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SUPPLEMENTATION TO THE ENCYCLOPEDIA

Endoscopic Therapy of Refractory Post-Papillotomy Bleeding With Electrocautery Forceps Coagulation Method Combined With Prophylactic Pancreatic Stenting ☆☆

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Abstract
Introduction: The overall risk of clinically significant post-papillotomy bleeding is 1-4%, most of them manifest as a delayed hemorrhage 2-5 days after ERCP. Injection method with diluted epinephrine is the standard first line therapy of endoscopic hemostasis in these patients. In therapy resistant cases endoscopic hemocliping is effective, but optimal positioning of the hemoclips is difficult and sometimes impossible. Thermal coagulation method with coagulation forceps combined with prophylactic pancreatic duct stenting could be an alternative in these cases.
Patients and methods: We present 2 cases of recurrent post-papillotomy bleeding, both were detected in 1-6 days after the successful ERCP and EST. Standard endoscopic therapy with local injection of diluted epinephrine and/or application of hemoclips were ineffective. As a second line endoscopic therapy we used thermal coagulation of the bleeding vessels with coagulation

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forceps similarly to ESD. At the time of the thermal coagulation a 5F, 3–5 cm prophylactic pancreatic stent was applied to prevent pancreatitis.
Results: We achieved complete hemostasis in all patients without signs of further rebleeding or need for surgery. None of our patients developed post-procedure pancreatitis or perforation. Prophylactic pancreatic stents were safely removed after a few days.
Conclusion: We presented a new, effective and safe second line endoscopic hemostatic method in patients with therapy resistant post-papillotomy bleeding. Combination of prophylactic pancreatic stenting and thermal coagulation with coagulation forceps might be suggested as a rescue treatment in patients with severe post-papillotomy bleeding, resistant to standard endoscopic therapy.

Videos related to this article

Videos related to this article can be found online at http://dx.doi.org/10.1016/j.vjgien.2013.06.002.

1. Background

- Endoscopic sphincterotomy (ES) is the most frequent therapeutical maneuver during endoscopic retrograde-cholangiopancreatography (ERCP).
- Post-papillotomy bleeding is the second most common complication of ES [1]. In the Freeman study, the incidence of clinically significant post-papillotomy bleeding was 2%, of which 48% were immediate and 52% were delayed bleeding [2].
- Injection of 1:10,000 diluted epinephrine into the bleeding site of the papilla is the most frequently applied method to control post-papillotomy bleeding [3]. Kim et al. reported 100% success with epinephrine injection in 136 patients with immediate post-ES bleeding, however rebleeding occurred in eight patients [4]. Repeated injection therapy might be a treatment of choice, but complications, such as papillary edema induced post-procedure pancreatitis could develop after repeated or large volume of intra-papillary injection of saline and epinephrine.
- Recurrent or refractory post-papillotomy bleeding after initial hemostasis is a demanding clinical situation. No well accepted clinical strategy exists for management of recurrent post-papillotomy bleeding. Repeated endoscopic procedures are usually attempted prior to performing more invasive therapy, such as surgery.
- Initially, surgical therapy was used in up to 3% of patients with refractory post-papillotomy bleeding, but it should be replaced by second line endoscopic therapy to diminish higher post-operative mortality after surgery.
- Endoclip placement can be used for second line endoscopic management of refractory post-papillotomy bleeding, but precise placement of endoclips using side-viewing endoscopes is technically more difficult and more often results in misfiring than with forward-viewing endoscopes [5].
- Endoscopic therapy of refractory post-papillotomy bleeding with a temporary placement of fully covered self-expandable metal stents (SEMSs) was a brilliant but expensive proposal by Shah et al., as they demonstrated 100% success of primary endoscopic hemostasis [6]. The mean duration of stent placement was 8.2 days (range 5–10 days), and the SEMS was successfully removed in all cases [7].
- Selective angiographic embolization can also be an effective treatment modality of refractory post-papillotomy bleeding, although the data for its use are limited [8].
- Electrocautery (coagulation) forceps with soft or spray coagulation mode are actively used for treatment of bleeding and non-bleeding visible vessels during endoscopic mucosal resection (EMR) and endoscopic submucosal dissection (ESD) [9]. With this innovative technique, the bleeding point can be coagulated by using a hemostatic forceps.
- Several controlled trials from Japan demonstrated that the application of hemostatic forceps with soft coagulation is a safe and effective method of controlling upper gastrointestinal peptic ulcer bleeding, too [10].
- However, the usefulness of hemostatic forceps coagulation in the endoscopic therapy of refractory post-papillotomy bleeding has not been investigated so far.

2. Materials

- Endoscope: Fujinone ED-530XT, EPX-2500.
- ERBE VIO 300D, soft coagulation mode, E6, 80 W.
- Water Jet: Flush Knife Water Jet, Fujinone JW-2.
- Coagulation forceps: Coagrasper™ Hemostatic Forceps FD-410LR/FD-411UR, Olympus Europe GmbH, Hamburg, Germany.
- 5F, 3–5 cm-long prophylactic Geenen stent with internal flags (Wilson–Cook Co, USA).
- Guide-wire: 0.025 in., hydrophilic coated standard ERCP guide-wire (Medwork, Germany).
- ERCP stent introducer catheter (Oasis, Wilson–Cook Co, USA).

3. Endoscopic procedures

- Cleaning of the bleeding site of the Vater papilla using Dormia basket and high flow water jet flushing with a Fujinone JW-2 ESD device through a large caliber ERCP stent introducer catheter.
- After the precise localization of the papillary orifice and the bleeding vessel at the site of the previous