A Large Mesenteric Pleomorphic Sarcoma – Where to Target a Biopsy?

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History

A 58-year-old male patient, who has been suffering from chronic liver disease with portal hypertension for the past 12 years, presented himself to the hospital due to abdominal distension for the past month. Hepatocellular carcinoma was suspected, and a TwinBeam Dual Energy (TBDE) CT was ordered for assessment.

Diagnosis

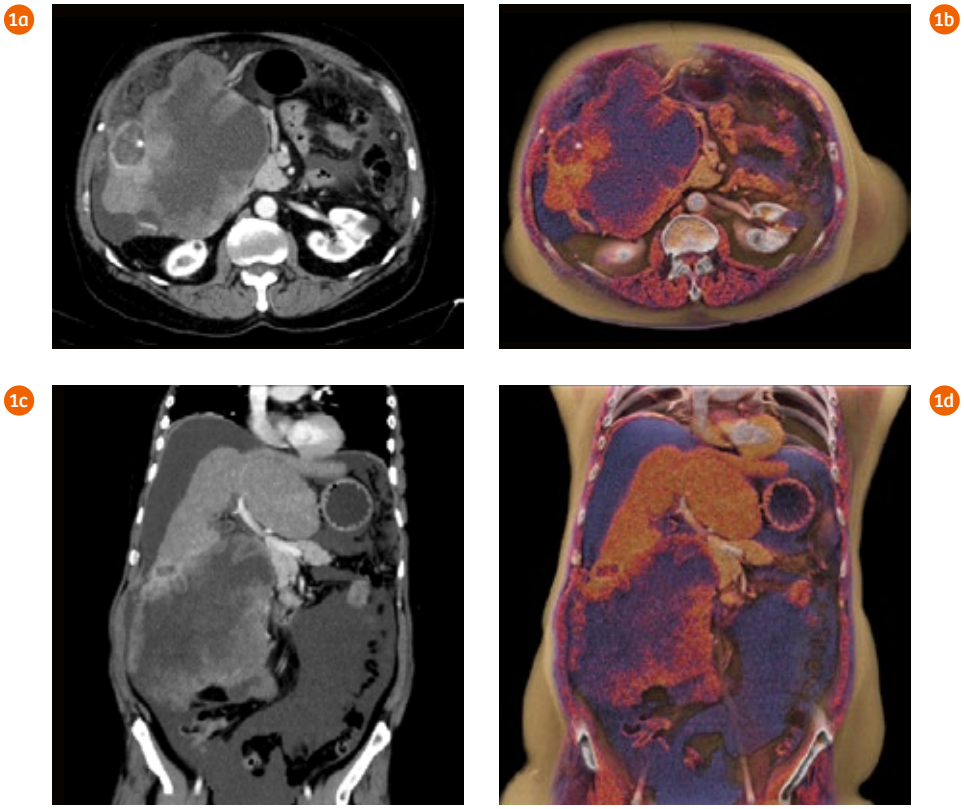
CT images revealed a bulky lobulated mesenteric mass in the right hypochondrial-lumbar region, measuring approx. 19 (AP) × 16 (TR) × 20 (CC) cm in size. The mass was heterogeneously enhanced, showing central hypodense areas suggesting necrosis. It infiltrated into segments 5 and 6 of the right liver lobe, displaced and compressed the ascending colon, and abutted the right anterolateral abdominal wall with no signs of invasion. Extensive distribution of hypodense areas featuring moderate ascites was present.

Iodine uptake of the mass was measured, and accordingly a core needle biopsy was successfully performed in the most enhanced area. The histological result defined a pleomorphic sarcoma.

Examination Protocol

Scanner	**SOMATOM Definition AS+**		
Scan area	Abdomen/pelvis	**Rotation time**	0.5 s
Scan mode	TBDE	**Pitch**	0.3
Scan length	473 mm	**Slice collimation**	64 × 0.6 mm
Scan direction	Cranio-caudal	**Slice width**	1.5 mm
Scan time	13 s	**Reconstruction increment**	1 mm
Tube voltage	AuSn 120 kV	**Reconstruction kernel**	D30f
Effective mAs	650 mAs	**Contrast**	350 mgI/mL
Dose modulation	CARE Dose4D™	**Volume**	100 mL + 40 mL saline
CTDIvol	13.9 mGy	**Flow rate**	3 mL/s
DLP	682 mGy cm	**Start delay**	Bolus tracking in the descending aorta@100 HU + 6s

1 Axial (Fig. 1a) and coronal MPR (Fig. 1c) images, and cinematic VRT (Figs. 1b and 1d) images depict a bulky lobulated heterogeneously enhanced mesenteric mass in the right hypochondrial-lumbar region. Extensive distribution of hypodense areas featuring moderate ascites was present.



Comments

Pleomorphic sarcoma of the mesentery is a rare tumor entity, and the management of this is significantly different from that of a hepatocellular carcinoma. Although tests of AFP and immunohistochemistry could be helpful for differential diagnosis, identification of a target area for biopsy in such a large tumor remains challenging. TBDE CT provides the possibility of quantifying iodine uptake using *syngo*.CT DE Virtual Unenhanced. Therefore, the area with maximum iodine uptake can be measured. This reduces the chances of fetching negative tissue specimens. The reconstructed 3D images are found to be extremely helpful in enabling a clear communication and demonstration to the operating surgeons. ●

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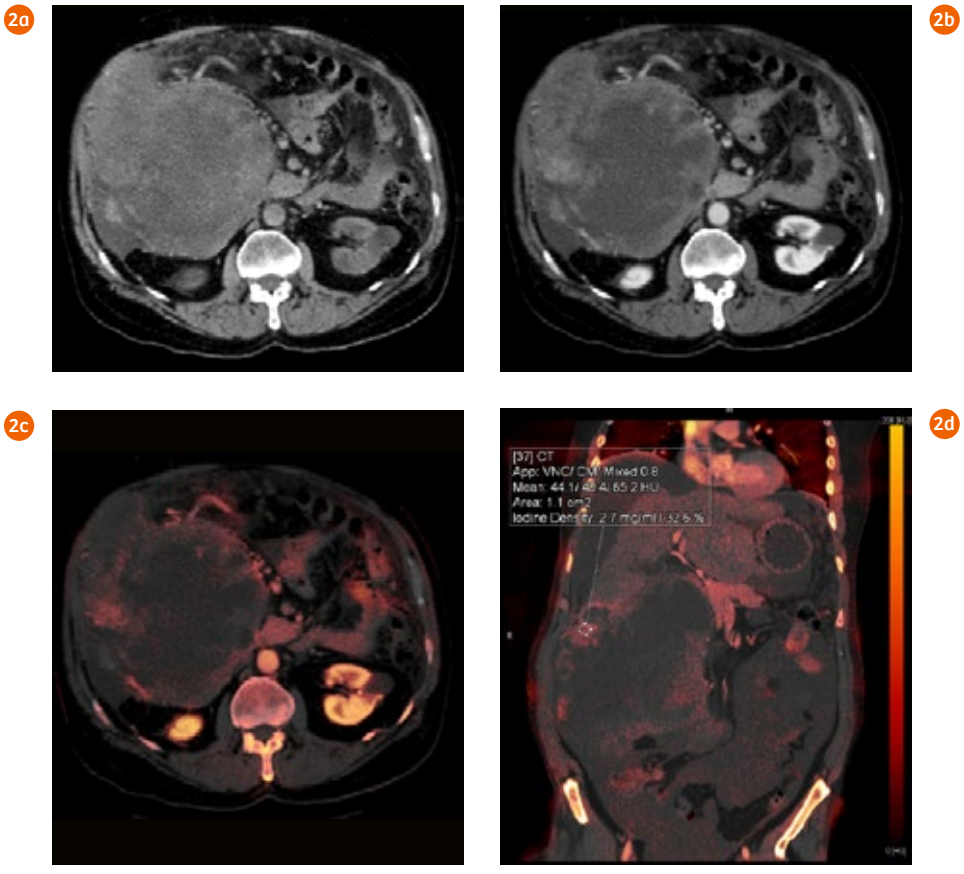

2 Axial VNC (Fig. 2a), mixed (Fig. 2b), and fused (Fig. 2c) images show the mesenteric mass with heterogeneous enhancement. A coronal view of the fused image (Fig. 2d) demonstrates the most enhanced area with a significant iodine uptake of 2.7 mg/mL.