Case 12823

Eurorad

Solitary fibrous tumour of the kidney

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Section: Uroradiology & genital male imaging
Area of Interest: Abdomen Kidney
Procedure: Biopsy
Procedure: Contrast agent-intravenous
Procedure: Imaging sequences
Imaging Technique: Experimental
Imaging Technique: Percutaneous
Imaging Technique: CT-High Resolution
Imaging Technique: CT
Imaging Technique: Image manipulation / Reconstruction
Special Focus: Neoplasia Case Type: Clinical Cases
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Patient: 67 years, female

Clinical History:

A 67-year-old woman was referred to the digestive health specialist for study of chronic abdominal pain.
Imaging Findings:

On CT we observed a well-defined 7 cm solid mass arising from the middle region of the left kidney, with heterogeneous attenuation higher in the periphery. It had small calcifications in the wall. This lesion contacted the left renal artery and vein, which were permeable.
There were small retroperitoneal left-paraaortic lymph nodes, under 5 mm.
Discussion:

PATHOLOGIC FINDINGS:

At gross pathologic analysis the tumour appeared as a well-defined, firm mass with a grey-white shade measuring 6 x 8 x 7 cm, composed of a proliferation of highly cellular spindle cells with mild atypia. They were arranged in a storiform pattern in some areas and between thick bundles of collagen in other areas.
No significant necrosis, haemorrhage or cellular pleomorphism was seen.
The tumour strongly expressed CD34, vimentin and showed a weak immunohistochemical reaction for Cd99, Bcl2 and HHF-35. There were no reactions for Desmin, EMA, CkAe1-Ae3, melan-a, S-100 or Hmb-45.

DISCUSSION:

Solitary fibrous tumours (SFT) are rare mesenchymal neoplasms. They frequently arise from the serosal surface, most commonly seen in the pleural cavity. Extrapleural SFTs are very uncommon, and to our knowledge, there are

less than 50 published cases of SFTs located in the kidney [1]. SFT diagnosis is more frequent during the fifth and sixth decades of life, without significant sex predilection [2].

Histologically, SFTs are distinctive mesenchymal tumours characterized by a well-defined mass composed of a proliferation of spindle cells embedded in a collagenous stroma, with an increase in vascularization with thin-walled blood vessels showing a typical staghorn pattern [3].

The diagnosis is confirmed by characteristic positive immunohistochemical staining for CD34 and negative staining for S-100 [1, 4].
Extrapleural SFTs typically manifest as large, slow-growing soft-tissue neoplasms [4].

Although most extrapleural SFTs have a benign clinical course, up to 15% of these tumours demonstrate aggressive behaviour in the form of recurrence or malignancy [4]
Malignancy probability increases with the size of the tumour [5]

SFT are often incidentally found at CT studies, although their appearance is nonspecific and prompts further investigations [2]
Clinically, most patients are asymptomatic or have pain secondary to a mass effect due to the size of the tumour [6, 7].
The tumour can involve the renal cortex, peripelvis, renal capsule, or extrarenal soft tissue [6]
The radiologic findings of renal solitary fibrous tumour are [2, 6]:
- On ultrasound renal solitary fibrous tumours appear as hypo or heterogeneous echoic masses, and as hypoechoic masses with intratumoural vascularity on Doppler ultrasound.
- Contrast-enhanced CT may reveal a well-circumscribed smooth lobulated solid enhancing mass that contains areas of cystic degeneration.
- MRI usually demonstrates a signal intensity on T1- weighted images and inhomogeneous high or low intensity on T2-weighted images.
In differential diagnosis, the most useful tool is diffuse CD34 positivity to distinguish it from other spindle cell tumours of the kidney [7].
Complete excision and follow-up for recurrence are recommended for both benign and malignant SFT [2, 8].
Differential Diagnosis List: Solitary fibrous tumour of the kidney, Renal cell carcinoma (subtype clear cell), Oncocytoma, Mesenchymal tumours, Lymphoma

Final Diagnosis: Solitary fibrous tumour of the kidney

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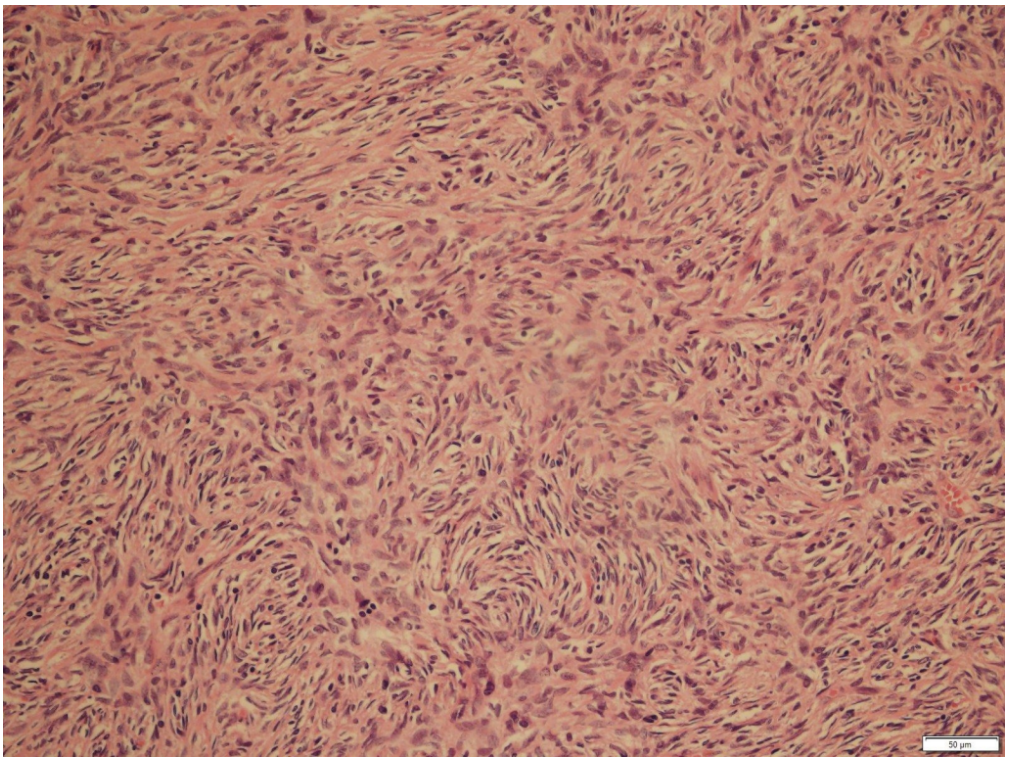
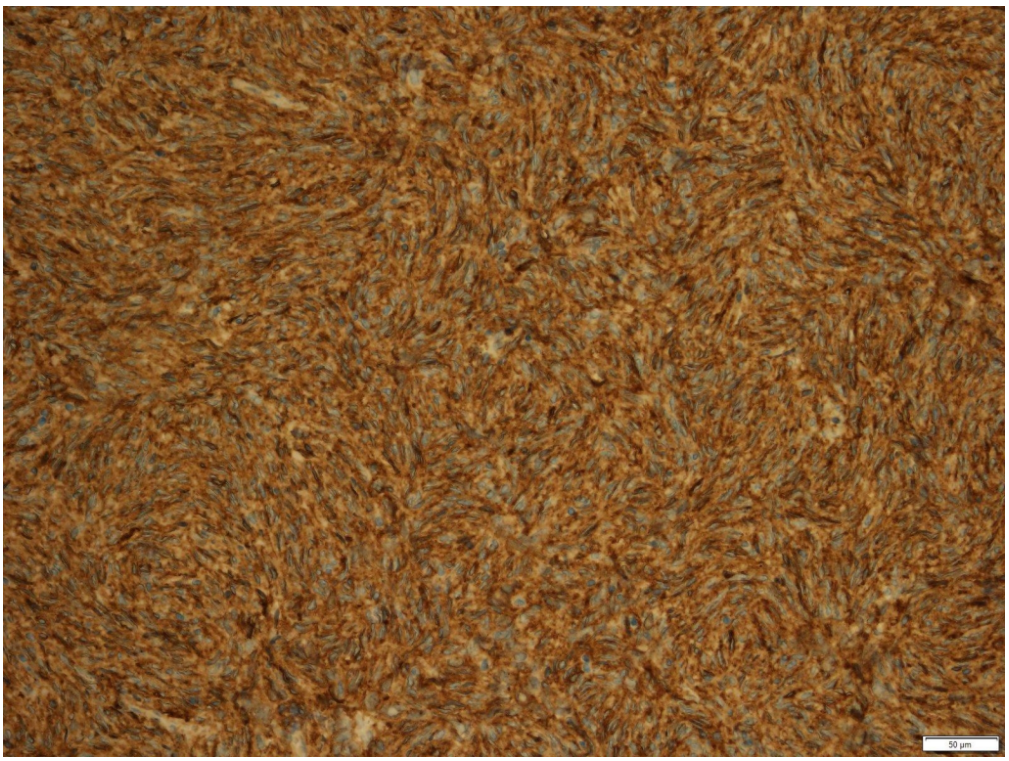
Figure 1

a



Description: Pathology analysis shows a proliferation of highly cellular spindle cells adopting a storiform pattern. **Origin:** G. Olmedilla. Department of Pathology. Hospital Universitario Príncipe de Asturias. Alcalá de Henares, Madrid. Spain.

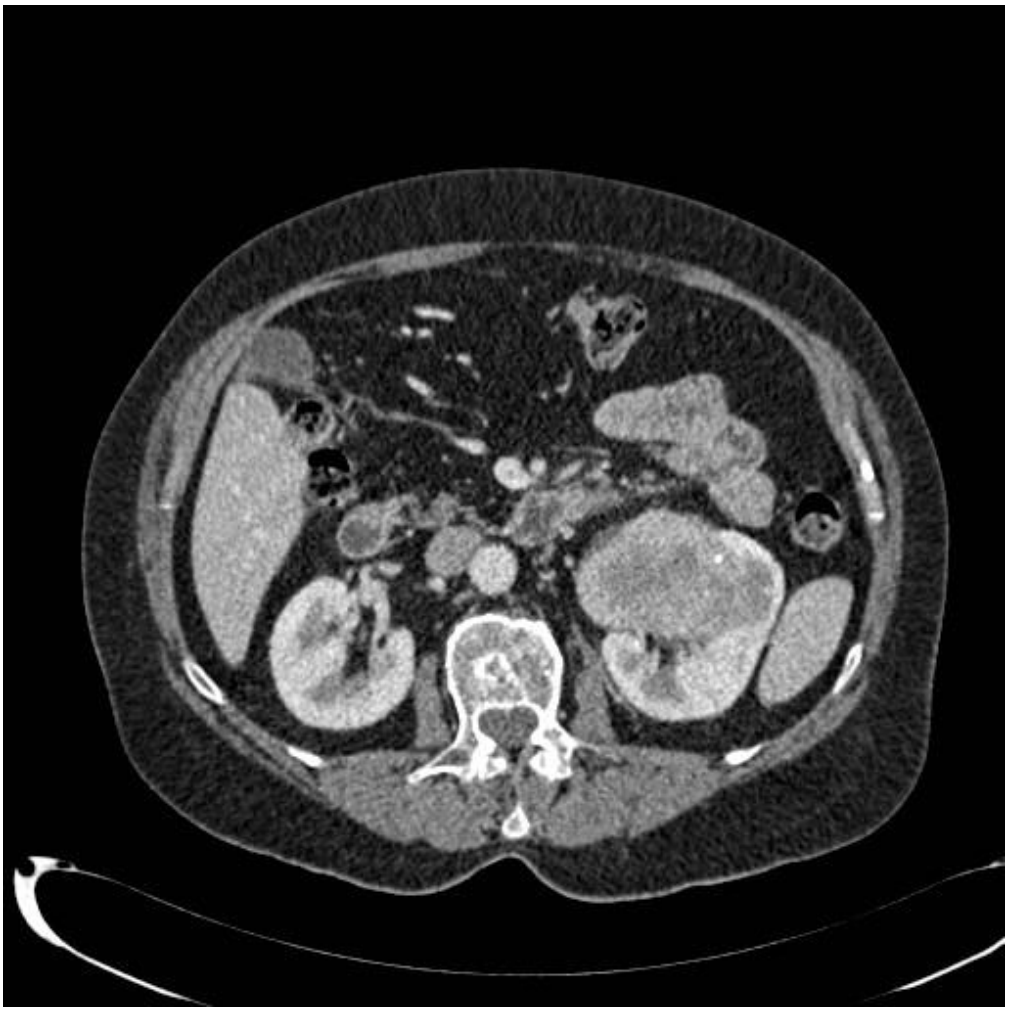
b



Description: Pathology analysis shows a strong immunohistochemical reaction for CD34. **Origin:** G. Olmedilla. Department of Pathology. Hospital Universitario Príncipe de Asturias. Alcalá de Henares, Madrid. Spain.

Figure 2

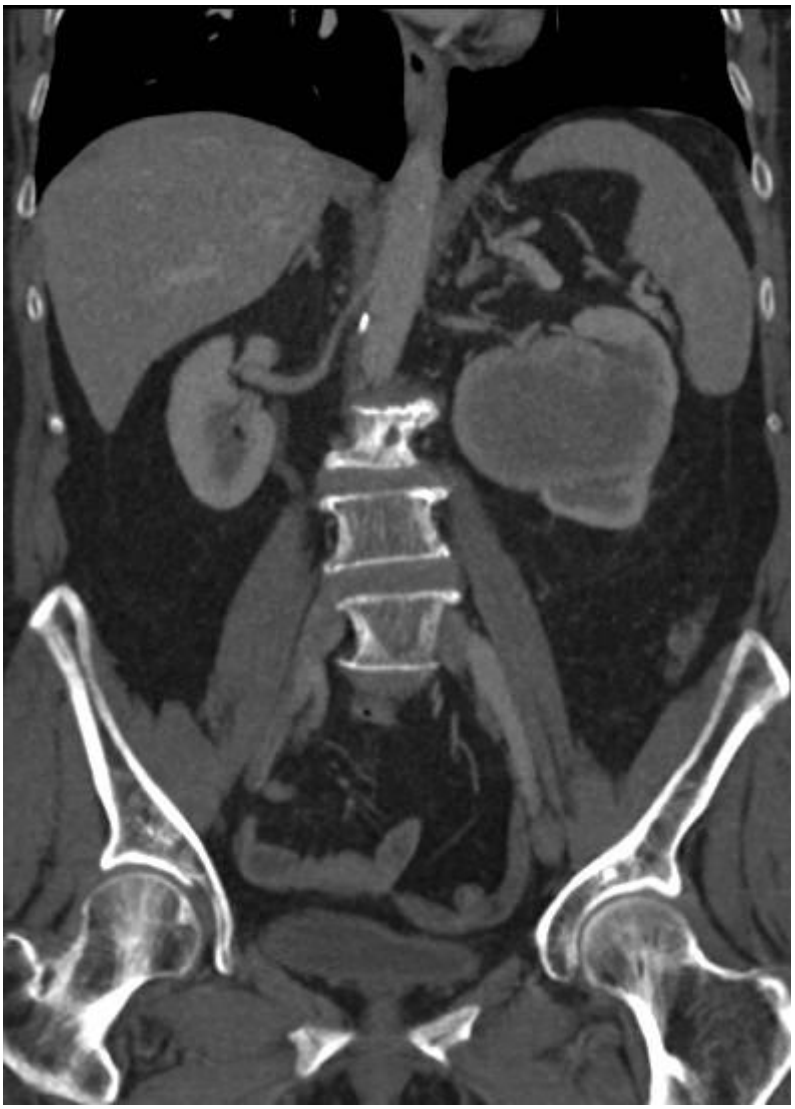
a



Description: Contrast-enhanced CT obtained during the corticomedullary phase shows a solid mass in the left kidney, predominantly heterogeneously enhancing, with a small peripheral calcification.**Origin:** Department of Radiology. Hospital Universitario Príncipe de Asturias. Alcalá de Henares, Madrid. Spain.

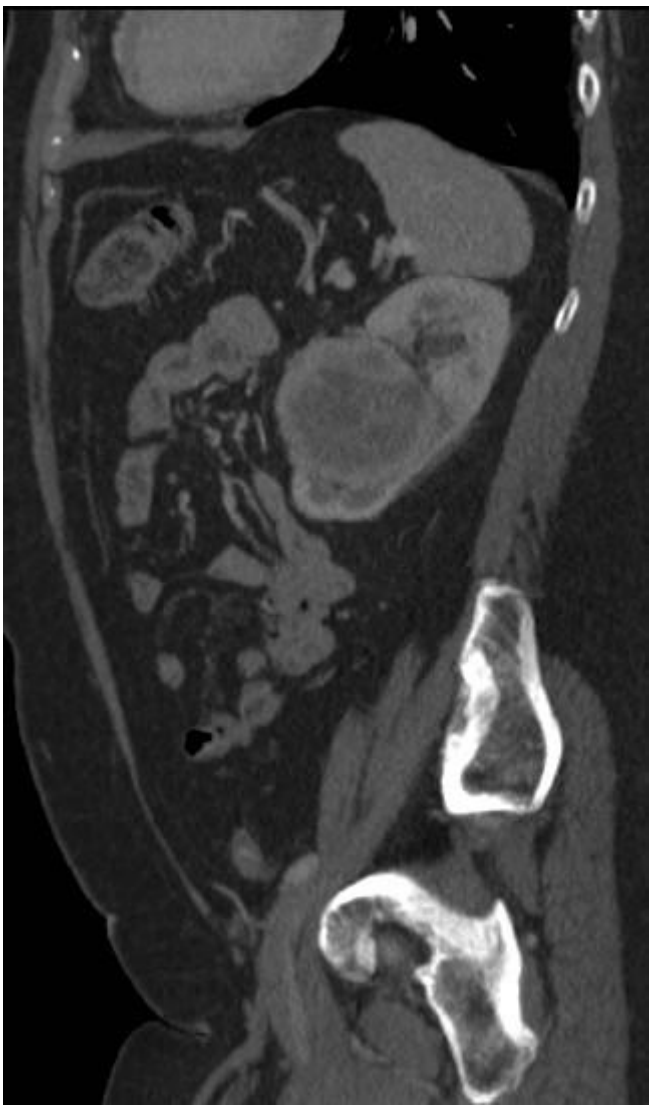
Figure 3

a



Description: Coronal enhanced CT shows a well-defined mass arising from the middle region of the left kidney with heterogenous enhancement. **Origin:** Department of Radiology. Hospital Universitario Príncipe de Asturias. Alcalá de Henares, Madrid. Spain.

b



Description: Sagittal enhanced CT shows well-defined mass arising from the middle region of the left kidney with heterogenous enhancement. **Origin:** Department of Radiology. Hospital Universitario Príncipe de Asturias. Alcalá de Henares, Madrid. Spain.