A rare case of primary liver leiomyosarcoma
Published on 28.08.2017

DOi: 10.1594/EURORAD/CASE.14947
ISSN: 1563-4086
Section: Abdominal imaging
Area of Interest: Abdomen
Procedure: Contrast agent-intravenous
Procedure: Biopsy
Procedure: Diagnostic procedure
Imaging Technique: CT
Special Focus: Neoplasia Case Type: Clinical Cases
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Patient: 39 years, male

Clinical History:

A 39-year-old man presented with weight loss and abdominal pain for the past 8 months. Abdominal CT was performed in May 2017 and showed a hypodense liver mass (12x10x7 cm) in left lobe and segment IV. Surgical direct biopsy was performed and revealed carcinoma. Chemotherapy was initiated.

Imaging Findings:

CT (June 17) showed a large heterogeneous hepatic tumour (15x16x15 cm), without noticeable enhancement or great vessels invasion (Figure 1 - arterial phase, Figure 2 - venous). PET-CT showed the liver focus (SUV 12.6), but no distant lesions. Based on clinical and radiology data and disease history (local progression despite conventional chemotherapy), gastrointestinal stromal tumour was suspected. For pathology verification CT-guided core needle biopsy (16G) was performed (Figures 3 and 4). Pathology (27.06.2017): polymorphic cell tumour, immunohistological examination Vim (+), SMA (+), Caldesmon (+), S100 (-/+), Melan A (-), PCK (-), HMB-45 (-), CD 34 (-), CD 117 (-).

Discussion:

Background:
Hepatic leiomyosarcoma is an extremely rare tumour, with non-specific presentations, laboratory studies, or images; it stands for only 0.2–2% of primary hepatic malignant tumours [1, 2].

Leiomyosarcoma is an aggressive tumour. Response to treatment with chemotherapy is poor. The main treatment is surgical removal with neoadjuvant and/or adjuvant chemotherapy. Whenever resection is impossible, radiotherapy is an option for local control [3].

Imaging perspective:
Radiology findings in case of liver sarcomas are non-specific, however, they are usually very large at presentation. Contrast enhancement is poor, different from that of hepatocellular carcinoma, but somehow similar to many secondary deposits. Therefore pathological confirmation is mandatory, including immune-staining, as demonstrated by the failure of surgical biopsy in this patient.

Outcome:
Current time gemcitabine and 5-fluorouracil is continuing and the next steps will include treatment response radiology assessment and stereotactic radiation therapy for palliative local control.

Learning points:
Primary hepatic leiomyosarcoma is an extremely rare aggressive tumour. Imaging presentation is non-specific.
Image-guided core needle biopsy is mandatory, and should include immunostaining.

**Differential Diagnosis List:** Primary liver leiomyosarcoma, Hepatocellular carcinoma, Gastrointestinal stromal tumour, Liver leiomyosarcoma

**Final Diagnosis:** Primary liver leiomyosarcoma

**References:**


Figure 1

Description: Abdominal CT scan. Intrahepatic tumour mass (arrow). Origin: Cherkashin M. Medical institute n.a Berezin Sergey, Saint-Petersburg, Russia
Figure 2

Description: CT-guided core needle biopsy. Coaxial 16 G needle placed into the tumour (arrow).

Origin: Cherkashin M. Medical institute n.a Berezin Sergey, Saint-Petersburg, Russia
Figure 3

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Description: Arterial phase. Large vessels are not revealed within the tumour mass. Origin: Cherkashin M., MIBS, SPb, Russia
Description: Venous phase. Strong enhancing and slow contrast outflow. Origin: Cherkashin M., MIBS, SPb, Russia