

# Endosonography in diagnosing and staging duodenal villous adenoma

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## Abstract

Endosonography was carried out in a patient with an extensive juxtapapillary tumour. Radiology and endoscopy were unable to distinguish a villous adenoma from an invasive carcinoma. Endosonography revealed a mucosal hypoechoic tumour without penetration into the submucosa and muscularis propria. The common bile duct, pancreatic duct, and pancreas were normal. Lymph node abnormalities were not found. Based on the endosonography findings, local surgical tumour resection was undertaken instead of a Whipple procedure. The histology of the resected specimen confirmed the endosonography diagnosis.

Villous adenomas in the upper gastrointestinal tract have been increasingly reported probably because of the refinement and increased application of imaging techniques. Endoscopy, however, is not always accurate in diagnosing and staging of extensive villous adenomas because the depth of infiltration of sessile adenomatous proliferation cannot be assessed. Moreover, adequate endoscopic removal of such often extensive lesions is usually difficult, if not impossible.

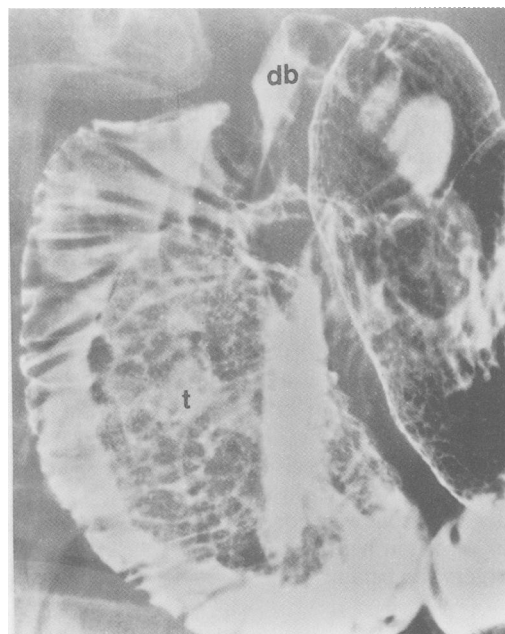


Figure 1: Duodenography shows an exophytic mass (t) in the second part of duodenum distally from the duodenal bulb (db). The authors kindly thank Dr J O Op den Orth, the Elisabeth Gasthuis, Department of Radiology, Haarlem, The Netherlands for providing this picture.

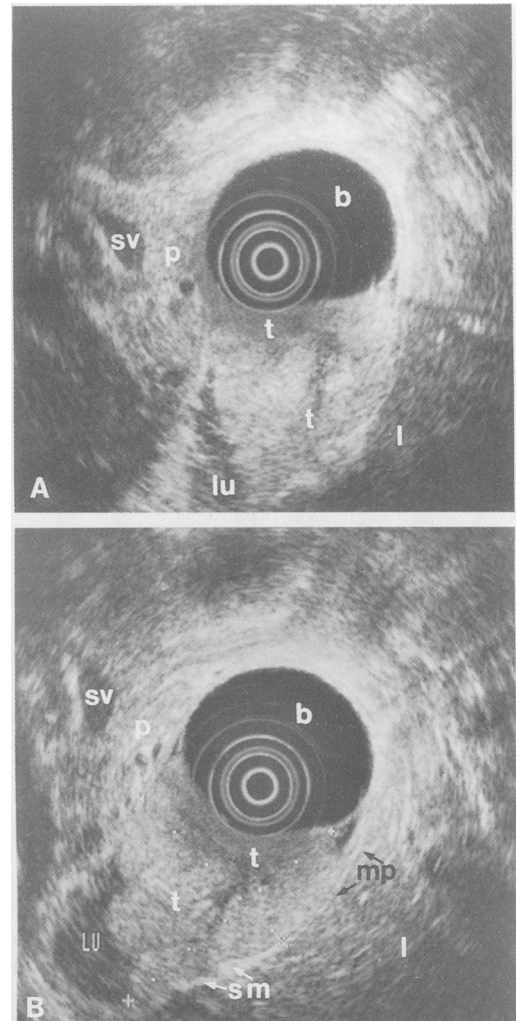


Figure 2 (A): Endosonogram showing an exophytic duodenal tumour (t) adjacent to the left liver lobe (l) contralateral to the pancreas (p). b=water filled balloon, lu=water filled duodenal lumen, sv=splenic vein. (B) Another cross section shows the exophytic duodenal tumour (t) without penetration into the submucosa (sm) and muscularis propria (mp). b=water filled balloon, lu=water filled duodenal lumen, sv=splenic vein, p=pancreas, l=left liver lobe.

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Endosonography is accurate in diagnosing gastrointestinal abnormalities because of its ability to image the intestinal wall architecture and its surrounding structures in detail.<sup>1-5</sup>

The purpose of this case report is to describe the value of endosonography in diagnosing villous adenoma of the duodenum and in planning the strategy of treatment before surgery.

## Case report

A 38 year old woman was referred for abdominal discomfort and periodic epigastric pain. Physical

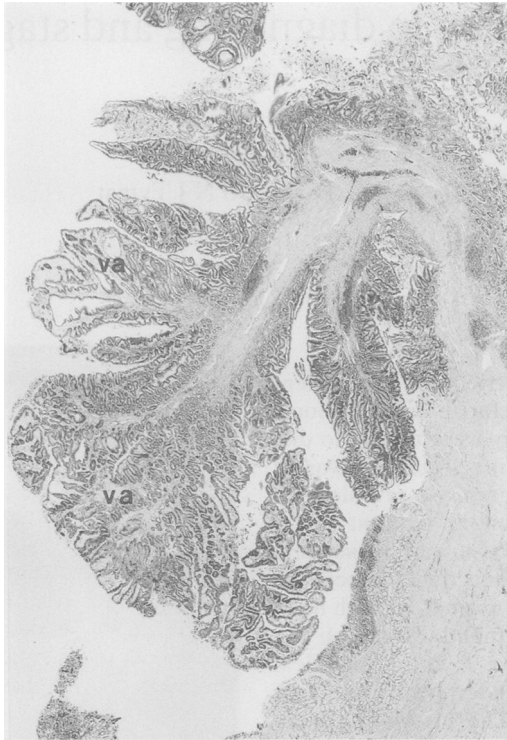


Figure 3: Corresponding histology of resected specimen shows a tubulovillous adenoma (va) with its adjacent duodenal wall without evidence of malignancy.

examination revealed no abnormalities. Laboratory investigation was non-diagnostic. Transcutaneous abdominal ultrasound showed a normal liver, gall bladder and pancreas. Upper gastrointestinal radiography revealed an extensive exophytic tumour mass with a nodular appearance of the surface localised in the middle portion of the descending part of the duodenum (Fig 1). As well as a hiatal hernia with some reflux oesophagitis, endoscopy revealed a mass protruding into the duodenal lumen. This mass was covered with a finely nodular mucosa and was located proximal to the major papilla. Endosonography showed an extensive hypoechoic tumour located at the level of the mucosa without penetration into the adjacent submucosal layer and muscularis propria. No adjacent lymph node abnormality was found. The pancreatic duct, common bile duct and pancreas did not reveal any abnormalities. The tumour was diagnosed as a villous adenoma limited to the mucosa (Figs 2A, B). After consultation with the surgeon a local resection of the tumour was preferred to a Whipple resection procedure because the lesion was limited to the mucosa. A longitudinal excision adjacent to the tumour margin was made and tumour resection was carried out as described elsewhere.<sup>6,7</sup> The papilla of Vater was left intact. The histology of the resected specimen revealed villous adenoma limited to the mucosa. Carcinomatous degeneration was not found (Fig 3). The tumour resection had been radical. Eight days after surgery the patient was discharged.

### Discussion

Villous adenomas can vary in size and location. Endoscopic biopsies are often inaccurate because

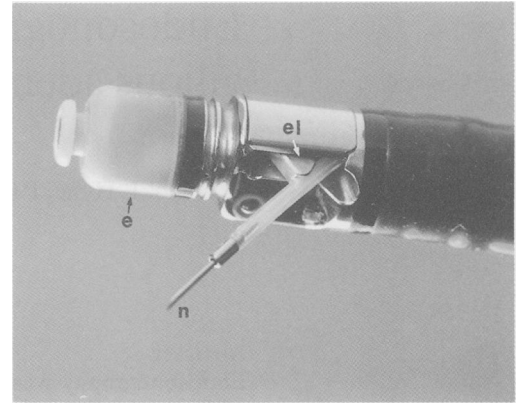


Figure 4: An Olympus prototype echoduodenoscope (XJF-EUM2) with a small echoprobe (e) attached to a side-viewing duodenoscope with a puncture needle (n) passing through the biopsy channel. Note the elevator (el) lifting the needle.

specimens are small and not representative of the entire lesion. Endoscopic polypectomy is not always possible particularly in the case of an extensive sessile lesion. Endosonography combines endoscopy and ultrasound in one single instrument (Fig 4), hence taking advantage of assessing the depth of the gastrointestinal tumour by direct endoscopic location and by ultrasonic imaging of the submucosal extent of the target lesion and its surrounding structures.

This case report illustrates that endosonography is accurate in diagnosing duodenal sessile villous adenomas, and therefore useful in planning treatment. This is particularly important for juxtaepapillary villous adenomas. Minimal invasive surgery has been increasingly reported for the treatment of locally limited tumours in the gastrointestinal tract.<sup>6-8</sup> When a superficial tumour can be resected radically by local surgical resection, this treatment is preferred to an invasive Whipple procedure.<sup>6,7</sup> Selection of appropriate patients, however, requires an accurate diagnosis.<sup>1-5</sup>

Minimal invasive surgery requires previous endosonography investigation because submucosal infiltration cannot be assessed during surgery. We therefore believe that endosonography will become the standard diagnostic procedure to identify superficial neoplasias, which can then be removed by a local tumour resection.

- 1 Tio TL, Tytgat GNJ. Endoscopic ultrasonography in the assessment of intra- and transmural infiltration of tumors in the oesophagus, stomach and papilla of Vater and extra-esophageal lesions. *Endoscopy* 1984; **16**: 203-10.
- 2 Tio TL, Tytgat GNJ. Endoscopic ultrasonography of normal and pathologic upper gastrointestinal wall structure. Comparison of studies in vivo and vitro with histology. *Scand J Gastroenterol* 1986; **21** (suppl 123): 27-33.
- 3 Tio TL, Tytgat GNJ. *Atlas of transintestinal ultrasonography*. Aalsmeer, The Netherlands: Mur-Kostverloren BV, 1986.
- 4 Yasuda K, Nakayima M, Kawai K. Endoscopic ultrasonography in the diagnosis of submucosal tumors of the upper digestive tract. *Scand J Gastroenterol* 1986; **21** (suppl 123): 59-67.
- 5 Kimmey WB, Martin RW, Haggitt KY, Wang DW, Silverstein F. Histologic correlates of gastrointestinal ultrasound images. *Gastroenterology* 1989; **96**: 433-41.
- 6 Halsted WS. Contributions to the surgery of the bile passages, especially the common bile duct. *Boston Med J Surg* 1899; **141**: 641-5.
- 7 Eggink WF, van Berge Henegouwen GP, Brandt KH, Brakhorst FB, van der Heyde MN. Tumors of the ampulla of Vater treated by local resection: a report of five cases. *Neth J Surg* 1988; **40**: 110-3.
- 8 Tio TL, Mulder CJJ, Eggink WF. Endosonography in staging early carcinoma of the ampulla of Vater. A case report of endosonographic guided treatment strategy. *Gastroenterology*. (in press).