

# Chilaiditi Syndrome: A Rare Presentation with Internal Herniation of Small Bowel

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## Citation

A Kumar, A Rai, D Singh, S Rajamanickam, S Kumar, A Sonkar. *Chilaiditi Syndrome: A Rare Presentation with Internal Herniation of Small Bowel*. The Internet Journal of Surgery. 2008 Volume 18 Number 2.

## Abstract

A long loop of small bowel had herniated between the diaphragm and the right lobe of liver in a 72-year-old lady presenting with acute abdomen and features of intestinal obstruction. The unresponsiveness to non-operative management warranted an exploration. A fibrous band between the small bowel mesentery and the lateral abdominal wall was found which had led to the rotation and internal herniation of small bowel. A review of literature over the past 30 years describes two cases of small bowel leading to the Chilaiditi syndrome. However, we present a unique case where a thick band between the small bowel mesentery and the lateral abdominal wall led to internal herniation and hepato-diaphragmatic interposition of small bowel.

## INTRODUCTION

Hepato-diaphragmatic interposition of bowel known as Chilaiditi syndrome was first described in 1910<sup>1</sup>. Colon and less commonly small bowel are found in the hepato-diaphragmatic space. Several causes are known, most common being the flaccidity and elongation of hepatic and intestinal suspensory ligaments.

## CASE REPORT

A 72-year-old lady presented to the emergency department with acute abdominal pain and history of hypertension. She had mild abdominal distension with intermittent constipation for few days. Hematological investigations were unremarkable. However, chest X-ray showed gas under the right dome of the diaphragm (Fig. 1) and X-ray of the abdomen revealed a long loop of small bowel producing the classical Chilaiditi sign (Fig. 2). This finding was also confirmed on ultrasound of the abdomen. A preoperative diagnosis of Chilaiditi syndrome was considered. She was managed conservatively initially. When the expectant management failed, an emergency laparotomy was performed. A fibrous band (approximately 1.5cm thick) arising from the mesentery of small bowel to the lateral abdominal wall was found, around which small bowel had rotated and herniated between the right dome of the diaphragm and the liver. There were no adhesions between the herniated bowel and the diaphragm or liver. The band was excised and small bowel returned to the peritoneal cavity. The patient's post-operative recovery was uneventful.

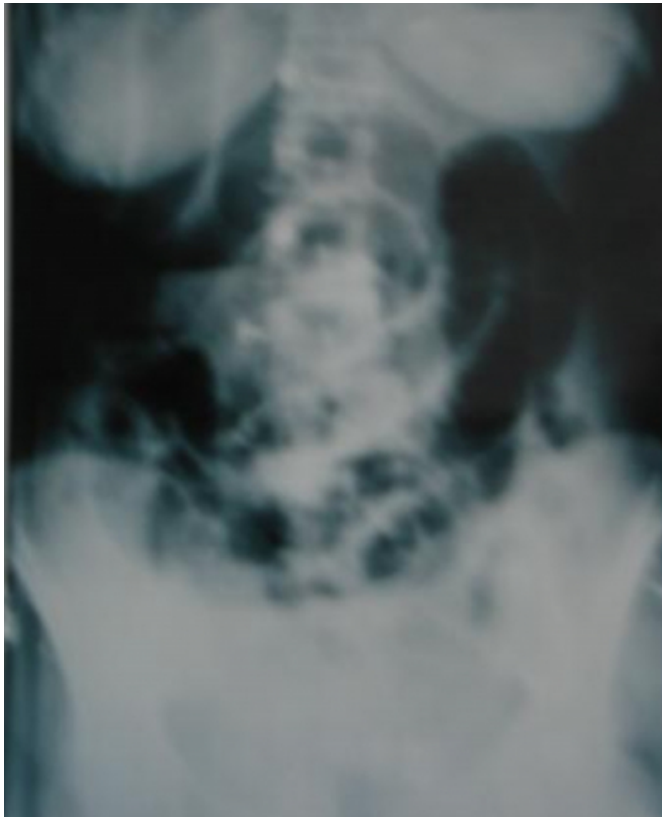
## Figure 1

Figure 1: Chest X-ray, PA erect, showing entrapped gas under the diaphragm - classical sign



**Figure 2**

Figure 2: X-ray of the abdomen, PA erect, showing a long loop of small bowel producing sign (around a fibrotic band – not visible)



**DISCUSSION**

Hepato-diaphragmatic interposition of bowel known as Chilaiditi syndrome was first described by Demetrius Chilaiditi in 1910<sup>1</sup>. The diagnosis can be made by abdominal X-ray, ultrasonography in deft hands<sup>2</sup> and Computerised tomography (CT) scan. The widespread use of CT scan has enabled confirmation of the diagnosis.<sup>8</sup> It demonstrates air between the diaphragm and the liver that is enclosed within the bowel wall. Colon and less commonly small bowel are found in the hepato-diaphragmatic space.<sup>3,4,5</sup> Commonest cause of the condition is flaccidity and elongation of hepatic and intestinal suspensory ligaments. It is more of a radiological sign and when symptoms ensue it is termed Chilaiditi syndrome. Sealed bowel perforation forms an important differential diagnosis. There is a chance that a novice might interpret air under the diaphragm as a bowel perforation and the patient may be subjected to unwarranted surgery. The patients of Chilaiditi sign can be managed medically. Simple bowel decompression and rest for a few days would suffice and avoid unnecessary laparotomy. Surgical treatment is offered to those who fail to resolve or show progressive signs of deterioration. An increasing trend

in the WBC count might indicate ischemia, incarceration or sepsis, conditions requiring immediate exploration. This case was unique in that a band leading to internal herniation of small bowel produced Chilaiditi syndrome. In earlier reported cases of Chilaiditi syndrome due to small bowel interposition, in the first case no cause was attributed and in the second case reported by Sherafgan et al., the cause was adhesion of the small bowel with the diaphragm and the liver.<sup>8</sup> Our case is unique in that there were no adhesions either intraperitoneally or between the liver and the diaphragm and the small bowel was interposed because of rotation around the band and herniation into the hepato-diaphragmatic recess.

**CONCLUSION**

Chilaiditi syndrome is a benign condition where there is internal herniation of the bowel within the hepato-diaphragmatic space, producing a radiological picture of free gas under the dome of the diaphragm, thus mimicking gut perforation. A surgeon must be aware of this condition whenever there is air under the diaphragm as such patients may be managed expectantly, surgical treatment being offered only to those that fail to resolve or show progressive deterioration in the form of emesis, abdominal distension and obstruction.

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