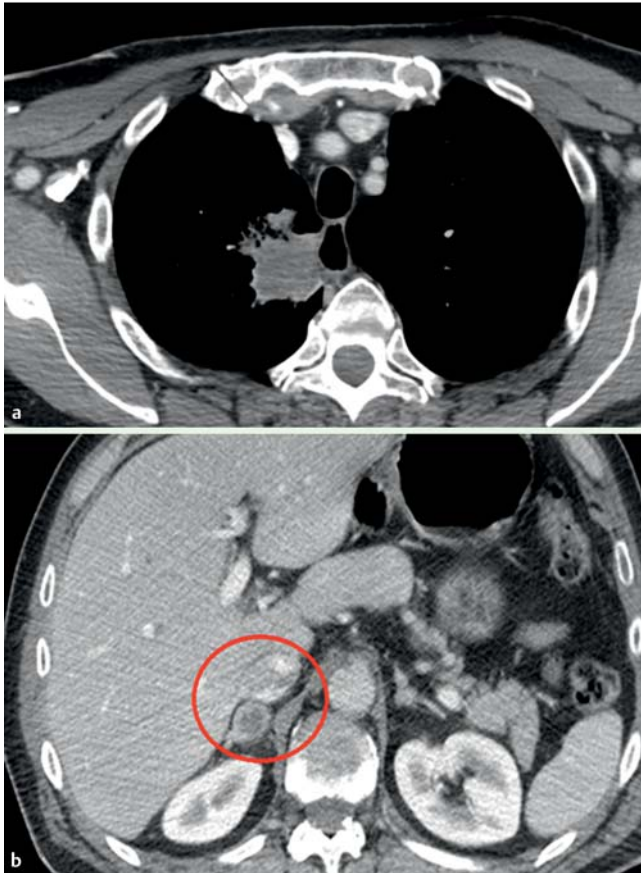
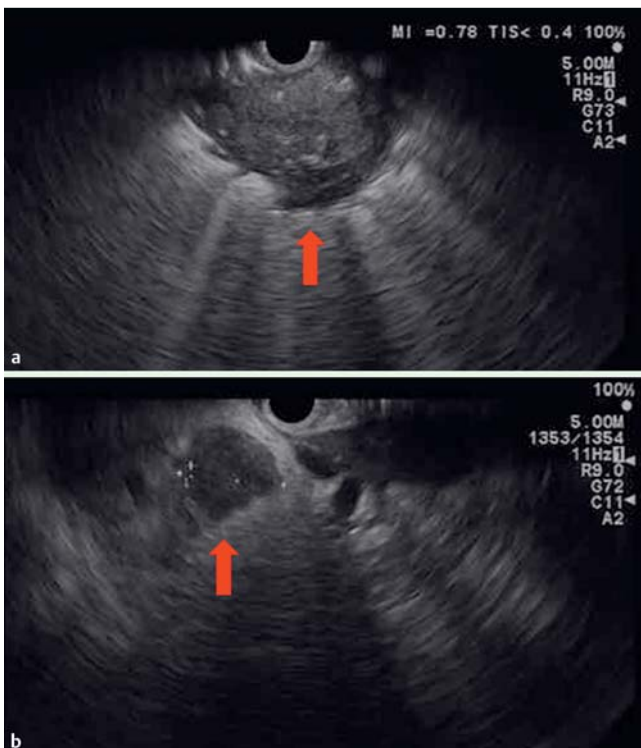


## Transcaval endoscopic ultrasound-guided fine needle aspiration of a right adrenal lesion



**Fig. 1** Computed tomography (CT) scan in a 66-year-old man showing: **a** a 43×68-mm right pulmonary mass adjacent to the esophagus; **b** an 18×16-mm right adrenal lesion that was highly suspicious for metastasis.



**Fig. 2** Endoscopic ultrasound (EUS) views of the same lesions showing: **a** the pulmonary mass in contact with the esophageal wall with no clear signs of invasion; **b** the right adrenal lesion with interposition of the inferior vena cava.

A 66-year-old man who had recently been found on radiological examination to have a 43×68-mm right pulmonary mass adjacent to the esophagus (● **Fig. 1 a**) and an 18×16-mm right adrenal lesion that was highly suspicious of a metastasis (● **Fig. 1 b**) was sent to our center for endoscopic ultrasound (EUS)-guided tissue diagnosis of both lesions.

EUS was performed by an experienced endosonographer (A.L.) using a conventional linear echoendoscope and confirmed the presence of both the pulmonary mass adjacent to the esophageal wall and the right adrenal lesion (● **Fig. 2**). The search for a window that would allow puncture of the right adrenal lesion without interposition of the inferior vena cava (IVC) was unsuccessful, therefore EUS-guided fine needle aspiration (EUS-FNA) was performed on the right pulmonary mass only and the procedure was then stopped.

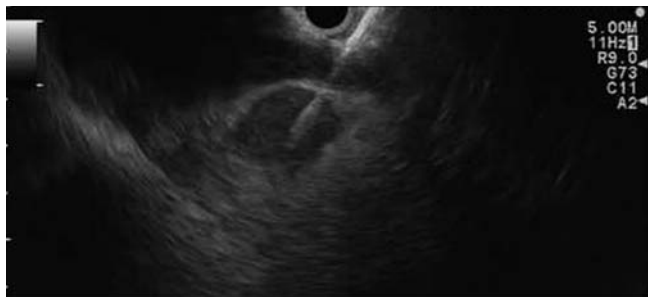
After agreement had been obtained from the patient, a transcaval EUS-FNA of the right adrenal lesion was performed using a 22-gauge needle (Echotip Ultra; Cook Medical Inc., Bloomington, Indiana, USA) during a second procedure (● **Fig. 3** and ● **Video 1**). After the first needle pass, no ultrasonographic signs of damage to the wall of the vena cava were observed. Therefore, because of the unavailability of an onsite cytopathologist and in view of our previous experience of performing multiple needle passes in transcarotid EUS-FNA [1], two additional passes were performed.

The patient was observed for an hour in the recovery room and then for the following 24 hours, during which time there was no evidence of complications. On histological examination, a definitive diagnosis of pulmonary squamous cell carcinoma with metastasis to the right adrenal gland (● **Fig. 4**) was made.

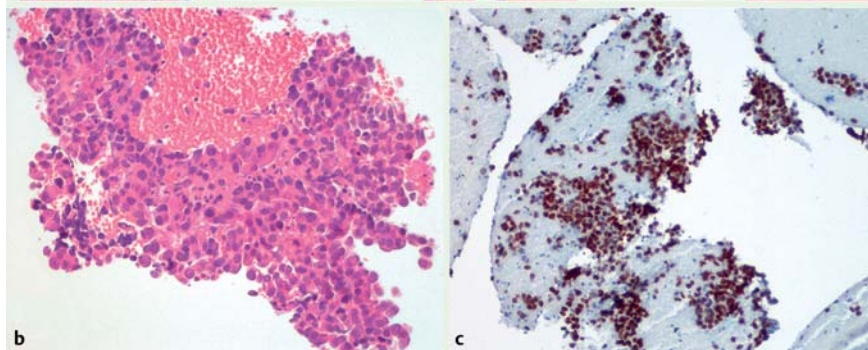
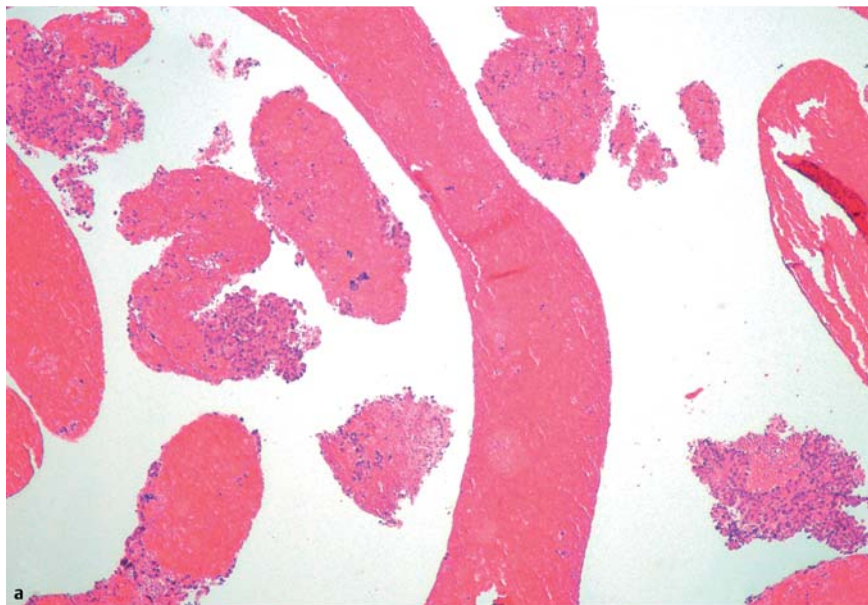
The technique for EUS-guided right adrenal gland FNA has been recently described in two case series with a limited number of patients [2,3]. The right adrenal gland frequently appears retrocaval, behind the IVC, and is thus inaccessible; however, with slight torque and gentle moves of the echoendoscope a small but safe win-

### Video 1

Transcaval endoscopic ultrasound-guided fine needle aspiration (EUS-FNA) being performed on the right adrenal lesion using a 22-gauge needle. After the first needle pass, no ultrasonographic signs of damage to the wall of the vena cava are seen, so two additional passes are performed.



**Fig. 3** Image during transscaval endoscopic ultrasound-guided fine needle aspiration (EUS-FNA) of the right adrenal lesion using a 22-gauge needle.



**Fig. 4** Histopathological appearances of the material obtained from fine needle aspiration of the adrenal gland showing: **a** hematoxylin and eosin (H&E)-stained blood and neoplastic tissue (original magnification  $\times 40$ ); **b** the neoplastic cells with eosinophilic cytoplasm, coarsely gran-

ular hyperchromatic nuclei and prominent nucleoli on H&E staining (original magnification  $\times 200$ ); **c** diffuse positivity of the neoplastic cells on immunostaining for thyroid transcription factor 1 (TTF-1; hematoxylin counterstain; original magnification  $\times 200$ ).

ular hyperchromatic nuclei and prominent nucleoli on H&E staining (original magnification  $\times 200$ ); **c** diffuse positivity of the neoplastic cells on immunostaining for thyroid transcription factor 1 (TTF-1; hematoxylin counterstain; original magnification  $\times 200$ ).

dow can usually be found. In the present case attempts to find a safe window to avoid the interposing IVC were unsuccessful. Because management strategies were strongly dependent on obtaining a definitive diagnosis or excluding the presence of a right adrenal gland metastasis, the option of performing a transscaval FNA was considered and discussed with the patient, who agreed to undergo the procedure. Our decision was based on the previous experience of ourselves and of

others regarding the safety of transcarotid and transaortic EUS-FNA [4,5]. This case shows that EUS-FNA of right adrenal lesions is also technically feasible by traversing the IVC and can be performed without complications, even when multiple needle passes are carried out using a 22-gauge needle. Although it seems logical, when possible, to avoid major vascular structures located adjacent to the target biopsy site, the lack of complications in our case is consistent with pre-

vious experience, which has shown that traversing the IVC and the portal vein during image-guided percutaneous needle biopsies does not markedly increase the risk of complications and should be considered when the result of the biopsy could affect patient management.

Endoscopy\_UCTN\_Code\_TTT\_1AS\_2AC

**Competing interests:** None

**F. Lococo<sup>1</sup>, F. Attili<sup>2</sup>, E. Meacci<sup>3</sup>, G. Petrone<sup>4</sup>, F. Inzani<sup>4</sup>, P. Granone<sup>3</sup>, G. Costamagna<sup>2</sup>, A. Larghi<sup>2</sup>**

<sup>1</sup> Unit of Thoracic Surgery, IRCCS-Arcispedale Santa Maria Nuova, Reggio Emilia, Italy

<sup>2</sup> Digestive Endoscopy Unit, Catholic University, Rome, Italy

<sup>3</sup> Department of Thoracic Surgery, Catholic University, Rome, Italy

<sup>4</sup> Pathology Unit, Catholic University, Rome, Italy

## References

- 1 Lococo F, De Vincentis F, Naldini A et al. Transesophageal endoscopic ultrasound-guided transcarotid fine needle aspiration of a positron emission tomography (PET)-positive mediastinal lymph node. *Endoscopy* 2012; 44: E402–E403
- 2 Eloubeidi MA, Morgan DE, Cerfolio RJ et al. Transduodenal EUS-guided FNA of the right adrenal gland. *Gastrointest Endosc* 2008; 67: 522–527
- 3 Eloubeidi MA, Black KR, Tamhane A et al. A large single-center experience of EUS-guided FNA of the left and right adrenal glands: diagnostic utility and impact on patient management. *Gastrointest Endosc* 2010; 71: 745–753
- 4 Gupta S, Ahrar K, Morello FAJr et al. Masses in or around the pancreatic head: CT-guided coaxial fine-needle aspiration biopsy with a posterior transscaval approach. *Radiology* 2002; 222: 63–69
- 5 Sofocleous CT, Schubert J, Brown KT et al. CT-guided transvenous or transscaval needle biopsy of pancreatic and peripancreatic lesions. *J Vasc Interv Radiol* 2004; 15: 1099–1104

## Bibliography

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## Corresponding author

**F. Lococo, MD**  
 Unit of Thoracic Surgery  
 IRCCS-Arcispedale Santa Maria Nuova,  
 Reggio Emilia, Italy  
 Viale Risorgimento 80, 42123 Reggio Emilia  
 Fax: +39-522-296111  
 filippo\_lococo@yahoo.it