

## Treatment of Nonampullary Sporadic Duodenal Adenomas with Endoscopic Mucosal Resection or Ablation

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Malignant neoplasms of the small intestine are rare; US annual incidence and mortality are 8,810 and 1,170, respectively [1]. Duodenal adenocarcinoma is even rarer, accounting for <0.5 % of all gastrointestinal malignancies but up to ~60 % of all small bowel cancers [2]. One proposed mechanism of duodenal carcinogenesis invokes the adenoma–carcinoma sequence, analogous to colorectal adenocarcinoma. Duodenal adenomas, regarded as potential premalignant lesions, are prevalent among patients with familial adenomatous polyposis, but sporadic adenomas among the general population are uncommon [3]. Given concern over malignant transformation, the traditional standard of care has been radical surgical excision. Nevertheless, surgery is associated with significant perioperative mortality and morbidity, lengthy hospital courses, and long-term complications, which diminish the quality and quantity of life [4]. Endoscopic intervention is a promising alternative therapeutic option.

Duodenal adenomas are classified as either ampullary (adenomas of the major duodenal papilla) or non-ampullary. Successful endoscopic treatment of conventional ampullary adenomas and wide excision of laterally spreading ampullary adenomas is well-described [5].

Endoscopic management of non-ampullary adenomas has been reported, although data are sparse in comparison with those for ampullary adenomas. Notably, many duodenal adenomas can exist for years, particularly in familial polyposis patients, without malignant transformation. Recent data from Okada et al. [6] reveal that non-ampullary sporadic duodenal adenomas (NSDAs) with low-grade dysplasia progress infrequently to adenocarcinoma, although with some risk of progression to high-grade dysplasia, warranting surveillance biopsies at 6–12 months. High-grade dysplasia lesions and large NSDAs (>2 cm) more often progress to adenocarcinoma, warranting immediate intervention.

Endoscopic intervention in the duodenum is associated with a higher risk of complications than intervention elsewhere in the gastrointestinal tract. Perforation of the relatively thin duodenal wall is a particular concern. Perforations can be difficult to manage, and contribute to patient morbidity and mortality, average length of stay, and healthcare cost. Polypectomy in the duodenum also carries a higher risk of bleeding than in the colon; this is likely to be associated with the rich vascular supply of the proximal small intestine [4]. Duodenal polypectomy can also cause pancreatitis, particularly when the adenoma involves the major papilla, necessitating endoscopic ampullectomy [7]. Sepsis from endoscopic ampullectomy has also been reported [8].

The therapeutic techniques used to treat duodenal adenomas encompass several endoscopic modalities, including polypectomy, endoscopic mucosal resection (EMR), endoscopic submucosal dissection (ESD), and ablation (e.g. argon plasma coagulation). ESD involves en-bloc resection with clear margins but is, unfortunately, time-consuming, technically difficult, and associated with a high risk of perforation [9].

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In this issue of *Digestive Diseases and Sciences*, Min et al. [10] retrospectively investigate the safety and efficacy of endoscopic treatment for NSDAs among a cohort of 35 patients. Efficacy outcomes—including en bloc resection rate, local recurrence rate, and metachronous recurrence rate—and safety outcomes—including bleeding and perforation—were encouraging. Low recurrence after EMR and ablation suggest the added risks of ESD can be safely avoided in most cases, particularly when sampling biopsies reveal low-grade dysplasia only. Ablation is particularly tempting, given its technical ease; as the authors note, there is a tendency to use this technique preferentially on difficult lesions. Nevertheless, with ablation the theoretical risk of missing cancer cannot be eliminated because complete histology is not obtained. The same argument applies, although to a lesser extent, to piecemeal EMR, because cautery artifacts at the resection margin of each piece may obscure small areas of malignant transformation. If foci of invasive cancer are missed, there is a possibility of inadequate treatment because of lymph node invasion, which may become evident when the patient becomes symptomatic because of disease progression. Caution must therefore be advised, particularly for cases of adenoma with high-grade dysplasia. Although the ability to achieve en-bloc resection with completely negative margins is touted as the major advantage of ESD, the finding of low-grade dysplasia on multiple biopsies is associated with low cancer risk, thus ablation in this instance should be preferred because of the low risk of the procedure. Furthermore, because many of these lesions are identified in elderly patients with major comorbidities, duodenal adenoma, particularly low-grade dysplasia, may not progress during the patient's lifetime [5]. Therefore, the risks of endoscopic intervention must be weighed against the risks of observation. Overall, Yang et al. provide valuable data in a

relatively unstudied area. This should prompt further multicenter prospective investigation to delineate practice guidelines for NSDAs.

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