

The flat and immobile villi sign: a novel approach in identifying duodenal adenomas



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The finding of duodenal polyps is rare, representing only 0.3% to 4.6% of all patients undergoing EGD.¹ The prevalence of duodenal adenomas has been increasing because of the increased use of diagnostic endoscopic procedures. Duodenal adenomas are premalignant lesions leading to adenocarcinoma in 33% to 47% of cases left untreated.²⁻⁴ Historically, duodenal adenomas have been treated with radical surgical treatment because of the technical challenges associated with endoscopic resection and the high rates of recurrence. However, more-recent studies have shown that endoscopic excision is effective for both large and flat adenomas, with low recurrence rates.^{5,6} In such cases, increased size and incomplete resections have been associated with adenoma recurrence, whereas adverse histologic appearance was not predictive of a higher recurrence rate.⁷

Previous studies have looked specifically at the endoscopic characteristics of duodenal adenomas under high magnification and narrow-band imaging (NBI) to aid in detection. Uchiyama et al⁸ first described duodenal adenomas and adenocarcinomas as having pinecone-shaped or leaf-shaped villi. More recently, duodenal adenomas were described as “bumpy” lesions that could be identified readily under both NBI and white-light endoscopy.⁹ However, this finding, though specific for an adenoma, was not found to be present in the majority of patients with diagnoses of adenoma.

The varied attempts to describe and characterize duodenal adenomas reveal both the importance and the difficulty of doing so, given the rarity of these lesions. In light of this, we describe a novel sign in the identification

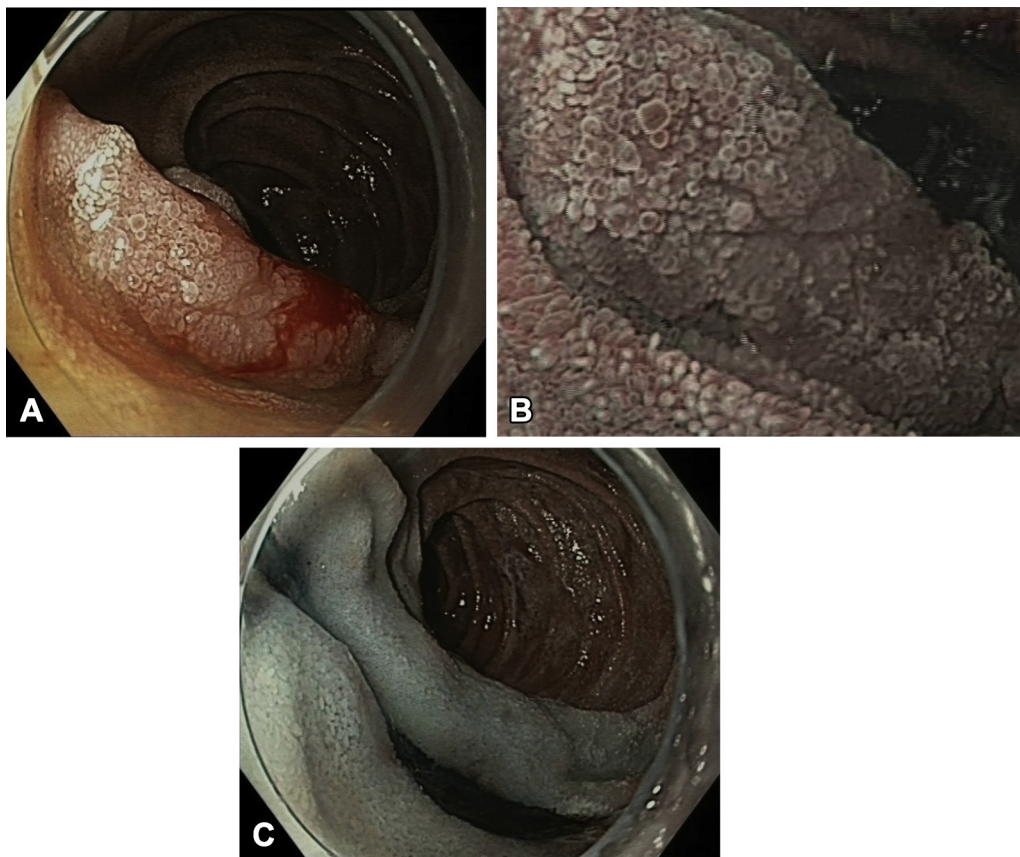


Figure 1. A, Adenoma at second part of duodenum. B, Underwater narrow-band imaging view. C, After resection.

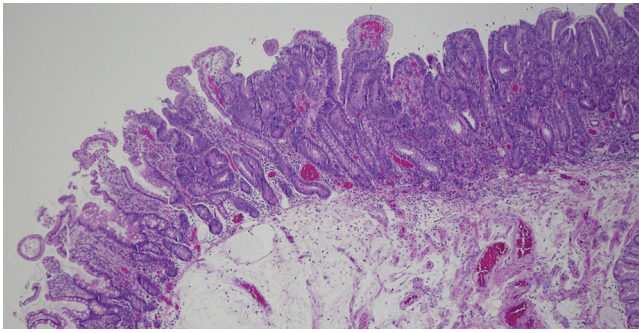


Figure 2. Histologic appearance of the resection margin showing the adenoma (*right*) and normal duodenal mucosa (*left*) (H&E, orig. mag. $\times 4$).

of duodenal adenomas. More importantly, this sign can be used in delineating the borders of adenomas during endoscopic resection.

A sessile duodenal polyp was identified in a 75-year-old woman during routine endoscopy for abdominal pain. Subsequent EMR was performed in a piecemeal fashion. The adenoma was noted adjacent to, but not involving, the ampulla (*Fig. 1*). It measured 25 mm in size and was resected in 2 pieces. There was notable bleeding at the base after resection, which was controlled with hemoclips. The final pathologic analysis showed a tubulovillous adenoma with low-grade dysplasia. Histopathologic evaluation showed the adenoma adjacent to normal mucosa, depicting a clear resection margin (*Fig. 2*).

Before resection, video NBI with magnification under water showed the adenoma with abnormal flattened overlying villi lacking in any typical wavelike movement (*Video 1*, available online at www.VideoGIE.org). By comparison, the normal villi were clearly seen in the foreground; they were symmetrical and moved freely with water. This “flat and immobile villi sign” was present over the full extent of the adenoma, clearly delineating the borders of the lesion and ensuring complete resection. This sign also helped differentiate an adenoma from a prominent duodenal fold. Follow-up surveillance endoscopies at 12 and at 24 months revealed no endoscopic or histologic evidence of recurrence of either adenoma.

Complete endoscopic excision has been shown to be an appropriate mode of treatment, with morbidity rates superior to those of surgery. It has been shown that the best predictor for cure is the complete margin-negative excision of these

adenomas.⁷ This description of the “flat and immobile villi sign” provides a novel approach in identifying duodenal adenomas and aiding in their subsequent resections.

DISCLOSURE

All authors disclosed no financial relationships relevant to this publication.

Abbreviation: NBI, narrow-band imaging.

REFERENCES

1. Singh KL, Prabhu T, Gunjiganvi M, et al. Isolated duodenal adenoma presenting as gastrointestinal bleed: a case report. *J Clin Diagn Res* 2014;8:ND01-2.
2. Sellner F. Investigations on the significance of the adenoma-carcinoma sequence in the small bowel. *Cancer* 1990;66:702-15.
3. Niwa A, Kuwano S, Tomita H, et al. The different pathogeneses of sporadic adenoma and adenocarcinoma in non-ampullary lesions of the proximal and distal duodenum. *Oncotarget* 2017;8:41078-90.
4. Basford P, George R, Nixon E, et al. Endoscopic resection of sporadic duodenal adenomas: comparison of endoscopic mucosal resection (EMR) with hybrid endoscopic submucosal dissection (ESD) techniques and the risks of late delayed bleeding. *Surg Endosc* 2014;28:1594-600.
5. Apel D, Jakobs R, Spiethoff A, et al. Follow-up after endoscopic snare resection of duodenal adenomas. *Endoscopy* 2005;37:444-8.
6. Alexander S, Bourke M, Williams S, et al. EMR of large, sessile, sporadic nonampullary duodenal adenomas: technical aspects and long-term outcome (with videos). *Gastrointest Endosc* 2009;69:66-73.
7. Tomizawa Y, Ginsberg G. Clinical outcome of EMR of sporadic, nonampullary, duodenal adenomas: a 10-year retrospective. *Gastrointest Endosc* 2018;87:1270-8.
8. Uchiyama Y, Imazu H, Kakutani H, et al. New approach to diagnosing ampullary tumors by magnifying endoscopy combined with a narrow-band imaging system. *J Gastroenterol* 2006;41:483-90.
9. Pittayanon R, Imraporn B, Rerknimitr R, et al. Advances in diagnostic endoscopy for duodenal, including ampullary, adenoma. *Dig Endosc* 2015;26:10-5.

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