

## BENIGN LIPOMA OF THE INFERIOR VENA CAVA

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**Key-word:** Venae cavae

**Background:** A 72-year-old woman with personal history of metastatic renal adenocarcinoma, considered as under remission was referred for CT scan of thorax and abdomen.

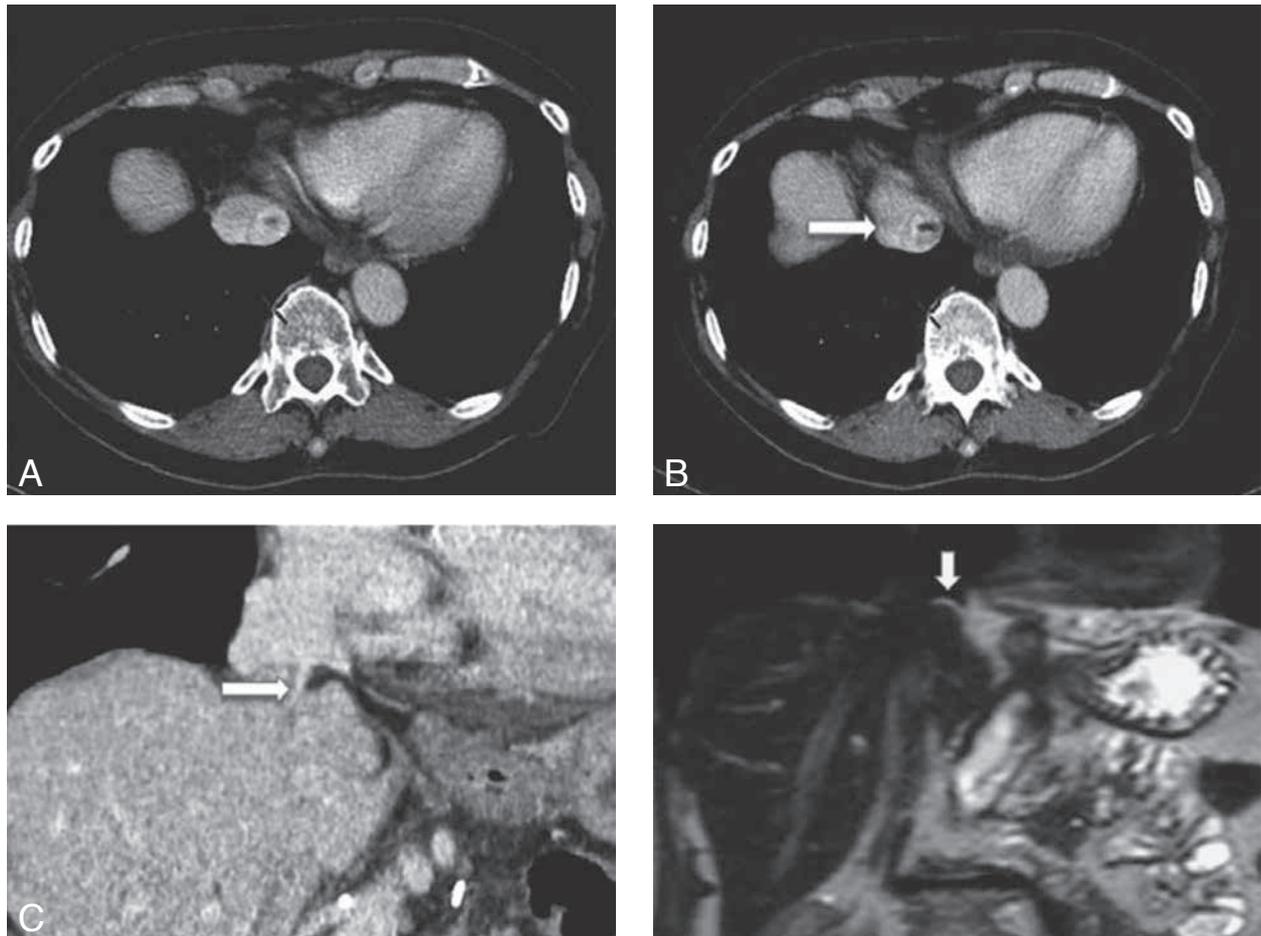


Fig. 

1A	1B
1C	2

## Work-up

On contrast-enhanced CT scan of the thoraco-abdominal junction (portal venous phase) (Fig. 1, A and B: adjacent axial sections) a fatty lesion (mean density value – 74 HU) surrounded by a ring of iodine contrast medium is observed at the suprahepatic portion of the inferior vena cava. The lesion appears to be intraluminal (arrow). On reformatted image in the coronal plane (C), the lesion has a plate-like shape. Continuity of the fatty lesion with the fat adjacent to the esophagus is observed (arrow).

On MRI of the thoraco-abdominal junction, T2-weighted image in the coronal plane.

On this sequence the fatty tissue lesion close to the vena cava is confirmed.

## Radiological diagnosis

Based on the CT findings, and after review of a previously performed MRI with fat specific sequences, the diagnosis of *benign lipoma of the inferior vena cava* was concluded.

## Comment

Lipoma of the inferior vena cava (IVC) is a very rare anomaly, observed in less than 0.5% of abdominal CT scans in adults. It is a well delimited, round or oval fatty lesion, almost always smaller than 23 mm. In more than 90% of cases the lipoma develops in the medial wall of the IVC at the level or above the suprahepatic veins. The lipoma of the IVC is a benign and asymptomatic condition that does not require treatment or follow up.

In the presented case the differential diagnosis includes (in descending order of frequency): “pseudolipoma”, lipoma of the IVC and an intravascular fatty lesion.

A “pseudo-lipoma” is due to an artifact resulting from the mix of iodine contrast with non-enhanced blood. A “true” lipoma of the IVC is nearly always secondary to fat accumulation close to the suprahepatic part of the IVC. During inspiration, an angle is created between the IVC and the crus of the diaphragm allowing a small amount of fat to move into a scalloping of the IVC. A partial volume artifact then creates the image of endovascular fat. Three factors have an influence on this phenomenon: the degree of vessel filling, the blood pressure and the depth of the Valsalva manoeuvre. Intravascular fatty lesions are even rarer than lipoma of the IVC and comprise: fatty component of a hepatocellular carcinoma, posttraumatic fat hernia through a

suprahepatic vein, massive fat embolism, and fatty diseases of the vessel wall (such as hemangioma, angiosarcoma, leiomyosarcoma and leiomyoma).

Knowledge of the clinical context is essential for a correct diagnosis: a lipoma is asymptomatic in contrast to a posttraumatic fat embolism, a hepatocellular carcinoma, a posttraumatic fat herniation through a suprahepatic vein or massive fat embolism.

Lipoma of the vena cava is detected easily with CT or MRI. Ultrasonography has only a limited diagnostic value.

The CT appearance is that of a fat nodule or an elongated fatty lesion, close to and/or extending into the IVC. Multiplanar reconstructions contribute in demonstrating the extent of the lipoma into the vessel and/or close to the distal and right part of the esophagus. The difference between lipoma and intravascular fatty lesion can be established with coronal reconstructions which show the continuity of the lipoma with the paravascular fat. A second proof for an extravascular lesion can be obtained with a later CT scan: due to the variability of the influencing factors creating the partial volume artifact, the lipoma will change or totally disappear.

MRI by using fat specific sequences, allows to rule out an angiomatous or a solid tissue component of the lesion, and helps to confirm its benign origin.

On ultrasonography the lesion may appear either slightly hypo- or hyperechoic relatively to the liver with reduction of the lumen of the vein. Color Doppler reveals a minor turbulent flow to stenosis with hemodynamic repercussions. However, due to the location of the lesion, the contribution of sonography is limited both for detection and characterization of the lesion.

## References

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