Are endoscopic mucosal resection and endoscopic submucosal dissection risky for patients with cirrhosis?

Endoscopic mucosal resection (EMR) and endoscopic submucosal dissection (ESD) have become a standard treatment in selected cases of early gastric cancer [1, 2]. The risk of complications may increase in patients with cirrhosis, due both to severe clotting impairment and to decreased platelet counts [3]. We present our experience in three patients with cirrhosis.

A 68-year-old woman with cryptogenic cirrhosis and esophageal varices, who had normal laboratory parameters and platelet count, was diagnosed with a high-grade gastric adenoma. ESD was decided on. Lesion margins were marked. A solution of mixed saline, adrenaline, and indigo-carmine was used for submucosal injection. Circumferential incision and submucosal dissection were carried out using a HookKnife and an ITknife2 (Olympus, Tokyo, Japan). A Coagrasper (Olympus) was used for preventive hemostasis. The lesion was removed en bloc in 61 minutes (Figs. 1, 2). Pathological examination revealed a high-grade gastric adenoma. A prophylactic antibiotic was administered. Endoscopy at 6-month follow-up showed no recurrence.

A 69-year-old man was diagnosed with decompensated cryptogenic cirrhosis (esophageal varices and ascites). Serum bilirubin and albumin levels were 1.9 mg/dL and 2.2 g/dL respectively. Platelet count was 59 × 10^3/μL and INR was 1.42. Endoscopic evaluation showed a sessile polyp (width 10mm) in the gastric body. The polyp was elevated by administering a mixture of saline and adrenaline, and was then removed en bloc using a polypectomy snare. Pathological examination revealed a grade 1 neuroendocrine tumor. Prophylactic antibiotic therapy was administered.

A 55-year-old woman was diagnosed as having hepatitis C virus-related cirrhosis. Blood chemistry was normal except for the platelet count (91 × 10^3/μL). Five sessile polyps (the largest 15 mm, the others 6 – 8 mm) were seen in the gastric body during endoscopy. The largest polyp was elevated as described above and removed en bloc using a polypectomy snare. EMR with a ligation device was planned for the remaining polyps. The lesions were elevated, band ligation was applied, and EMR was performed below the band with a polypectomy snare (Figs. 3, 4). Pathological examination revealed grade 1 neuroendocrine tumor for all lesions. A prophylactic antibiotic was administered. Patients with cirrhosis are at increased risk of developing gastric lesions [4]. Surgical treatment in these patients is associated with high mortality [5]. The risk of bleeding during ESD in patients with cirrhosis is reported to be 4% – 33%. INR below 1.5 and a platelet count above 50 × 10^3/μL are likely to be safe thresholds for endoscopic resection [3, 6 – 8]. There is a risk of sepsis in cirrhotic patients due to impairment of defensive mechanisms [9]. Prophylactic antibiotics can reduce the risk of bacteremia and sepsis.

Fig. 1 a Endoscopic appearance (i-scan) of gastric lesion. b Marking the lesion with the HookKnife. c Submucosal injection.

Fig. 2 a View of submucosal tissue through endoscope hood. b Mucosal defect after endoscopic submucosal dissection. c Resected specimen.
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