nefrología
Revista de la Sociedad Española de Nefrología
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Images

# Hybrid image (SPECT/CT) in the early diagnosis of a patient with calciphylaxis☆

## Imagen híbrida (SPECT/TC) en el diagnóstico precoz de un paciente con calcifilaxis

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We present the case of a 66-year-old man with a clinical history of arterial hypertension, insulin-dependent type 2 diabetes mellitus, stage V chronic kidney disease on haemodialysis for four months and with secondary hyperparathyroidism.

The patient went to A&E presenting skin lesions that had appeared a few days earlier on the anterior and medial side of both legs, initially nodular, with progressive formation of ulcers with very painful necrotic base. The patient was seen by the Dermatology Department where, uncertain about a diagnosis of calciphylaxis, they requested a bone scan (BS) following the IV administration of 815 MBq of $^{99m}$Tc-hydroxymethylene-bisphosphonate.

The planar study with bisphosphonates showed no significant scan findings in the vascular phase, whereas in the osseous phase a slight uptake of the radiotracer was observed in the medial regions of the legs (Fig. 1). This finding was confirmed by single photon emission computed tomography (SPECT), single-photon emission computed tomography/computed tomography (SPECT/CT) (Fig. 2) and a 3D reconstruction image (Fig. 3), which showed focal deposits of the tracer in the soft parts in relation to the localisation of the more medial ulcerative lesions, confirming the diagnosis of calciphylaxis.

The patient initiated treatment with sodium thiosulphate, but after two weeks he presented no clinical improvement and a skin biopsy of the lesions was requested, based on the findings of the bone scan.

The skin biopsy showed calcifications of medium-calibre vessels in the dermis and hypodermis and perineural calcifications (Fig. 4). These findings were consistent with the diagnosis of calciphylaxis.

After six weeks of medical treatment, the patient presented clinical improvement of his skin lesions and complete remission after six months.

Calciphylaxis is a rare disease with high morbidity and mortality that usually affects the population with chronic kidney disease on dialysis. It is associated with mural calcifications of the middle-layer arterioles and thrombosis of the vessel affected, generating ischaemia and subcutaneous necrosis.

DOI of original article:
https://doi.org/10.1016/j.nefro.2019.11.003.

☆ Please cite this article as: Herrera-Martínez Y, Martín-Marcuartu JJ, Mohigefer Barrera J, Jiménez-Hoyuela JM, García Jiménez R. Imagen híbrida (SPECT/TC) en el diagnóstico precoz de un paciente con calcifilaxis. Nefrologia. 2020;40:576–578.

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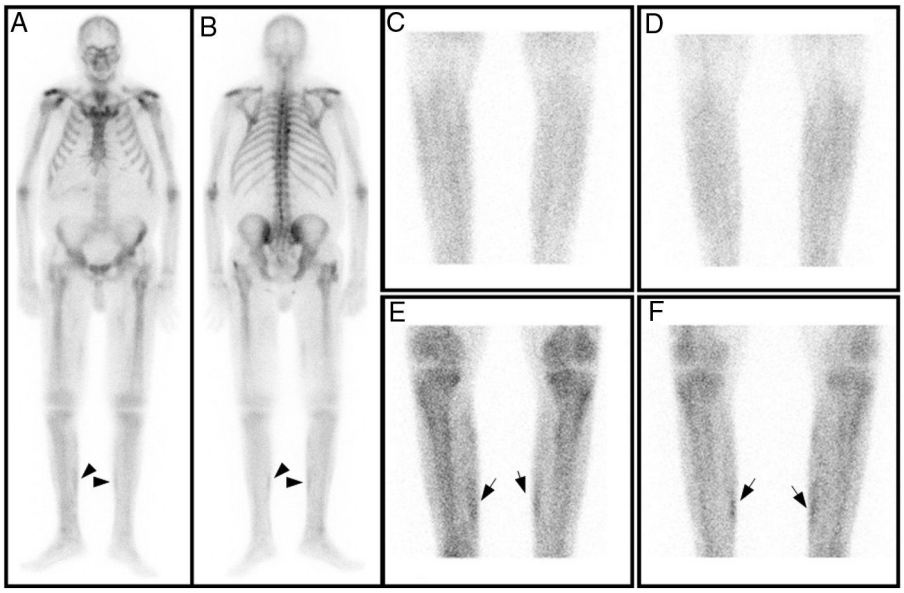


**Fig. 1 – Anterior (A) and posterior (B) full-body bone scan. Early planar images of legs (vascular phase), anterior (C) and posterior (D), showing no significant bone scan findings. Late planar images (osseous phase), anterior (E) and posterior (F), with minimal tracer uptake in the medial region of both legs.**

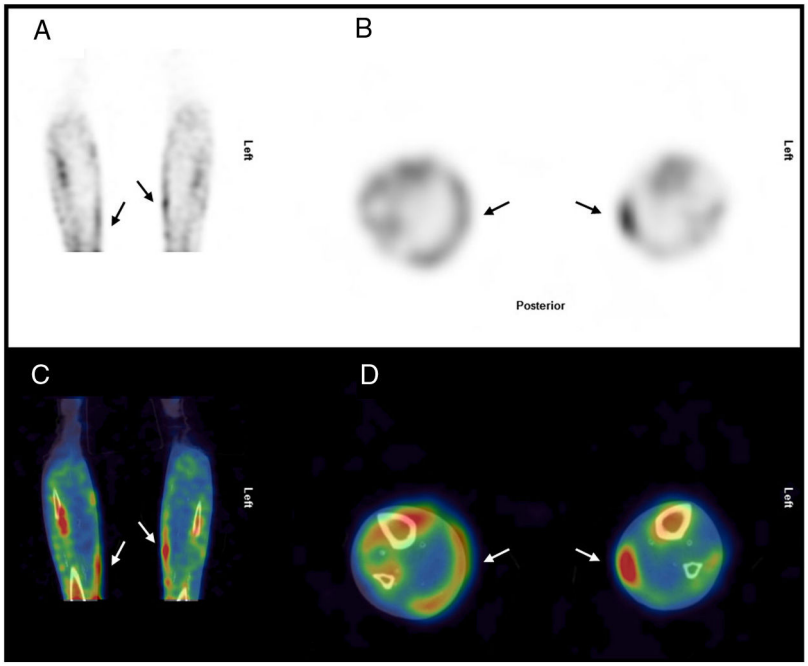


**Fig. 2 – Bone SPECT, coronal (A) and axial (B) sections. Bone SPECT/CT, coronal (C) and axial (D) sections. Heterotopic calcifications are observed in the medial region of both legs (arrows).**


**Fig. 3 – Bone SPECT/CT with 3D reconstruction.**

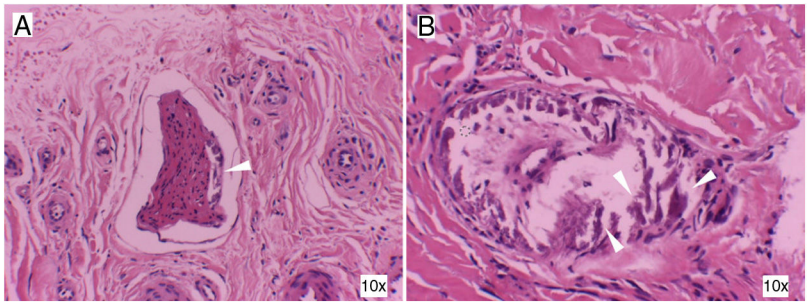


**Fig. 4 – Histology with haematoxylin and eosin staining of the skin lesions. Perineural calcification (A) and medium-calibre vessel calcification (B) (arrows). These findings are consistent with calciphylaxis.**

Diagnosis by skin biopsy is controversial as it can generate complication, the histopathological findings may be unspecific and it tends to have low sensitivity.

The BS with SPECT/CT is a sensitive and non-invasive test for the diagnosis of calciphylaxis. Its indication in the initial phases of the disease permits an early diagnosis and therefore an early start of treatment. It is also a useful tool that makes it possible to guide the skin biopsy and determine the extent of the disease.

In our case, the BS allowed us to establish an early diagnosis and the extent of the calciphylaxis, with the subsequent initiation of treatment.