Convergence of endobariatrics and endohepatology for evaluation and treatment of obesity and nonalcoholic fatty liver disease

Endohepatology is an emerging field that utilizes diagnostic and therapeutic endoscopic ultrasound (EUS) to manage liver disease. In recent years, endoscopic sleeve gastoplasty (ESG) has emerged as a safe and effective approach to treating obesity and nonalcoholic fatty liver disease (NAFLD) [1]. We present a combined approach of endobariatrics and endohepatology with the concept of a “one-stop shop” to evaluate portal hypertension, obesity, and associated NAFLD treatment.

A 53-year-old woman with a body mass index of 47.4 kg/m² and NAFLD was referred for evaluation for ESG. The patient was previously denied bariatric surgery after screening endoscopy revealed features of esophageal varicosities (▶ Fig. 1). A decision was made to perform an assessment of portal hypertension and obtain a liver biopsy prior to ESG.

EUS-guided portal pressure measurement directly measures the portal pressure gradient (▶ Fig. 2, ▶ Fig. 3, ▶ Video 1) [2]. A transgastric, transhepatic puncture with a 25-gauge fine-needle aspiration needle equipped with a compound manometer (Cook Medical, Bloomington, Indiana, USA) was performed into the middle hepatic vein, and a portal vein was identified in order to measure the portal vein pressure. ▶ Table 1 presents the portal pressure measurements. A liver sample from the left lobe was obtained via a transgastric puncture using a 19-gauge fine-needle biopsy needle, and pathology demonstrated moderate macro- and micro-steatosis without significant fibrosis (▶ Video 1).
Argon plasma coagulation was used to mark and induce de-epithelialization to promote tissue apposition [3]. A ‘U’ pattern was adopted using an endoscopic suturing device (OverStitch; Apollo Endosurgery, Inc., Austin, Texas, USA), starting at the incisura-anterior surface, followed by the greater curvature and then the posterior wall (Video 1). At 1-year follow-up, the total weight loss percentage was 27%, and FibroScan (Echosens, Paris, France) showed no steatosis or fibrosis.

Our case demonstrates the successful convergence of endohepatology and endobariatric techniques for evaluating portal hypertension with the measurement of portal pressure, diagnosis of NAFLD with EUS-guided liver biopsy, and treatment of obesity with ESG. These procedures work in parallel, allowing for a comprehensive, one-stop approach to diagnosing and managing NAFLD and obesity.

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Competing interests

S. Singh is a consultant for Apollo Endosurgery. A. Krishnan, M. Shah-Khan, Y. Hadi, and S. Thakkar declare that they have no conflict of interest.

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Table 1: Endoscopic ultrasound-guided portal pressure gradient measurements.

<table>
<thead>
<tr>
<th>Venous pressure measurements, mmHg</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>Mean</th>
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<tbody>
<tr>
<td>Hepatic vein</td>
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<td>12</td>
<td>10</td>
<td>10.6</td>
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<tr>
<td>Portal vein</td>
<td>14</td>
<td>14</td>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td>Portal pressure gradient</td>
<td></td>
<td></td>
<td></td>
<td>3.4</td>
</tr>
</tbody>
</table>

Video 1: Endoscopic ultrasound-guided portal pressure measurement and liver biopsy to evaluate nonalcoholic fatty liver disease, and endoscopic sleeve gastroplasty to treat class III obesity.

Fig. 4: An illustration of the creation of the endoscopic sleeve gastroplasty.
References


Bibliography

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