

# CT diagnosis of sigmoid mesocolon internal hernia

Rupesh Mandava<sup>1\*</sup>, Rajani Gorantla<sup>2</sup>, Harsha Chadaga<sup>3</sup>, Ramya Ramakrishnan<sup>4</sup>, Roy Santosham<sup>5</sup>

{<sup>1,2</sup>Assistant Professor, <sup>5</sup>Professor, Department of Radiology} {<sup>4</sup>Professor, Department of General Surgery}

Sri Ramachandra University; Porur, Chennai-116, Tamil Nadu, INDIA.

<sup>3</sup>Senior Consultant and Head, Columbia Asia Hospital, Bangalore, Karnataka, INDIA.

Email: [rupeshmandava@gmail.com](mailto:rupeshmandava@gmail.com)

## Abstract

**Introduction:** We report a surgically proven case of sigmoid mesocolon internal hernia with ileum as contents. This 65 year old female patient presented with complaints of pain radiating to the back. Computed tomography (CT) of the whole abdomen showed bird beak appearance of the dilated small bowel loops with the beak like appearance centered towards the medial side and lying adjacent to the effaced sigmoid colon. This picture on CT is highly suggestive of sigmoid mesocolon internal hernia with ileum as contents which are a rare entity.

**Keywords:** Internal Hernia; Sigmoid Mesocolon; Bird beak Sign.

## \*Address for Correspondence:

Dr. Rupesh Mandava, Flat No 6-D, 6th Block, Kences Brindavan Apartments, E.V.R Lane, Kilpauk, Chennai, Tamil Nadu, INDIA.

Email: [rupeshmandava@gmail.com](mailto:rupeshmandava@gmail.com)

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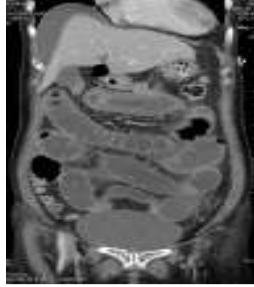
## INTRODUCTION

Internal hernia through the sigmoid mesocolon is a rare type of internal hernia. Diagnosis is usually established at surgery. However, the impending complications of missing or misdiagnosing this rare type of hernia on CT show the importance of identifying it on CT.

## CASE REPORT

An elderly female presented to the emergency department with complaints of pain in the lower abdomen radiating to the back. Her vitals were normal. An abdominal evaluation revealed mild distension and tenderness of the abdomen, more in the left lower quadrant. Clinical evaluation showed mild tenderness of the abdomen

localizing to the left lower quadrant with evidence of mild abdominal distension and no appreciable bowel sounds on auscultation. The patient had a previous history of hysterectomy done for fibroids. An X-Ray of the abdomen showed multiple dilated small bowel loops with the dilated loops localized to the central abdomen. The ultrasound was inconclusive due to the dilated bowel loops causing excessive bowel gas shadows. Contrast enhanced CT was performed which showed dilated small bowel loops (figure 1); the afferent and efferent segments, centered towards the incarcerated mesenteric vessels converging to a point giving a bird beak appearance (figure 2). The proximal loops were dilated and the distal loops were collapsed which is consistent with the mechanical obstruction. Due to the presence of few small bowel loops between the sigmoid and the pelvic wall (figure 3), possibility of sigmoid mesocolon internal hernia was considered. Patient was taken up for surgery, which showed internal herniation of mid ileum, a part of which was gangrenous through a rent in sigmoid mesocolon. Hemorrhagic peritoneal fluid was also noted. Repair of the defect with resection of the gangrenous segment and anastomosis was performed. The patient was discharged from the hospital after an uneventful postoperative period.



**Figure 1:** Dilated small bowel loops with free fluid



**Figure 2:** Afferent and efferent segments, centered towards the incarcerated mesenteric vessels converging to a point giving a bird beak appearance



**Figure 3:** Presence of few small bowel loops between the sigmoid and the pelvic wall

## DISCUSSION

The protrusion of viscus through an abnormal or normal opening in the mesentery or the peritoneum which is confined to the peritoneal cavity is what is defined as an internal hernia. The opening may be an acquired (postsurgical, traumatic or post inflammatory defect) or congenital one. Occurrence of internal hernias is rare as they have an incidence of less than 1%<sup>1</sup> Of all the small bowel obstructions ; about 5.8 % are caused by internal hernias which if not attended to immediately can have a mortality of more than 50% in the presence of strangulation. The incidence of the internal hernias is on the rise because of the increase in the number of abdominal surgeries [liver transplants, bariatric surgeries]. Based on the location Meyer<sup>2</sup> divided internal hernia into paraduodenal internal hernia which constitute about 53%; pericaecal internal hernia which constitute about 13% ; foramen of Winslow internal hernia which constitute about 8%, transmesenteric internal hernia and transmesocolic internal hernia which constitute about 8%, Intersigmoid internal hernia which constitute about 6% and retroanastomotic internal hernia which constitute about 5%. Sigmoid mesocolon internal hernias have been classified by Bircher and Stuart<sup>3</sup> into

1. Intersigmoid the most common variant in which protrusion of the bowel is seen into the fossa between the mesenteries and the two sigmoid loops adjacent to each other i.e. the intersigmoid fossa . Contents of the intersigmoid mesocolon internal hernia are ileal loops most commonly. This type of internal hernias are easily reducible

2. Transmesosigmoid subtype in which the herniating small bowel is seen to be lying posterolateral to the sigmoid colon after herniating through a complete defect involving both the layers of the sigmoid mesocolon.
3. In the least common variant i.e the intrasigmoid variant ; there is a defect which is seen to involve only one of the layers of the sigmoid mesocolon; hence the herniating bowel loops , the hernial sac are seen to be lying within the sigmoid mesocolon.

No age or sex predilection has been seen in the occurrence of the internal hernias. Internal hernias present with typical imaging features on CT imaging with a bird beak appearance which is formed by the centering of the afferent and the efferent loops towards the hernial site and displacement of the colon medially caused by the herniating bowel loops<sup>4</sup>.

The associated findings include<sup>4</sup>

- Cluster of small bowel segments
- Crowding and convergence of mesenteric vessels
- More than 1 beak sign
- Engorged mesenteric vessels
- Mass effect to surrounding organs
- Dilated proximal intestinal loops and collapsed distal loops
- Evidence of compromised blood supply may be seen on CECT
- Volvulus may be seen.

The presence of [a] A bird-beak sign with the beak pointing towards the medial side of the patient in the

pelvis; [b] Mass effect; [c] Dilated proximal intestinal loops and collapsed distal loops; [d] Crowding and convergence of mesenteric vessels; as shown in our case with signs of intestinal obstruction and abdominal pain is highly suggestive of internal hernia through the sigmoid mesocolon.

## CONCLUSION

It is important to have a complete knowledge of imaging of the sigmoid mesocolon internal hernias to avoid being wrongly diagnosed as intestinal obstruction and being kept on conservative management due to which the bowel which is normal at the time of scan may go into infarction leading to significant mortality and morbidity. The importance of this case report is to emphasize on the

typical imaging features of sigmoid mesocolon internal hernias to avoid misdiagnosis.

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