0016-5107/93/3902-0127 $1.00 + .7 0
GASTROINTESTINAL ENDOSCOPY

Endoscopic snare excision of benign adenomas of the papilla of Vater

Kenneth F. Binmoeller, MD, Suraia Boaventura, MD
Kerstin Ramsperger, Nib Soehendra, MD

Hamburg, Germany

Over a 5-year period (1985 to 1990), 25 patients (11 men and 14 women, median age 68) with adenomatous tumors of the papilla of Vater judged to be benign by endoscopic appearance and forceps biopsy were included in this study. All patients had de novo tumors except for two patients who had recurrent adenomas after local surgical excision. Presenting symptoms included pain (19 patients), jaundice (9 patients), and pancreatitis (4 patients). ERCP showed bile and pancreatic duct dilation in 20 patients (6 with stones) and 2 patients, respectively. The adenoma and the papilla of Vater were excised using a standard polypectomy snare (snare papillectomy). Procedure-related complications included bleeding in two patients and acute pancreatitis in three patients. No deaths occurred. Histologic analysis showed benign adenoma with mild to moderate dysplasia in 18 patients and severe dysplasia in 1 patient. Two patients with evidence for intraductal tumor extension on ERCP were referred for surgery. Six patients had recurrences at a median follow-up of 37 months (range, 7 to 79 months), of whom one had intraductal tumor spread and underwent pancreatoduodenectomy. Five patients were re-treated endoscopically; one ultimately required surgery. (Gastrointest Endosc 1993;39:127-31.)

Villous adenomas of the papilla of Vater are rare pre-malignant tumors that have been reported to occur in 0.04 % to 0.12 % of post-mortem series.[1,2] Approximately 100 cases have been reported in the literature.[3] Surgery has been the traditional approach for treatment. However, surgery may result in significant morbidity and mortality.[4-9] Endoscopic removal would therefore be attractive, particularly in high-risk surgical patients.

In contrast to the management of colonic adenomas, endoscopic removal of adenomas of the papilla has received little attention in the literature. Concern has been expressed that the sensitive anatomy of the papilla of Vater may increase the risk for potential complications, including bleeding, perforation, and pancreatitis.[10,11] Furthermore, the largely sessile nature of these neoplasms makes complete resection difficult.

We evaluated the technical feasibility and safety of endoscopic treatment of benign adenomas of the papilla of Vater. We excised adenomas of the papilla of Vater in a radical fashion using the diathermy snare (snare papillectomy). This is the first study to evaluate this non-surgical treatment modality in a larger series of patients.

Received August 18,1992. For revision September 9, 1992. Accepted December 8, 1992.
From the Department of Endoscopic Surgery, University Hospital Hamburg, Hamburg, Germany.
Reprint requests: Kenneth F. Binmoeller, MD, University Hospital Hamburg, Department of Endoscopic Surgery, Martinistrasse 52, 2000 Hamburg 20, Germany.
37/1/44711

PATIENTS AND METHODS

Over a 5-year period (1985 to 1990), 25 patients with papillary adenomas who met the following criteria were selected for endoscopic treatment by snare papillectomy: (1) size less than 4 cm; (2) no evidence for malignancy based on endoscopic appearance (regular margins, no ulceration) and soft consistency; and (3) benign histologic findings on forceps biopsy (minimum of six biopsies).

The patients included 11 men and 14 women, with a median age of 68 (range, 48 to 83). Two patients had previously

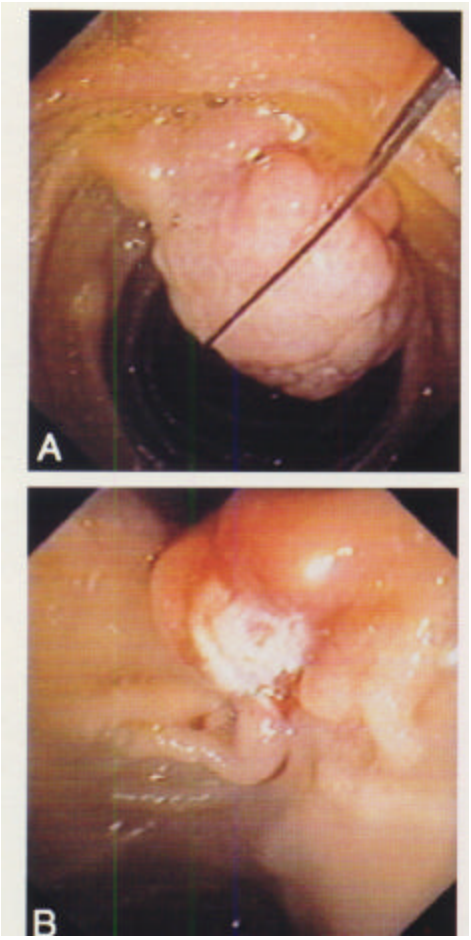

Figure 1. A, Duodenoscopic view of snare excision of adenoma originating from papilla of Vater. B, Appearance after excision of the adenoma together with papilla (snare papillectomy).

undergone local surgical resection of adenomas of the papilla. Presenting symptoms were pain in 19 patients, jaundice in 9 patients, and pancreatitis in 4 patients.

Snare papillectomy consisted of excision of the adenoma together with the papilla of Vater using a standard polypectomy snare (Fig. 1). Excision was performed in a radical fashion to the level of the muscularis propria using pure cutting current (Fig. 2). Lesions that could not be resected en bloc were resected in a piecemeal fashion. Residual tissue that could not be removed with the snare was fulgurated using monopolar current. The resected specimen was submitted for histologic analysis by serial sectioning (Fig. 3).

After papillectomy, ERCP was performed in all patients. Patients diagnosed as having biliary stones underwent papillotomy and stone extraction. If drainage of contrast medium appeared delayed, papillotomy of the biliary and/or pancreatic ducts was performed. An endoprosthesis (10F and 7F for the biliary and pancreatic ducts, respectively) was placed if poor drainage persisted despite sphincterotomy.

Surveillance duodenoscopy was performed at 1, 6, and 12 months after adenoma removal and yearly thereafter. If recurrence was suspected, multiple biopsy specimens were obtained and ERCP repeated. Indications for surgery during this study were histologic documentation of coexistent carcinoma and suspected intraductal tumor extension on ERCP.

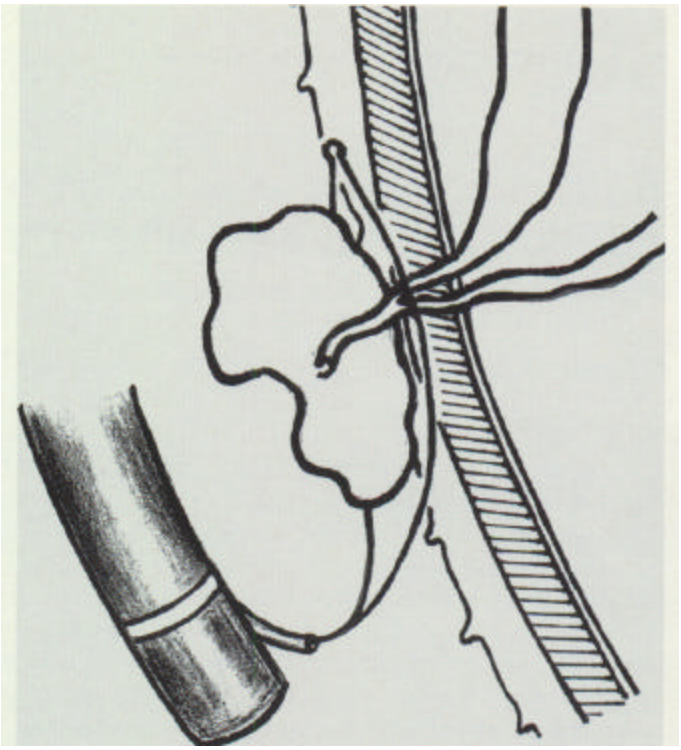

Figure 2. Artist's drawing of snare papillectomy showing plane of dissection to the level of the muscularis propria.

RESULTS

Adenoma size was less than 2 cm in 15 patients, 2 to 3 cm in 8 patients, and 3 to 4 cm in 2 patients. Snare papillectomy was technically feasible in all patients. This was performed in a single session in 23 patients and in two sessions in 2 patients.

Immediate complications included post-papillectomy bleeding in two patients and acute pancreatitis in three patients. Bleeding was successfully managed by local injection of epinephrine (1:20,000 dilution) at the bleeding site, and the patients did not require transfusion. Pancreatitis resolved with conservative treatment in all cases after a mean hospitalization of 5 days (range, 3 to 12 days). No procedure-related deaths occurred.

Histologic diagnosis of the resected specimen was benign adenoma without dysplasia in 6 patients, mild or moderate dysplasia in 18 patients, and severe dysplasia in 1 patient. None of the specimens showed coexistent carcinoma.

After papillectomy, separate orifices for the biliary and pancreatic ducts could usually be identified (Fig. 4). ERCP was successful in all patients. It showed bile and pancreatic duct dilation in 20 and 2 patients, respectively. Six patients had common bile duct stones, which were successfully extracted after sphincterotomy

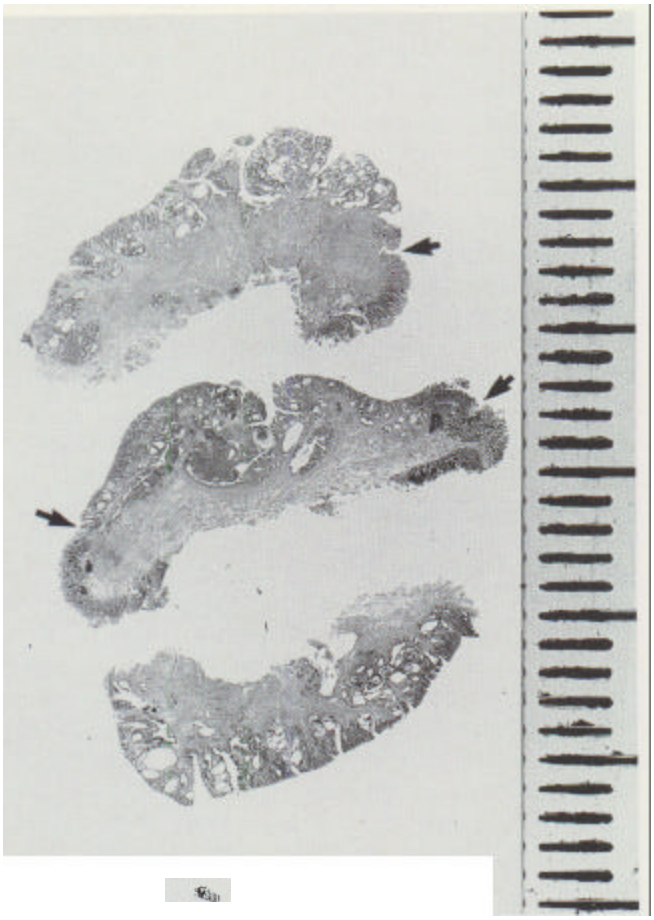

Figure 3. Serial histologic sections of endoscopically resected tubulo-villous adenoma with mild dysplasia. Arrows show tumor margins.

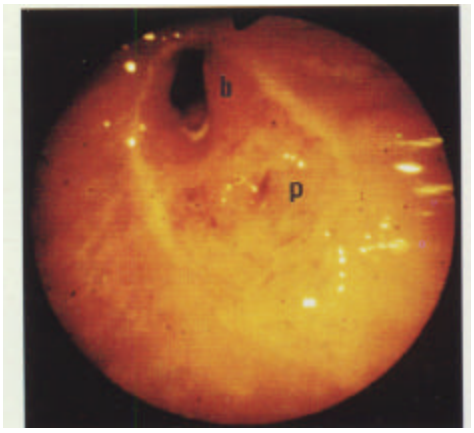

Figure 4. Endoscopic appearance 1 month after snare papillectomy showing the bile (b) and pancreatic (p) ducts.

Two patients had an irregular cut-off of the distal bile duct, suggesting intraductal tumor growth (Fig. 5) and underwent sphincterotomy and biliary stmt placement. Three patients with poor contrast medium drainage of the biliary and/or pancreatic ducts underwent sphincterotomy. A 7F pancreatic stmt was placed in one patient who had a persistent delay in contrast medium emptying. Despite this prophylactic measure, post-papillectomy pancreatitis still developed. The stmt was removed 1 month later.

The two patients with evidence of intraductal tumor involvement on ERCP were referred to surgery. One patient underwent local surgical resection but had a recurrence 4 years later. The other patient was judged to be a poor surgical candidate (79 years old with relatively poor health) and was palliatively managed by biliary stmt drainage. The remaining 23 patients were observed for a median period of 37 months (range, 7 to 79 months). Six patients (26%) had recurrences. Biopsy specimens showed these recurrences to be benign adenomas in all cases. Recurrences occurred within 1 year of papillectomy, with the exception of one patient, who was diagnosed to have a recurrence at 42 months.

Of the six patients with recurrences, one had extension of tumor into the distal common bile duct and underwent pancreatoduodenectomy. The patient died of post-operative complications. The remaining five patients were treated endoscopically. This treatment consisted of snare resection in one patient, diathermic fulguration in two patients, and combined snare resection and fulguration in two patients. Three patients were free of disease at 13, 52, and 53 months. One elderly patient was lost to follow-up, and one underwent pancreatoduodenectomy after repeated fulgurations failed to completely ablate tumor tissue. The surgery was complicated by a enterocutaneous fistula, which necessitated several subsequent hospitalizations.

DISCUSSION

In this series we demonstrated that adenomas of the papilla of Vater can be resected endoscopically using the diathermy snare, with acceptable morbidity. Postpapillectomy bleeding occurred in two patients and was effectively managed with local injections of epinephrine. Pancreatitis occurred in three patients (12 %) and resolved with conservative treatment. We placed a pancreatic stmt in one patient with delayed contrast medium emptying of the pancreatic duct; however, post-papillectomy pancreatitis still developed. Perforation was not observed, and no procedurerelated deaths occurred.

Histologic analysis of papillectomy specimens did not reveal evidence for coexistent carcinoma. This is perhaps surprising in view of prior studies reporting malignant foci in up to 35 °% of adenomas. [12,] is However, our study population was highly selected. Only patients with biopsy-proven benign adenomas and features of benign tumor growth (benign in appearance and soft on probing) underwent treatment. Thus,

Figure 5. Endoscopic retrograde cholangiogram showing dilated common bile duct and distal irregularity secondary to intraductal tumor growth.

these selection criteria appeared to reliably predict benign pathologic findings.

Common bile duct stones were found in six patients with adenomas of the papilla of Vater. This finding emphasizes the importance of careful evaluation of the papilla in patients with bile duct stone disease. Benign adenomas of the papilla have rarely been reported to extend into the biliary or pancreatic ducts." In this study, initial ERCP revealed irregularity of the distal common bile duct in two patients, suggesting intraductal extension. A third patient was diagnosed as having intraductal tumor extension on a follow-up ERCP. In the future, direct transpapillary cholangioscopy and pancreatoscopy and endoscopic ultrasonography are likely to complement ERCP in the evaluation of intraductal tumor extension.

In our series, six patients (25 %) had recurrences after endoscopic treatment. This recurrence poses a drawback of the endoscopic method compared to radical surgical treatment by pancreatoduodenectomy, which rarely results in tumor recurrence. The recurrence must be weighed against the potential operative mortality and morbidity rates for pancreatoduodenectomy. Results have improved in recent series, with mortality rates of 2 % to 5 % and morbidity rates in the range of 30 % reported in larger studies.'-to Nonetheless, recurrence remains a significant consideration for the individual with a tumor that has not been proven to be malignant. Of the two patients who underwent pancreatoduodenectomy in our study, both had major post-operative complications, resulting in one death. Local surgical resection or excision, although generally associated with lower morbidity and mortality, is burdened with high tumor recurrence rates and may not be more effective than endoscopic treatment by snare papillectomy.14-16 In one study, 6 of 13 patients (46 %) who underwent local excision and 1 of 5 patients (20 %) who underwent segmental duodenal resection had recurrences. Despite a zero mortality rate for local resection, the morbidity rate was 62 % .14

Tumor recurrence can be treated endoscopically. Of five re-treated patients, only one ultimately required surgery. Patients who opt for endoscopic treatment should be educated regarding the risk of recurrence and the need for close endoscopic surveillance. Only patients judged to be reasonably compliant should be considered for endoscopic treatment.

Endoscopic treatment of adenomas of the papilla of Vater has been previously reported. Laser photodestruction (Nd:YAG and argon) of adenomas of the papilla was reported in eight patients by Lambert et al." Tumor ablation was successful in seven patients, and one recurrence was observed. Shemesh et al." reported on endoscopic sphincterotomy and fulguration in four patients diagnosed with recurrent adenomas of the papilla after local surgical excision; no recurrence was observed during a 12- to 24-month follow-up period. Although these methods of tumor ablation appear effective, they do risk undertreatment of lesions that may harbor coexistent carcinoma.

Endoscopic snare papillectomy with the intent of complete tumor excision has not been previously emphasized in the literature. Lambert et al. [17] treated six patients with adenomas of the papilla by snare excision; however, the technique is not detailed. Shemesh et al.18 reported the removal of a flat, broad-based adenoma using the snare combined with fulguration in a patient who refused surgery. Unfortunately, the patient was lost to follow-up.

Endoscopic resection of adenomas of the papilla of Vater using the diathermic snare appears to be a viable alternative to surgical therapy, particularly in high-risk surgical patients. Local recurrence was a problem in this study, but most cases could be retreated endoscopically. Our approach allows for differentiated treatment; the resected specimen is submitted for histologic analysis and ERCP is performed to evaluate for intraductal tumor involvement. Pa

tients with coexistent malignancy or who are suspected as having intraductal involvement should be referred to surgery, preferably radical pancreatoduodenectomy. Although adenomas of the papilla of Vater are rare occurrences, we are likely to see more cases as ERCP becomes more widespread.

REFERENCES

1. Shapiro PF, Lifvendahl RA. Tumors of the extrahepatic bile ducts. Ann Surg 1931;94:61-79.
2. Baker HL, Caldwell DW. Lesions of the amp ulla of Vater. Surgery 1947;21:523-31.
3. Rosenberg J, Welch JP, Pyrtek LJ, Walker M, Trowbridge P. Benign villous adenomas of the ampulla of Vater. Cancer 1986; 58:1563-8.
4. Jones BA, Langer BL, Taylor BR, Girotti M. Periampullary tumors: which o nes should be resected? Am J Surg 1985;149:46-52.
5. Tarazi RY, Hermann RE, Vogt DP, et al. Results of surgical treatment of periampullary tumors: a thirty-five-year experience. Surgery 1986;100:716-23.
6. Grace PA, Pitt HA, Tompkins RK, et al. Decreased morbidity and mortality after pancreatoduodenectomy. Am J Surg 1986; 151:141-9.
7. Neoptolemos JP, Talbot IC, Carr-Locke DL, et al. Treatment and outcome in 52 consecutive cases of ampullary carcinoma. Br J Surg 1987;74:957-61.
8. Crist DW, Sitzmann JV, Cameron JL. Improved hospital morbidity, mortality, and survival after Whipple procedure. Ann Surg 1987;206:358-65.
9. Trede M, Schwall G, Saeger HD. Survival after pancreatoduodenectomy: 118 consecutive resections without an operative mortality. Ann Surg 1990;211:447-58.
10. Ryan DP, Schapiro RH, Warshaw AL. Villous tumors of the duodenum. Ann Surg 1986;203:301-6.
11. Chappuis CW, Divincenti FC, Cohn I. Vinous tumors of the duodenum. Ann Surg 1989;209:593-9.
12. Hayes DH, Bolton JS, Willis GW, Bowen JC. Carcinoma of the ampulla of Vater. Ann Surg 1987;206:572-7.
13. Yamaguchi K, Enjoji M, Kitamura K. Endoscopic biopsy has limited accuracy in diagnosis of ampullary tumors. Gastrointest Endosc 1990;36:588-92.
14. Gertsch PH, Matthews JB, Lerut J, Baer HU. The technique of papilloduodenectomy. Surg Gynecol Obstet 1990;170:254-6.
15. Galandiuk S, Hermann RE, Jagelman DG, Fazio VW, Sivak MV. Vinous tumors of the duodenum. Ann Surg 1988;207:234-9.
16. Gray G, Browder W. Vinous tumors of the ampulla of Vater: local resection vs pancreatoduodenectomy. South Med J 1989;82: 917-20.
17. Lambert R, Ponchon T, Chavaillon A, Berger F. Laser treatment of tumors of the papilla of Vater. Endoscopy 1988;20:22731.
18. Shemesh E, Nass S, Czerniak A. Endoscopic sphincterotomy and endoscopic fulguration in the management of adenoma of the papilla of Vater. Surg Gynecol Obstet 1989;169:445-48.