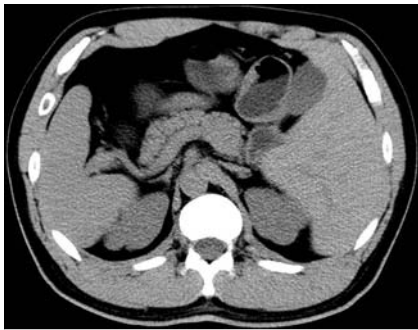


Linear array endoscopic ultrasonography for a patient with situs inversus totalis



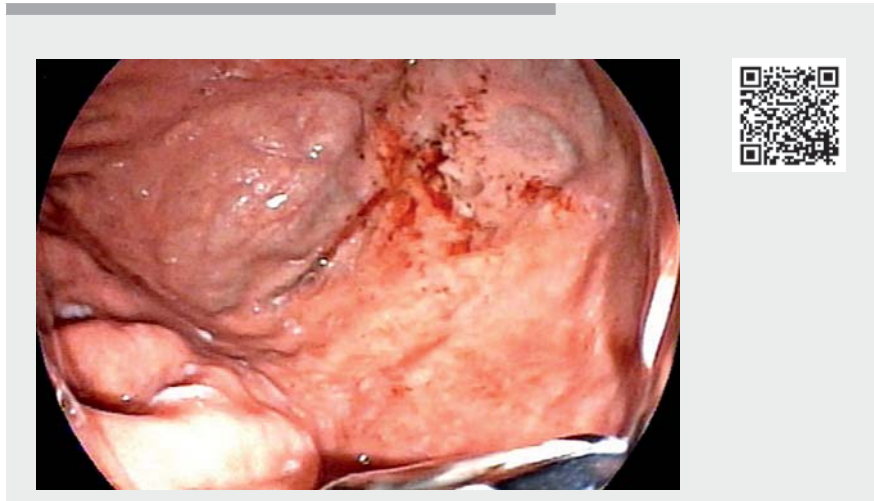
► **Fig. 1** Computed tomographic image of a patient with situs inversus totalis.

Situs inversus totalis (SIT) is a rare congenital anomaly with complete inversion of the viscera [1]. The altered anatomical position of the organs can cause great technical challenges in endoscopic procedures [2].

A 33-year-old man underwent endoscopic ultrasonography (EUS) in our center. Computed tomography (CT) revealed a mirror image of the normal anatomy with complete inversion of the viscera (► **Fig. 1**). We used linear array EUS to examine the bile duct and pancreas. The process was successfully completed, with many differences compared with normal patients (► **Video 1**).

The patient lay in the left lateral position. In the stomach, the scan was similar to common EUS tracing the splenic artery and vein. Contrary to normal patients, the clockwise-rotating scan with pushing of the endoscope ranged from the tail of the pancreas to the head of the pancreas. The order of scanning markers on the screen from left to right changed from portal confluence, left kidney, left adrenal gland, and spleen to spleen, left kidney, left adrenal gland, and portal confluence.

We rotated the endoscope to the left and pushed along the lesser curvature of the stomach to reach the duodenal bulb (► **Fig. 2**). The direction of turn from the bulb to the descending segment of the



► **Video 1** Process of linear array endoscopic ultrasonography in a patient with situs inversus totalis.



► **Fig. 2** Stomach cavity: the mirror image of normal.



► **Fig. 3** Duodenal bulb: the mirror image of normal.

duodenum changed from right to left (► **Fig. 3**). We pushed the endoscope, adhering to the anterior wall of the duodenal bulb, to scan the common bile duct. We rotated the endoscope carefully to the left and pushed it to the descending segment. The scanned image of the descending segment was the opposite of what is seen in the normal person, and the pancreatic uncinat process appeared on the left side of the screen.

EUS in the patient with SIT brings technical difficulties. For patients with SIT, doctors need to change the operating habits and skills formed through working in people with normal anatomy, and operating methods also need to be more precise.

Endoscopy_UCTN_Code_CCL_1AF_2AZ_3AD

Acknowledgments

Jun Yao is supported by the National Natural Science Foundation of China (no.81800489).


Funding

National Natural Science Foundation of China
http://dx.doi.org/10.13039/501100001809
81800489

Competing interests

The authors declare that they have no conflict of interest.

The authors

Su Luo, Li-sheng Wang, De-feng Li, Jun Yao 
Department of Gastroenterology, Shenzhen People's Hospital (the Second Clinical Medical College, Jinan University; The First Affiliated Hospital, Southern University of Science and Technology), Shenzhen, Guangdong, P.R. China

Corresponding author

Jun Yao, MD
Department of Gastroenterology, Jinan University of Second Clinical Medical Sciences, Shenzhen People's Hospital, 1017 East Gate Road, Shenzhen 518020, Guangdong Province, China
YJ_1108@126.com

References

- [1] Tsoucalas G, Thomaidis V, Fiska A. Situs inversus totalis: always recall the uncommon. *Clin Case Rep* 2019; 7: 2575–2576
- [2] Choi DH, Park JW, Kim BN et al. Colonoscopy in situs inversus totalis patients. *Am J Gastroenterol* 2008; 103: 1311–1312

Bibliography

Endoscopy 2023; 55: E412–E413
DOI 10.1055/a-1990-0753
ISSN 0013-726X
© 2023. The Author(s).

This is an open access article published by Thieme under the terms of the Creative Commons Attribution-NonDerivative-NonCommercial License, permitting copying and reproduction so long as the original work is given appropriate credit. Contents may not be used for commercial purposes, or adapted, remixed, transformed or built upon. (<https://creativecommons.org/licenses/by-nc-nd/4.0/>)
Georg Thieme Verlag KG, Rüdigerstraße 14, 70469 Stuttgart, Germany



ENDOSCOPY E-VIDEOS

<https://eref.thieme.de/e-videos>



Endoscopy E-Videos is an open access online section, reporting on interesting cases and new techniques in gastroenterological endoscopy. All papers include a high quality video and all contributions are freely accessible online. Processing charges apply (currently EUR 375), discounts and waivers acc. to HINARI are available.

This section has its own submission website at <https://mc.manuscriptcentral.com/e-videos>