ABSTRACT

Bleeding gastric ulcers have a propensity to occur in the critically ill and elderly. Various treatments include endoscopic or surgical intervention. The endoscopic route may have as high as a 25 percent rebleeding rate and a 50 to 90 percent rebleeding rate if there is a visible vessel. Surgical intervention has a mortality rate of as high as 25 percent. Described is a procedure which combines endoscopic and surgical techniques for the treatment of bleeding gastric ulcers - the percutaneous endoscopic method.

INTRODUCTION

Bleeding gastric ulcers are only one third as common as duodenal ulcers but are associated with over half of the mortalities due to peptic ulcer disease. The overall mortality of upper gastrointestinal bleeds is around 10 percent and has not changed much over the past 30 years. Acutely bleeding gastric ulcers are also more likely to persist despite medical and endoscopic intervention.

Endoscopic treatment includes the use of a heater probe, injection of sclerosing agents or epinephrine as well as various laser applications. Success rates of each of these appear to be equal. Endoscopic intervention is usually preferred over surgery because it is less invasive and can usually be done with a mild sedative. If endoscopy is unsuccessful, or if the patient remains hemodynamically unstable, requires three or more units of blood on consecutive days or greater than four units of blood initially, or rebleeds during the same hospital stay, then surgical intervention is indicated. Early surgery may also be indicated for the very old or critically ill.

Various acceptable operative procedures include oversewing the bleeding site with biopsy; excision of the ulcer; oversew or excision of the site combined with vagotomy and an outlet procedure or antrectomy. Eighty percent of patients with upper gastrointestinal bleeds who require surgery are older than 60 years of age. Sixty-six percent of those with bleeding gastric ulcers are in shock and over 85 percent of them have received five or more units of blood. They are most often critically ill with other concomitant medical conditions. Early surgical intervention carries a death rate of as high as 25 percent, with most deaths being attributed to cardiopulmonary failure and other complications related to the surgery and general anesthetic.

TECHNIQUE

Described here is a procedure that combines endoscopic with surgical techniques for the treatment of bleeding gastric ulcers. An esophagogastroduodenoscopy is first performed to locate the bleeding site. Following this, an area of good transillumination and close approximation of the gastric and abdominal wall is identified. A technique similar to percutaneous endoscopic gastrostomy tube insertion...
A small incision is made in the anterior abdominal wall and a five millimeter laparoscopic trocar is inserted through the abdominal wall into the insufflated stomach under direct endoscopic visualization using a monitor screen (Figure 1). The best trocar found for this procedure is a ballooned end Marlow S.A.S.™. This is equipped with a Foley-like balloon on its sheath and there is no safety shield as is found in many other brands. This allows easier access through the abdominal wall into the stomach.

Upon entering the stomach, the balloon is immediately insufflated and snugged to the gastric wall. Insufflation of the stomach is maintained through the endoscope or through the laparoscopic sheath. An endoloop is then introduced through the port into the stomach and positioned over the bleeding site. The bleeding site is then grasped by endoscopic biopsy forceps through the endoscope and tented through the endoloop (Figure 2). The endoloop is then secured around the tissue and the excess suture cut with endoshears.

With proper placement of the trocar, bleeding sites in virtually any area of the stomach are accessible. Larger blood clots can also be removed more effectively through the sheath using a laparoscopic suction-irrigation device. Following application of the endoloop, a Foley catheter (14 French) is introduced through the sheath and its balloon inflated. The balloon on the sheath is then deflated and removed over the Foley. The Foley balloon is then snugged to the gastric wall and bolstered or sewn in place externally to the abdominal wall (Figure 3). This acts as a gastrostomy tube and is left in place for at least ten days, after which it is removed and the site heals spontaneously.

**SUMMARY**

Although still experimental, percutaneous endoscopic repair of bleeding gastric ulcers may be useful for any patient with a bleeding gastric ulcer that is unresponsive to
medical and endoscopic therapy. It should prove especially useful in the critically ill, elderly and hemodynamically unstable. This technique provides good access to the entire stomach, can easily be done with a local anesthetic and mild sedation, and provides an alternative to major surgery. Endoloops, laparoscopic suturing, electrocautery and the application of metal and absorbable endoclips may all be utilized. This technique also allows better access to bleeds higher in the stomach such as gastric varices and Dieulafoy's ulcers. Biopsies, irrigations and aspirations can easily be done through the port as well as introduction of a laparoscope for better visualization if needed. If control of the hemorrhage is unsuccessful, this procedure can easily be converted to an open laparotomy with a general anesthetic.

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