Endoscopic Ultrasound

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EUS–guided injection sclerotherapy for gastroesophageal varices using direct endoscopic injection needle (with video)

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A 50-year-old male with hepatitis B Virus-related cirrhosis presented with melena and hematemesis. Emergency management included fluid resuscitation, blood transfusion, and balloon tamponade. Contrast-enhanced computed tomography revealed liver cirrhosis and portal hypertension with gastroesophageal varices (GOV). Gastroscopy showed type 1 GOV (GOV1), according to the Sarin classification,[1] extending from the superior esophagus to the lesser curvature of the cardia [Figure 1]. EUS confirmed honeycomb-like varices at the lesser curvature of the cardia with Doppler flow [Figure 2]. Using a 23-G direct endoscopic injection (DEI) needle [Figure 3], the cardiac varices were punctured under EUS guidance and treated with a "sandwich" injection of cyanoacrylate and lauromacrogol[2] [Figure 4, Video 1]. Real-time EUS and subsequent gastroscopy confirmed satisfying varix filling [Figure 5]. Concomitant endoscopic band ligation was performed for esophageal varices. The patient recovered without complications and was discharged in a week.

This case highlights the feasibility and effectiveness of EUS-guided injection sclerotherapy for GOVs utilizing a DEI needle instead of EUS-dedicated fine-needle aspiration needle. The tip (4–6 mm) of DEI needle is applicable for transmural puncture of GOVs. Compared with DEI, EUS provides real-time visualization of varices and flows, enabling precise targeting. Moreover, the EUS-guided puncture utilizes a lateral needle exit, facilitating easier access to the varices. In contrast, the needle exits tangentially in direct-view endoscopy, making injections at the lesser curvature challenging during forward-viewing operation, and when retroflexed, the target may be inaccessible due to limited endoscopy angle [Figure 6]. Compared with fine-needle aspiration needle, the DEI needle is generally lower-priced and allows assistant injection at a comfortable height and distance without operator interference [Figure 6]. To the best of our knowledge, this is the first reported application of using a DEI needle in EUS-guided injection sclerotherapy for GOVs. This technique holds significant clinical promise for managing GOVs, especially for GOV1-type varices.

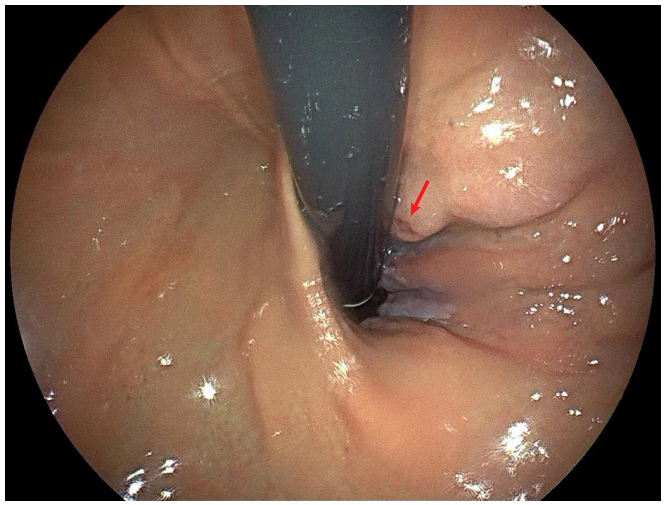


Figure 1. Gastroscopy showed GOV1 at the lesser curvature of the cardia. Red arrow indicates a mucosal break. GOV1, type 1 gastroesophageal varices.

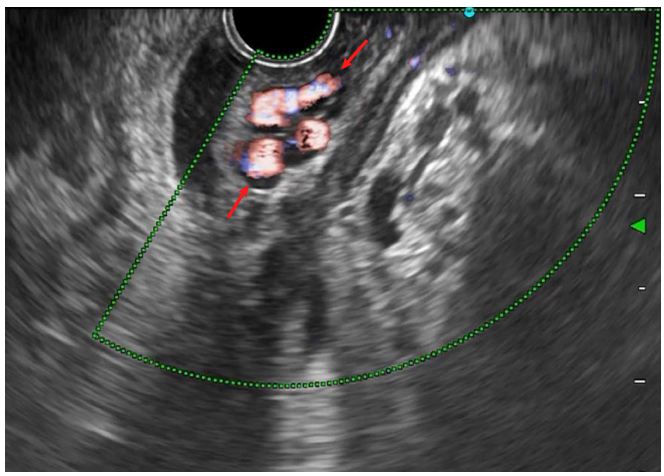


Figure 2. EUS showed honeycomb-like varices at the lesser curvature of the cardia with Doppler flow.

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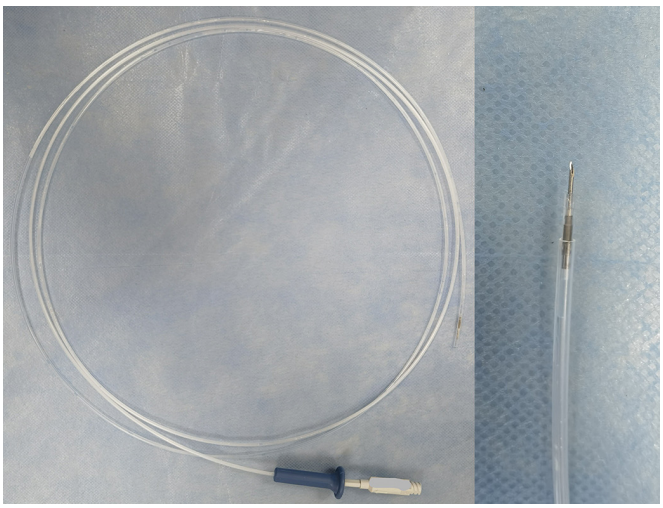


Figure 3. The appearance of the direct endoscopic injection needle.

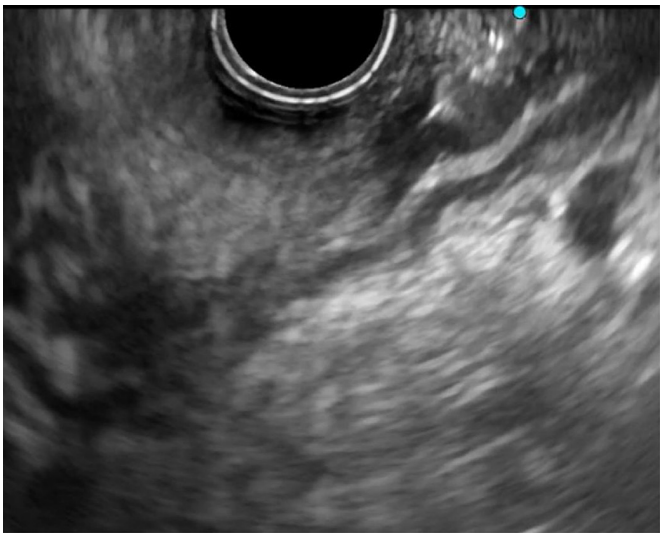


Figure 4. The direct endoscopic injection needle under EUS.

Supplementary Videos

Videos are only available at the official website of the journal (http://www.eusjournal.com)

Ethical Statements

This work was approved by the Ethics Committee of Shanghai Tenth People's Hospital. Informed consent was obtained from patient for publication.

Conflicts of Interest

The authors declare that they have no conflict of interest with regard to the content of this report.

Author Contributions

Conception and design: J. Li; analysis and interpretation of the data: J. Li, Y. Wang, Y. Zhou, J. Wang, J. Feng, C. Huang; drafting of the article: J. Li; Critical revision of the article: F. Liu.

Use of Large Language Models, AI, and Machine Learning Tools

None declared.

Data Availability Statement

No additional data is available.

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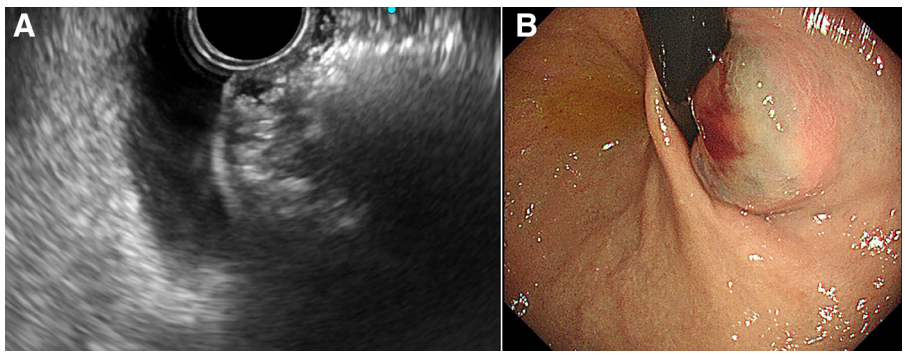


Figure 5. EUS (A) and gastroscopy (B) view of the cardiac varix after injection of cyanoacrylate and lauromacrogol.

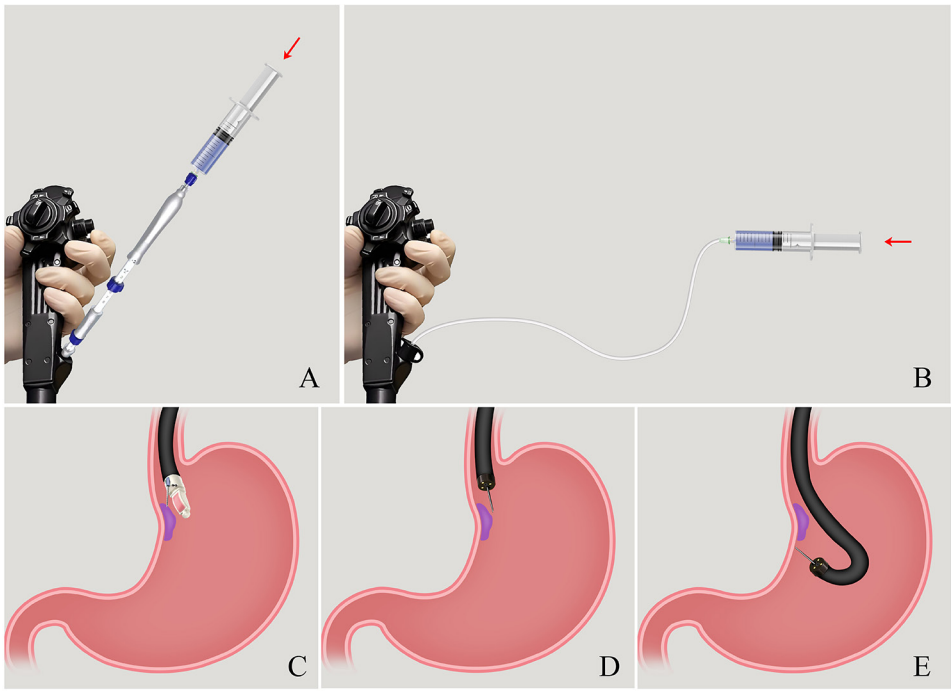


Figure 6. Illustration of the advantages of EUS-guided injection using standard injection needle. A, Assistant injection using FNA needle should be conducted at an elevated position and close distance. B, Assistant injection using the standard injection needle could be conducted at a comfortable height and distance. C, Lateral needle exit of echoendoscope facilitates easier access to the varices. D, Tangentially needle exit of direct-view endoscope makes injections at the lesser curvature challenging during forward-viewing operation. E, When retroflexed, the target may be inaccessible due to limited endoscopy angle. FNA, fine-needle aspiration.