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Multiple portal hypertensive polyps of the jejunum accompanied by anemia of unknown origin

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A 58-year-old man with alcoholic liver cirrhosis, diabetic mellitus and chronic renal failure was admitted after complaining of general fatigue, which was found to be caused by worsening anemia. Upper GI endoscopy revealed grade 1 esophageal varices without red spots and mild telangiectasia in the gastric antrum without the typical portal hypertensive gastropathy. Colonoscopy revealed rounded and swollen villi, known as a herring roe appearance, in the terminal ileum.[1] The patient had microcytic and hypochromic anemia with low serum ferritin. In addition, fecal occult blood test was positive, and the serum erythropoietin level was elevated (41.7 mIU/mL) (normal 8-36 mIU/mL). Iron deficiency was believed to be the main etiology of the anemia. Conventional upper GI endoscopy and colonoscopy revealed no gastrointestinal

bleeding. Because the origin of the bleeding site was obscured, we conducted a capsule endoscopy (CE), which detected multiple elevated lesions with nodular surfaces and cherry red spots in the upper jejunum (Fig. 1). Using oral balloon assisted enteroscopy (BAE), we found raised lesions of various sizes with nodular surfaces, which were difficult to distinguish from villous adenoma or hyperplasia on superficial examination (Fig. 2). One of the lesions was removed by snare polypectomy for histological analysis. The histological findings showed capillary dilatation, proliferation and congestion in the lamina propria. There were no cytological or nuclear atypia for the mucosal glands or proliferating vessels (Fig. 3). Despite the unusual presentation, these pathological changes were compatible with those of portal hypertensive enteropathy (PHE). Thus, our diagnosis of portal hypertensive polyps (PHPs) in the jejunum was ultimately found to be correct. Because the PHPs were assumed to be the cause of the anemia, although there was no active hemorrhage from the PHPs, an iron supplement was prescribed. The patient showed gradual recovery from anemia with this treatment.

Esophagogastric and rectal varices, portal hypertensive gastropathy and colonopathy, and hemorrhoids are common manifestations of gastrointestinal lesions caused by portal hypertension, and are associated with both acute and chronic iron deficiency anemia. However, PHPs in the intestine are rarely detected, and to date, only

6 cases of intestinal PHPs have been reported (**Table 1)**.[2-4] Among them, 4 cases were detected in the duodenum, and 1 in the descending colon. The present case report is the first that reports PHPs, located in the jejunum.

The endoscopic findings of PHPs in the duodenum and colon revealed multiple elevated lesions with nodular surfaces, which resembled villous adenoma or hyperplasia.[2,4] However, the morphological features of PHPs in the intestine have not been characterized, thus leading to difficulty in discriminating PHPs from other polypoid lesions. CE and BAE are recently developed modalities that have been utilized to diagnose small intestinal disorders,[5,6] however there are no reported findings on intestinal PHPs using these modalities.

Esophageal varices were treated prior to the detection of intestinal PHPs in 5 of the 6 reported cases. Variceal treatment may be in some way involved with the develpoment of PHPs, although the possible underlying pathophysiology for this association is still unclear.

In addition, recognizing PHPs within the small intestine may eliminate bleeding complications following unnecessary polypectomy, especially in patients with advanced cirrhosis and underlying coagulopathy. With this in mind, it is important to elucidate the characteristic endoscopic features of jejunal PHPs by further study of the

resected case presented here, in which the PHPs appeared to be very similar to an adenoma or hyperplastic polyp.

In conclusion, we present the first case of PHPs occurring in the jejunum. Although PHPs in the jejunum were presumed to be uncommon, the common use of CE and BAE in endoscopic examinations will likely lead to increased detection of PHPs.

Figure legends

Figure 1.

Capsule endoscopy showing multiple elevated lesions in the jejunum.

Figure 2.

Balloon assisted enteroscopy showing multiple elevated lesions with nodular surfaces in the upper jejunum.

Figure 3.

The histological findings of the polypectomy specimen showing numerous areas of capillary dilatation, in addition to the proliferation and congestion in the lamina propria. No dysplastic changes were detected. (**A**) H&E, orig. mag. x100, (**B**) H&E, orig. mag. x400.

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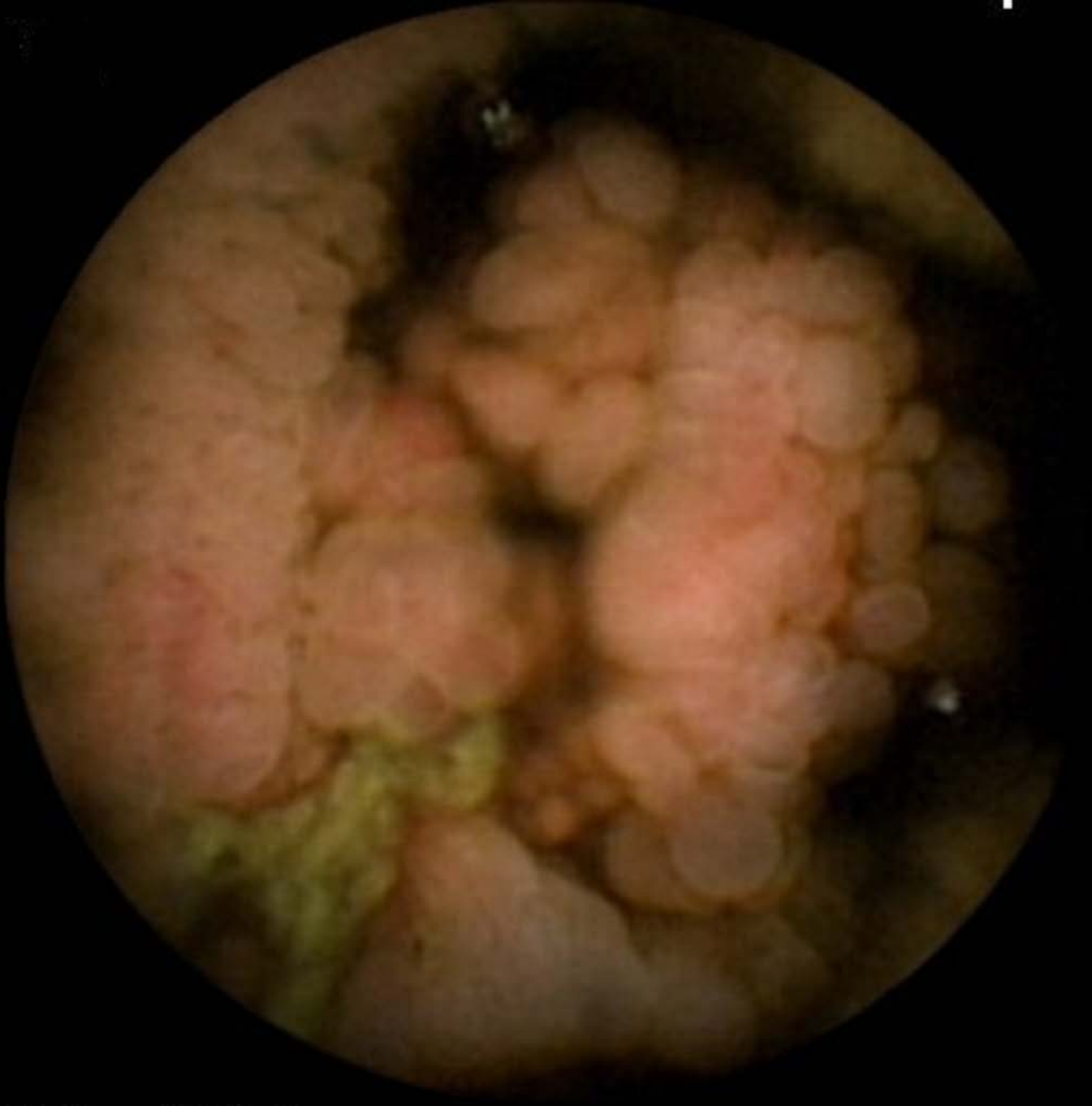
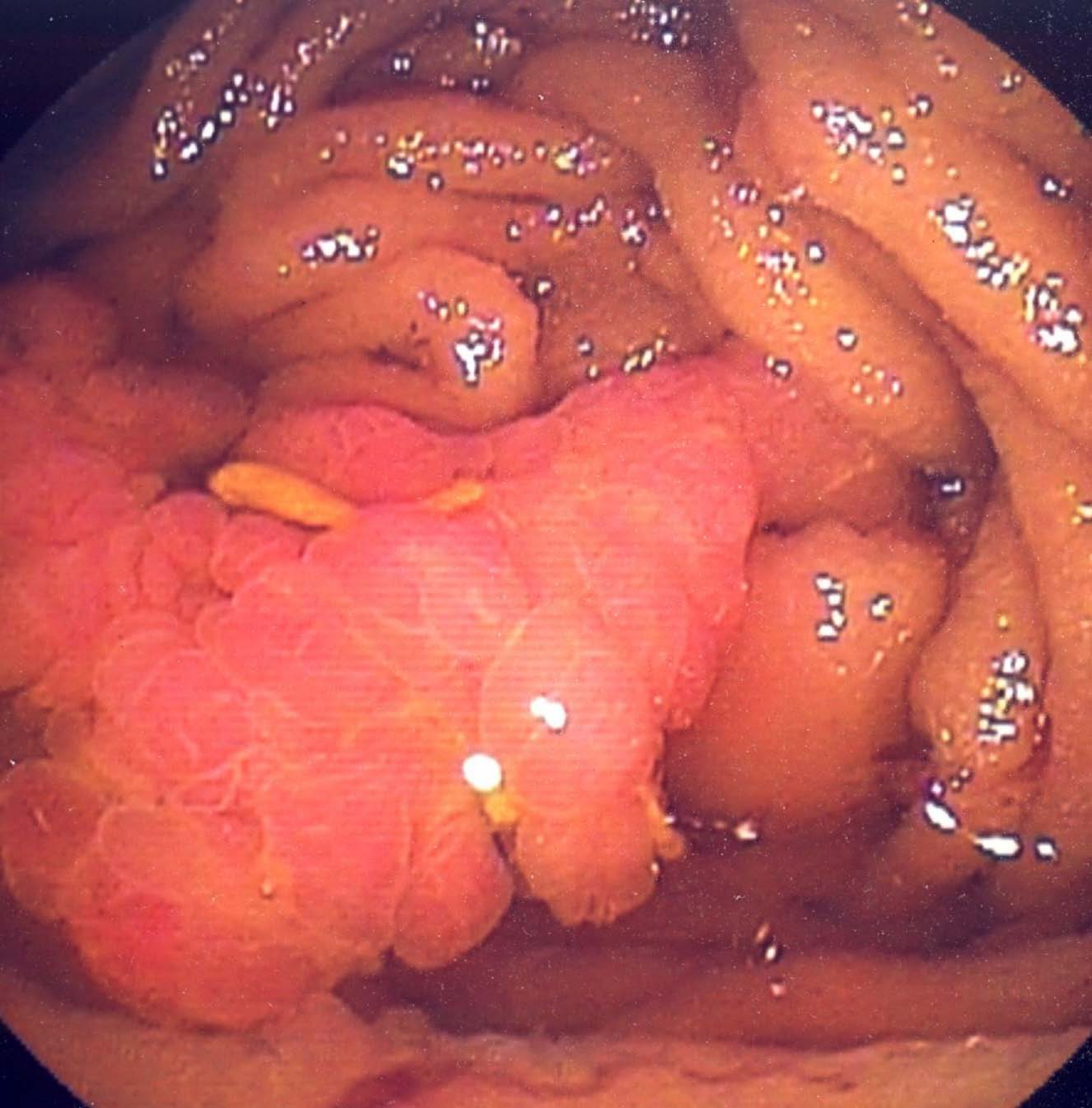
Table 1: Clinical and pathological findings of portal hypertensive polyps

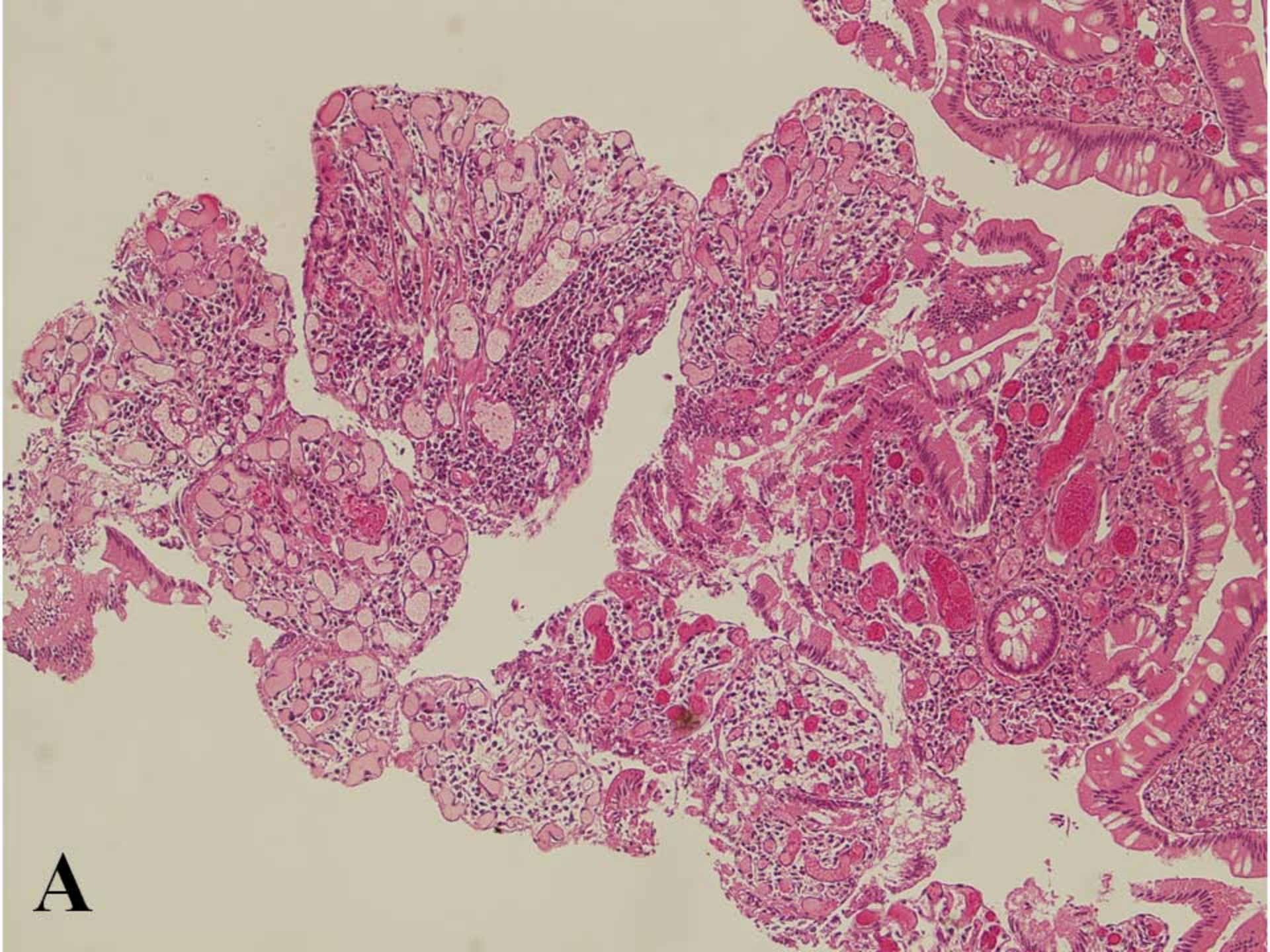
Author	Age	Sex	Background	Symptom	Location	Endoscopic appearance	Histopathology	Complications
1. Zeitoun [2)]	70	M	Al-LC	Melena	The second part of the duodenum	Hemorrhagic polypoid lesion	Numerous thick-walled capillaries	PHG Esophageal varices
2. Devadson [3)]	6	M	EHPVO	NA	The first and second parts of the duodenum	Multiple polyps	Lobular capillary proliferation	PHG Esophageal varices (EVL)
3. Devadson [3)]	4	F	EHPVO	NA	The second part of the duodenum	Numerous polypoid malformations	NA	Esophageal varices (EVL)
4. Devadson [3)]	12	F	EHPVO	NA	The second part of the duodenum	Multiple polyps	Ectasia and congestion of the vasculature	PHG Esophageal varices (EIS)
5. Huang [4)]	52	M	Al-LC	NA	Descending colon	Erythematous polypoid lesions	Dilated tortuous venules and capillary	PHC Esophageal varices (EIS)
6. Our case	58	M	Al-LC	Anemia	Jejunum	Multiple polypoid lesions of various form	Capillary dilatation and proliferation	PHE Esophageal varices (EIS, EVL)

M: male, F: female, Al-LC: alcoholic liver cirrhosis, EHPVO: extrahepatic portal venous obstruction, NA: not available,

PHG: portal hypertensive gastropathy, PHC: portal hypertensive colopathy, PHE: portal hypertensive enteropathy, EVL: endoscopic variceal ligation



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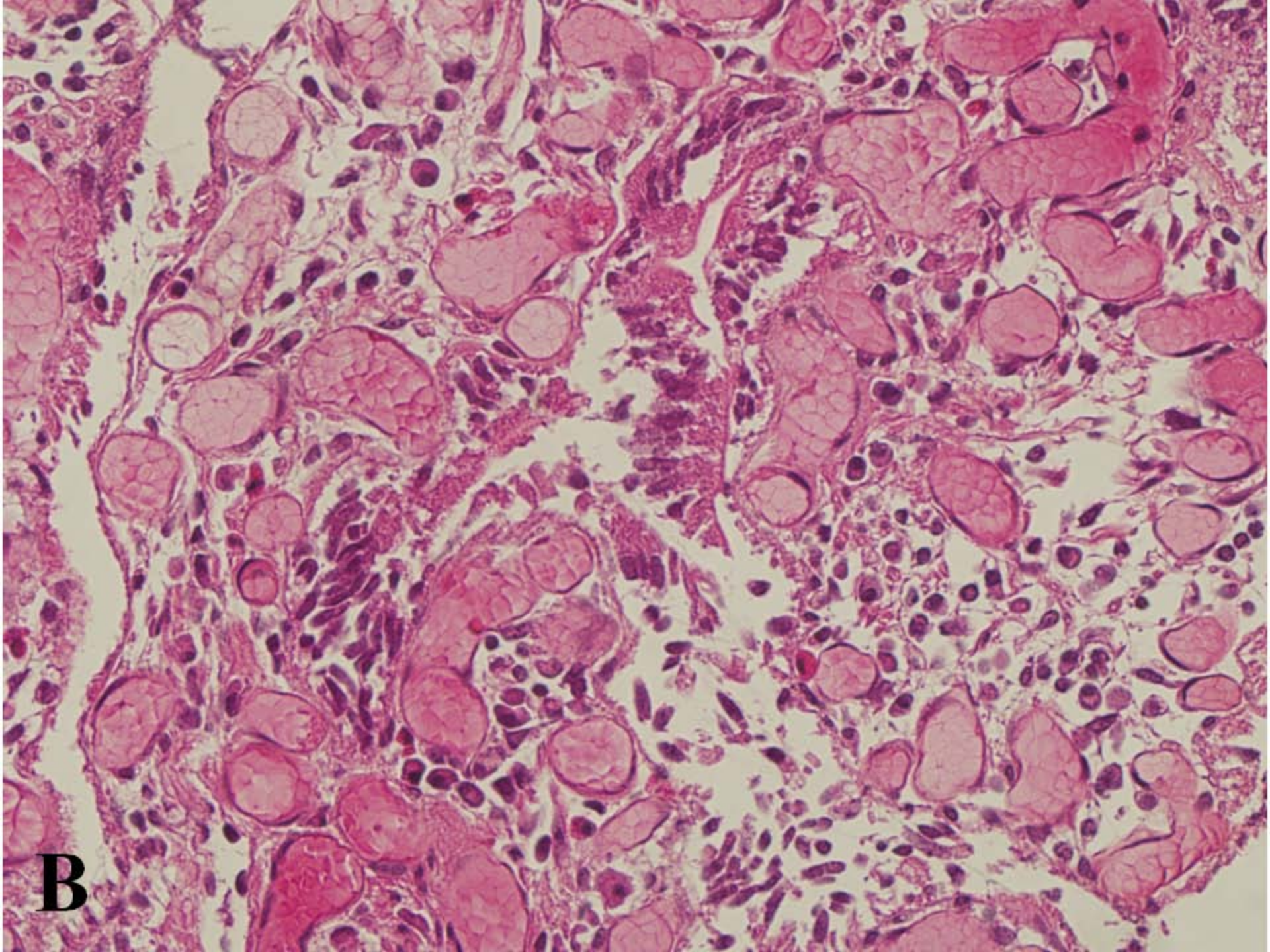
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