

# Case report of a congenital duodenal transverse septum causing partial obstruction

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## Abstract

**Introduction:** Duodenal obstructions caused by congenital anatomic abnormalities are rare in adults. Several patients in whom the duodenal obstruction was caused by a congenital duodenal diaphragm have been described. The duodenal obstruction in the patient presented herein was caused by a transverse septum, which has not been previously reported. A transverse septum is usually observed in the vagina; those involving the digestive tract have been rarely observed.

**Case Presentation:** We herein report a case involving a 69-year-old woman with a congenital duodenal transverse septum causing partial obstruction. She was admitted to our hospital with a 3-month history of epigastric pain and vomiting. Upper gastrointestinal endoscopy, iodinated water-soluble contrast imaging, and abdominal computed tomography revealed dilation of the stomach and a neoplasm in the descending part of the duodenum. The patient was suspected to have a tumor in the descending part of the duodenum. Exploratory laparotomy showed a banded duodenal transverse septum at the junction of the second part of the duodenum. The duodenal transverse septum was approximately 2 mm thick and 1 cm wide and divided the duodenal lumen into 2 parts. The duodenal papillae were completely normal and located under the duodenal transverse septum. Histopathological analysis of the transverse septum showed that it was similar to the organizational structure of the duodenal wall.

**Conclusion:** The possibility of congenital disease should be considered in older patients with intestinal obstruction, even when imaging studies reveal a duodenal neoplasm.

**Abbreviation:** HUST = Huazhong University of Science and Technology.

**Keywords:** congenital, duodenal, septum, transverse

## 1. Introduction

Duodenal obstructions in infants or children are usually caused by congenital diseases. Congenital duodenal occlusion presenting as a neonatal emergency may be caused by the diaphragm or complete obliteration of the duodenal lumen.<sup>[1–3]</sup> The causes of duodenal obstruction in adults mainly include malignant pancreatic or duodenal tumors or benign strictures, such as those seen in patients with Crohn disease, tuberculosis, or potassium therapy.<sup>[4,5]</sup> Duodenal obstructions caused by congenital anatomic abnormalities are rare in adults. The duodenal obstruction in our patient was caused by a transverse septum, which has not been previously reported. A transverse septum is

usually observed in the vagina; those involving the digestive tract are rarely observed.

## 2. Case report

This study was approved by the Human Research Ethics Committees at the Tongji Hospital, Tongji Medical College, HUST, and was carried out in accordance with the principles embodied in the Declaration of Helsinki.

A 69-year-old woman was admitted to our hospital with a 3-month history of epigastric pain and vomiting. None of her immediate family members had a history of digestive system disease. The patient's physical condition had been good in the past. She had no history of surgery or trauma. Physical examination revealed a soft abdomen with no tenderness or tension, and no rebound pain. The liver and spleen were not palpable. The results of laboratory tests, including a complete blood cell count, liver and renal function tests, and electrolyte measurements, were all within normal limits. Inflammatory markers, including the erythrocyte sedimentation rate, C-reactive protein concentration, autoimmune reactive antibody levels, and tumor marker concentrations, were all also within normal limits. An ultrasound examination revealed no abnormalities. Upper gastrointestinal endoscopy revealed a dilated stomach and stenosis of the descending part of the duodenum. An ultrathin electronic gastroscope (GIF-XP260; Olympus, Tokyo, Japan) could be passed through the area of stenosis, indicating that the duodenal papillae were normal (Fig. 1A). Iodinated water-soluble contrast imaging of the upper gastrointestinal tract showed gastric dilation, with the contrast agent able to enter the jejunum (Fig. 1B). Abdominal computed tomography revealed retention of the contrast agent in the stomach and a neoplasm in the

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XG and YY contributed equally to this work.

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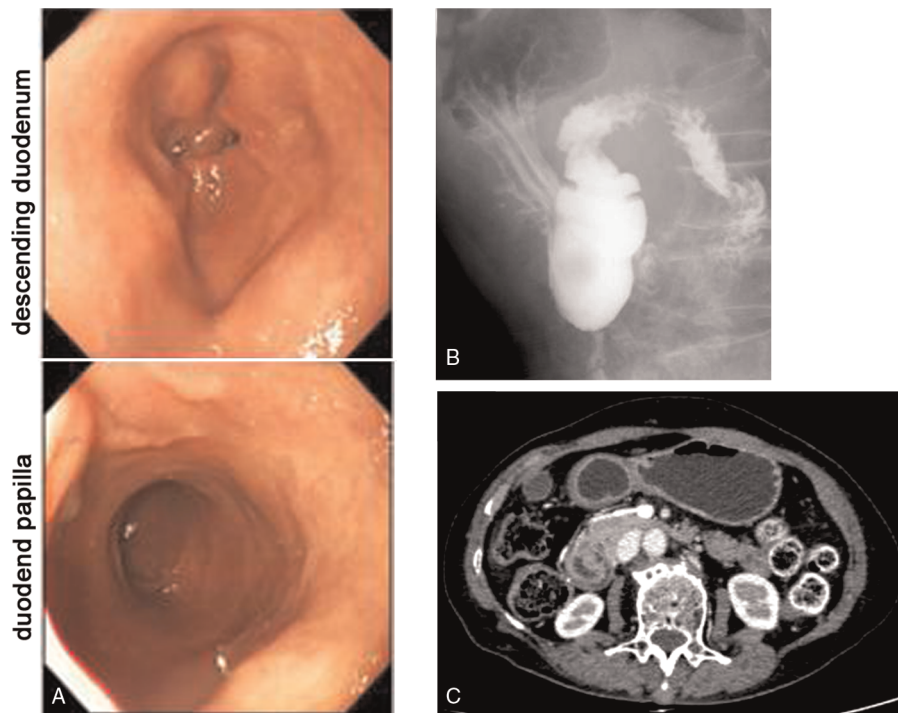
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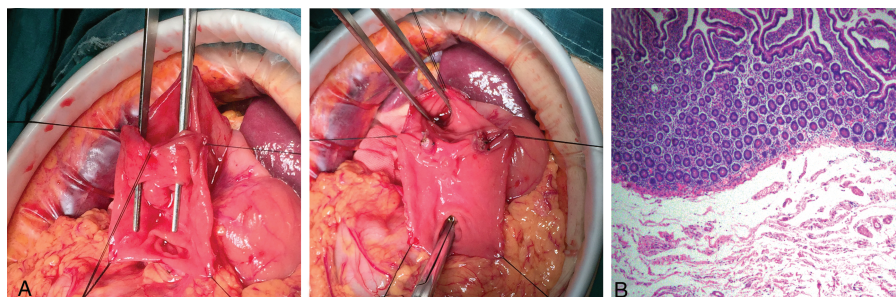
**Figure 1.** (A) Endoscopic view of the duodenum before treatment. (B) Iodinated water-soluble contrast imaging of the upper gastrointestinal tract. (C) Abdominal computed tomography showing a neoplasm in the descending part of the duodenum.

descending part of the duodenum, with the neoplasm apparently dividing the duodenum into 2 chambers (Fig. 1C).

Exploratory laparotomy showed no visible dilatation of the duodenum. Performance of a longitudinal duodenotomy along the anterior second part showed a banded duodenal transverse septum at the junction of the second part of the duodenum. The duodenal papillae were completely normal in appearance and located under the duodenal transverse septum. The duodenal transverse septum was approximately 2 mm thick and 1 cm wide and divided the duodenal lumen into 2 parts, each measuring <1 cm in diameter. The duodenal transverse septum was excised, the edges of the remaining mucosa were oversewn, and the duodenotomy was closed transversely. Histopathological analysis of the transverse septum revealed tissue containing mucosa, submucosa, and muscularis mucosa (Fig. 2). The patient had an uneventful postoperative course. She remained asymptomatic during the 6-month follow-up period.

### 3. Discussion

Duodenal obstructions caused by congenital anatomic abnormalities are rare in adults. Several patients with a duodenal obstruction caused by a congenital duodenal diaphragm have been described.<sup>[4–10]</sup> The duodenal obstruction in this patient was caused by a transverse septum. Transverse septa are usually observed in the vagina, and those involving the digestive tract are rare. Our patient did not experience clinical symptoms until the age of 69 years, perhaps because the transverse septum divided the duodenal lumen into 2 parts, each wide enough to avoid symptoms. Symptom onset was likely caused by progressive inflammation, a diminished gastric digestion ability, and changes in living habits. Duodenal obstruction can be partial or complete and caused by intrinsic or extrinsic factors. A simple obstruction is associated with diminished or absent flow of luminal contents. A strangulating obstruction is associated with impaired blood



**Figure 2.** (A) Views of the duodenal transverse septum before (left panel) and after (right panel) excision. (B) Histological image of the duodenal transverse septum.

flow to the duodenum in addition to obstructed flow of luminal contents. Duodenal obstructions in adults must be distinguished from ulcerative disease, duodenal tuberculosis, an annular pancreas, congenital valvular disease, clonal disease, duodenal tumors, superior mesenteric artery compression, poor intestinal rotation, and lymph node tuberculosis. Diagnosis was difficult in the present case. Before surgery, the patient's clinical symptoms seemed to be caused by a tumor.

#### 4. Conclusion

The possibility of congenital disease should be considered in older patients with intestinal obstruction, even when imaging studies reveal a duodenal neoplasm.

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