

Interesting image

^{99m}Tc-DTPA uptake in clear-cell renal carcinoma metastases

Captación de ^{99m}Tc-DTPA en metástasis del carcinoma renal de células claras

L. Antunovic^{a,*}, B. Franklin-Bezerra^b, M. Rodari^a, G. Pepe^a, A. Chiti^a

^a Nuclear Medicine Unit, Istituto Clinico Humanitas IRCCS, Rozzano, Italy

^b Centro de Imagem do Amazonas, Hospital Universitário Francisca Mendes, Manaus, Brazil

ARTICLE INFO

Article history:

Received 10 December 2011

Accepted 12 January 2012

Available online 14 March 2012

A 73-year-old male was diagnosed with clear-cell renal carcinoma in 2002. He had right nephrectomy, developing thereafter metastases in both adrenal glands and in the right gluteus region. He received immunotherapy and remained with stable diseases until august 2011, when suddenly unfold an unstable condition, developing a renal failure with elevation of creatinine levels and need of dialysis.

Renal scintigraphy with ^{99m}Tc-DTPA (technetium-(99m)-diethylene triamine pentaacetic acid) was performed to evaluate the function of the remaining kidney; the dynamic flow images showed two abnormal areas of increased uptake of ^{99m}Tc-DTPA (Fig. 1), corresponding to metastatic localizations at the right

adrenal gland (6.5 cm) and in the right gluteus region (7 cm), visible in the abdominal and pelvic CT (Fig. 2). The third metastatic mass reported at the left adrenal gland showed no DTPA uptake, probably due to its small size (3 cm).

It is known that clear-cell renal carcinoma and its metastases are hypervascularized due to inactivation of the VHL suppressor gene heading to overexpression of VEGF (vascular endothelial growth factor).^{1,2} As the tumor grows, angiogenesis is increasingly stimulated and a rich neovascular network is formed. Similar scintigraphic findings have been described also in other hypervascularized tumors such as angiomyolipoma in tuberous sclerosis and extramedullary manifestations of plasmocytoma.³

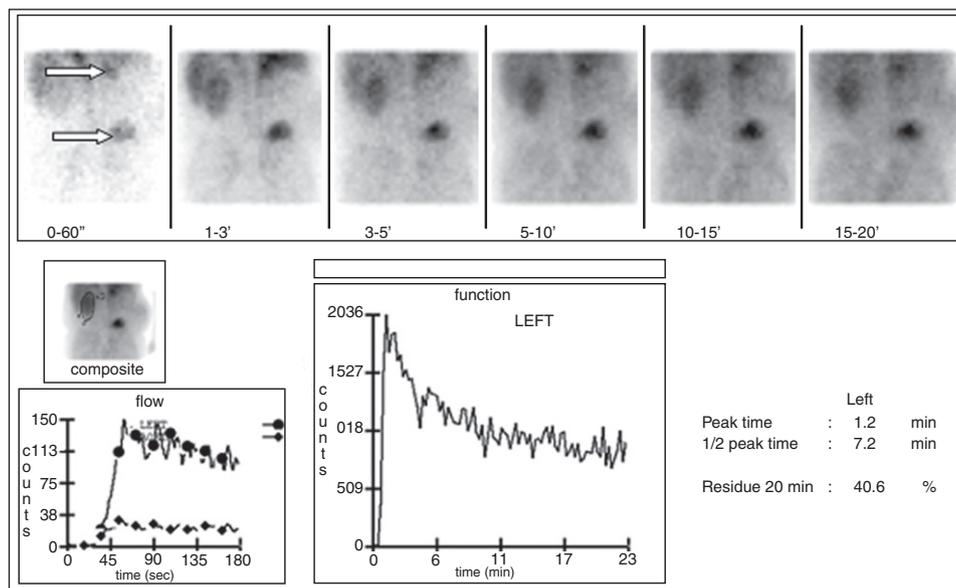


Figure 1. Dynamic renal scintigraphy in a patient with surgical single kidney was undertaken after intravenous injection of 229 MBq of Tc-99m DTPA with a dual-headed gamma camera (Philips Forte) fitted with a VXHR collimator. Scintigraphic images showed left kidney with normal perfusion and reduced function. Incidentally, two areas of increased perfusion were observed, one located in the right paraaortic and another in the right lumbar region (arrows). Careful examination of the patient’s medical record and conventional imaging results revealed that these two areas correspond to clear-cell carcinoma metastases localized at the right adrenal gland and in the right gluteus region.

* Corresponding author.

E-mail address: lidija.antunovic@cancercenter.humanitas.it (L. Antunovic).



Figure 2. Axial images of abdominal CT, performed after renal scintigraphy. Arrows point to a lesion in the right adrenal gland, 6.5 cm in size (left panel), a smaller left adrenal gland metastasis, measuring 3 cm (middle panel) and a lesion in the right gluteus region, 7 cm in size (right panel).

References

1. Virtanen I, Lehton VP. Progression of malignancy in clear cell renal cell carcinomas. *Scand J Surg.* 2004;93:112–7.
2. Liu YH, Lin CY, Lin WC, Tang SW, Lai MK, Lin JY. Up-regulation of vascular endothelial growth factor-D expression in clear cell renal cell carcinoma by CD74: a critical role in cancer cell tumorigenesis. *J Immunol.* 2008;181:6584–94.
3. Bihl H, Sautter-Bihl ML, Riedasch G. Extrarenal abnormalities in Tc-99m DTPA renal perfusion studies due to hypervascularized tumors. *Clin Nucl Med.* 1988;13:590–4.