# 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 hemo-

stasis. 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 and 2.2 g/dL respectively. 1.9 mg/dL Platelet count was 59×10<sup>3</sup>/µL and INR was 1.42. Endoscopic evaluation showed a sessile polyp (width 10 mm) 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 ( $91 \times 10^3 / \mu L$ ). 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  $50 \times 10^3 / \mu L$  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.



Fig. 3 a Endoscopic appearance of gastric lesion. b,c Application of endoscopic band ligation to lesions.



Fig. 4 a View after endoscopic resection with snare. b Mucosal defects after endoscopic mucosal resection. c Resected specimens

Endoscopy\_UCTN\_Code\_TTT\_1AO\_2AG

Competing interests: None

# Fatih Aslan<sup>1</sup>, Zehra Akpinar<sup>1</sup>, Ali Riza Seren<sup>2</sup>, Emrah Alper<sup>1</sup>, Cem Cekic<sup>1</sup>, Nese Ekinci<sup>3</sup>, Sezgin Vatansever<sup>1</sup>, Belkis Unsal<sup>1</sup>

- Department of Gastroenterology, Katip Celebi University Ataturk Training and Research Hospital, Izmir, Turkey
- <sup>2</sup> Department of Anesthesiology and Reanimation, Katip Celebi University Ataturk Training and Research Hospital, Izmir, Turkey
- <sup>3</sup> Department of Pathology, Katip Celebi University Ataturk Training and Research Hospital, Izmir, Turkey

#### References

- 1 Yamamoto H, Kita H. Endoscopic therapy of early gastric cancer. Best Pract Res Clin Gastroenterol 2005; 19: 909 – 926
- 2 Soetikno R, Kaltenbach T, Yeh R et al. Endoscopic mucosal resection for early cancers of the upper gastrointestinal tract. J Clin Oncol 2005; 23: 4490 4498
- 3 Ferro D, Angelico F, Caldwell SH et al. Bleeding and thrombosis in cirrhotic patients: what really matters? Dig Liver Dis 2012; 44: 275 279
- 4 Zullo A, Romiti A, Tomao S et al. Gastric cancer prevalence in patients with liver cirrhosis. Eur | Cancer Prev 2003; 12: 179 182
- 5 *Douard R, Lentschener C, Ozier Y* et al. Operative risks of digestive surgery in cirrhotic patients. Gastroenterol Clin Biol 2009; 33: 555–564
- 6 Kwon YL, Kim ES, Lee KI et al. Endoscopic treatments of gastric mucosal lesions are not riskier in patients with chronic renal failure or liver cirrhosis. Surg Endosc 2011; 25: 1994–1999
- 7 Repici A, Pagano N, Hassan C et al. Endoscopic submucosal dissection of gastric neoplastic lesions in patients with liver cirrhosis: a systematic review. J Gastrointestin Liver Dis 2012; 21: 303 307
- 8 Zullo A, Hassan C, Bruzzese V. Comment to "Bleeding and thrombosis in cirrhotic patients: what really matters?" Dig Liver Dis 2012; 44: 1049

9 *Garcia-Tsao G.* Current management of the complications of cirrhosis and portal hypertension: variceal hemorrhage, ascites, and spontaneous bacterial peritonitis. Gastroenterology 2001; 120: 726 – 748

## **Bibliography**

**DOI** http://dx.doi.org/ 10.1055/s-0034-1364946 Endoscopy 2014; 46: E149–E150 © Georg Thieme Verlag KG Stuttgart · New York ISSN 0013-726X

### **Corresponding author**

#### Fatih Aslan, MD

Yali Mahallesi
I. Tarik Sari Caddesi
Aktas Evleri-1, B Blok
No: 16, Daire: 5
35310, Guzelbahce
Izmir
Turkey
drfatihaslan@hotmail.com