sac. The herniated intestinal loop herniated through a defect in the mesosigmoid and was proved surgically. Because of the high incidence of bowel gangrene, early-imaging confirmation and diagnosis of this rare entity is important clinically.

## Case Report

A 66-year-old man who complained of abdominal pain for 2 days was admitted from the emergency de-

partment. His vital signs were normal. An abdominal examination revealed mild distension and tenderness of the whole abdomen, but especially in the left-lower quadrant; auscultation revealed normal bowel sounds. The patient had no previous history of abdominal surgery or other related diseases. Laboratory data were unremarkable, except for a mildly elevated white blood cell count of 10,400/L. A plain abdominal film showed multiple, dilated small-intestinal loops. The patient underwent a CT scan under the impression of small intestinal obstruction. A short segment of small intestinal loop, with thickened and edematous wall at the left-lower abdomen, was noted (Figure 1) that displaced and effaced the sigmoid colon medially. "Bird-beak" appearances of the afferent and efferent segments were seen (Figure 2), and were centered towards the incarcerated mesenteric vessels in the hernial ring. The proximal intestinal loops were markedly dilated with air-fluid levels (Figure 3), while the distal loops were collapsed, which is consistent with mechanical obstruction at this site. An emergency operation was performed, which showed an ileal segment about 50 cm from the ileocecal valve incarcer-

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ated in a defect in the sigmoid mesocolon. The hernia loop, which measured 20 cm in length, showed only swelling and was not strangulated. A reduction of

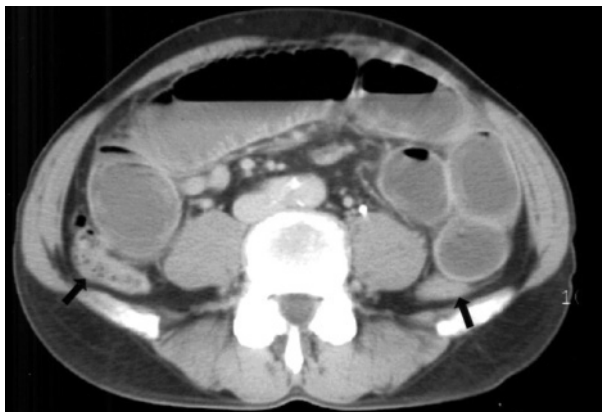
the hernia loop and closure of the defect were performed. The postoperative course was uneventful, and the patient was discharged 1 week later.



**Figure 1.** The sigmoid colon (thick arrow) is effaced and displaced medially by the herniated small intestinal loop (thin arrow) just medial to the left psoas muscle. The wall of this herniated loop is thickened.



**Figure 2.** There is a "bird-beak" appearance of the afferent and efferent loops at the hernial ring (thick arrows). The beaking is centered towards the swollen mesenteric vessels (thin arrow).



**Figure 3.** Axial computed tomography scan above the pelvis showing marked dilation of the small intestinal loops, while the ascending and descending colons are normal in size (arrows).

## Discussion

Internal abdominal hernias develop when 1 or more viscera extrude through an interperitoneal orifice but remain within the peritoneal cavity. The orifice may be normal (Winslow's foramen) or paranormal (e.g. hernias through the peritoneal fossa may be paraduodenal, ileocecal, inter- or meso-sigmoidal, paracolic, supramesic, or of the large ligament of the uterus). All these hernias possess a sac and are true hernias. The orifice may be abnormal, and if of pathologic origin, may be formed in a mesentery or an omentum, thus potentially leading to the following types of hernia: trans-mesenteric, trans-mesocolic, trans-omental, or hernia by colo-omental disinsertion. An abnormal orifice may also occur in a congenital anomaly of a ligament (falciform ligament) or mesentery (mesentery of Meckel's diverticulum). All of the aforementioned, abnormal hernias lack a sac and are "internal prolapses". The reported incidence of internal hernia is only 0.2–0.9%.<sup>1,2</sup> Although rare, recognition of this clinical entity is important because of the risk of strangulation of hernia contents and the need for urgent surgery.

Bircher and Stuart<sup>3</sup> described 3 types of herniation of the sigmoid mesocolon. While inter- and intra-sigmoid hernias both possess a hernia sac, our patient had a transversosigmoid hernia without a definite hernia sac, although the intestinal loop herniated through a defect in the mesentery.

Typical CT appearances of internal herniation through the mesentery, as shown in our case, consist of medial displacement of the colon by herniated intestinal loops, and bird-beak appearances of the afferent and efferent intestinal segments; in our patient, these segments were centered towards the incarcerated mesenteric vessels in the hernial ring. Associated findings in our case were dilated proximal intestinal loops and collapsed distal loops; in some cases, evidence of volvulus or strangulation of the hernia loops may manifest. We think that a typical bird-beak appearance in the pelvis, centered towards the medial side in a patient with intestinal obstruction and abdominal pain, is highly suggestive of internal herniation through the sigmoid mesocolon.

Recently, Blachar et al<sup>4,5</sup> reported some CT features of internal hernia. However, all the transmesenteric hernias reported were related to previous abdominal

surgery. To our knowledge, the present report is the first to describe the use of a CT bird-beak sign to diagnose a closed-loop internal hernia through the sigmoid mesocolon.

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