Endoscopic Ampullectomy

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G&H What risk do ampullary adenomas pose?

JB The natural history of small, sporadic ampullary adenomas (Figure 1) is not known. However, they are the likely origin of some, if not most, ampullary carcinomas. Ampullary adenomas in patients with familial adenomatous polyposis (FAP) have a well-documented tendency to progress to cancer, and should be aggressively managed. Large adenomas, especially villous ones, may bleed, and on rare occasions may grow large enough to obstruct the duodenum.

G&H Have any specific risk factors for ampullary adenomas been identified?

JB Approximately 75% of ampullary adenomas are sporadic, whereas the remaining 25% occur in patients with familial polyposis syndromes, which are genetically determined. Patients known to have FAP should undergo duodenal, as well as colonic, screening starting in their teens, to look for polyps. Sporadic ampullary adenomas are usually asymptomatic and are found incidentally at the time of endoscopy, particularly in endoscopic retrograde cholangiopancreatography (ERCP) procedures.

G&H Has endoscopic ampullectomy been a routine part of managing patients with ampullary adenomas?

JB Historically, endoscopists have considered ampullectomy too risky to perform routinely. Of particular and appropriate concern was the risk of postprocedure pancreatitis. With the recent advent of stenting technology, pancreatic-duct (PD) stenting has become integral to the ampullectomy procedure and now greatly reduces this risk. So, although endoscopic ampullectomy is not a new technique per se, it is one that many endoscopists are attempting only recently for the first time in their careers.

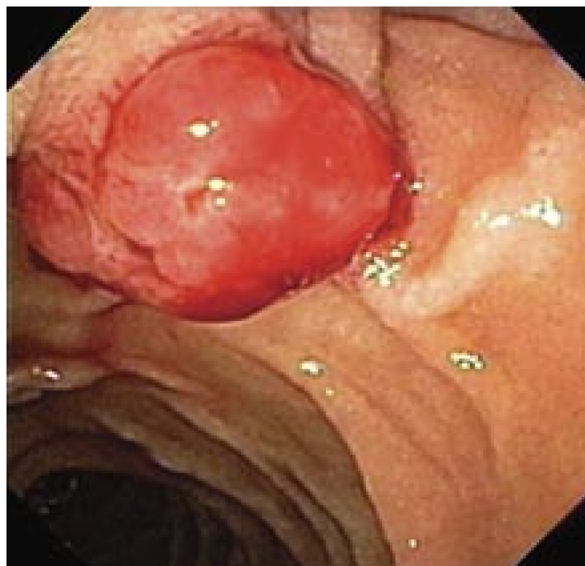

Figure 1. Endoscopic image of an ampullary adenoma.

G&H Why is it important to evaluate ampullary adenomas before surgery?

JB Large (particularly >3 cm diameter) adenomas need to be evaluated to exclude malignancy within the mass and/or extension of adenomatous tissue into the bile duct or PD. Increasingly, endoscopic ultrasound (EUS) is being used for this purpose. Ampullary tumors that are found to have advanced beyond the T1 stage of mucosa-limited invasion and penetrated the bowel wall (T2), require surgery, where possible, to ensure that all neoplastic tissue is removed; no attempt should be made to excise them endoscopically.

The principal risk of ampullectomy is pancreatitis. Other risks include hemorrhage and perforation. Some endoscopists prefer to remove large ampullary masses piecemeal, in several electrocautery slices, which probably reduces some of the risks, but is associated with a higher recurrence rate.

G&H Could you describe the different methods for evaluating these lesions and their advantages and disadvantages?

JB As indicated above, EUS is the favored way to look for local invasion and/or extension of ampullary masses. Computed tomography (CT) and magnetic resonance imaging have limited usefulness in this setting, but CT, in particular, will identify relevant local lymphadenopathy and the extent of spread of frank ampullary cancer. A positive biopsy—or EUS-guided fine needle aspirate (FNA)—showing malignancy is very helpful in managing ampullary lesions. However, negative biopsies and FNAs may occur due to sampling error and cannot be relied upon to exclude malignancy. ERCP is typically done prior to ampullectomy, not only to define the biliary and pancreatic anatomy but also to perform sphincterotomy and place stents.

G&H Could you describe the actual endoscopic ampullectomy procedure from the point of view of the clinician? What would comprise standard follow-up care for these patients?

JB With the assumption that an ampullary mass of, say, 3 cm in diameter, has already been inspected using EUS and no malignancy is suspected, an endoscopic ampullectomy is indicated. Because these masses tend to be vascular, it is important that the patient not be anticoagulated or receiving platelet-inhibiting agents. ERCP is performed to define the biliary and pancreatic anatomy. In my practice, pancreatic and biliary sphincterotomies are performed at this point, cutting upwards with a "pull" papillotome from within the PD in the head of the gland. Next comes the decision regarding PD stenting. Pancreatic stents should be placed whenever possible, as well as biliary stents, if there is any concern about bile drainage postprocedure. Some endoscopists prefer to stent before ampullectomy although most delay this until after the abnormal tissue has been removed mainly because it is difficult to do a clean or complete ampullectomy with a PD stent extending into the duodenum. The PD orifice can almost always be identified and cannulated after snare-cautery excision of the ampullary mass. It is important to stent this orifice, as stenting significantly reduces the risk of postprocedure pancreatitis.

To perform the actual ampullectomy, a snare is placed around the entire mass and electrocautery is applied in the standard fashion. Patience is required at this point, as the base of the mass is always thick and the cutting is slow. The use of pure cutting current should be avoided, given the tendency of these vascular lesions to bleed. Most endoscopists use blended coagulation and cutting currents, utilizing an ERBE USA Incorporated surgical generator, or another similar piece of equipment. Piecemeal removal may be necessary for large adenomas, but it should be remembered that this approach increases the risk of recurrence. The resected tissue should be recovered in its entirety for pathologic examination. As the material is too bulky to remove via the instrument channel of the endoscope, the use of a net or Roth Basket (United States Endoscopy Group, Inc.) is very helpful. Containing the specimen in this way during removal also minimizes the risk of accidental dislodgement and aspiration. Ideally, the specimen should be pinned out on cardboard or some other flat material to help orient the pathologist. Any bleeding from the ampullectomy site can generally be controlled with local thermal methods (eg, a heater probe or argon plasma coagulator) or clips. The PD should then be stented, typically with a flanged 5 French gauge straight or single-pigtail stent, if this procedure has not already been performed. I tend to avoid unflanged stents after ampullectomy, as it is important for the stent to stay in place for at least 2–3 days to ensure pancreal drainage.

The patient should avoid aspirin, nonsteroidal anti-inflammatory drugs, and anticoagulants for 5–7 days after the procedure. A second procedure is needed 2–4 weeks after the ampullectomy to remove the stent if it has not migrated spontaneously (as judged by plain abdominal film). Thereafter, I conduct follow-up evaluations with ampullectomy patients at 6 months and 1 year to check on healing and make sure that there is no recurrence. After 1 year, further screening can be tailored to the indication: clearly, FAP patients need closer supervision for recurrent or new ampullary adenomas than those with sporadic tumors.

Suggested Reading

Baillie J. Endoscopic ampullectomy. *Am J Gastroenterol.* 2005;100:2379-2381.

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Korazek RA. Endoscopic resection of ampullary neoplasms. *J Gastrointest Surg.* 2004;8:932-934.

Meneghetti AT, Safadi B, Steward L, Way LW. Local resection of ampullary tumors. *J Gastrointest Surg.* 2005;9:1300-1306.