Interesting image

90Yttrium PET-CT images assessing radioisotopic knee synoviorthesis

Imágenes PET-TAC para la valoración de sinoviortesis radioisotópica de rodilla con 90Ytrio

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90Yttrium internal pair production, branching ratio for the transition of 90Zirconium, can be imaged by positron emission tomography.\(^1\) As reported in recent papers, PET-CT is useful to confirm 90Y microspheres deposition into liver tumors after transarterial hepatic radioembolization.\(^2\) This can be the same in radioisotopic synoviorthesis: following application into an arthritic joint, distribution of 90Y within the synovial can be demonstrated by PET-CT images.

We present two examples of radioisotopic synoviorthesis in two patients affected by chronic knee arthritis with recurrent fibrosis of the synovial membrane, no complications were recorded during clinical follow-up period.

**Fig. 1.** In patient 1, after 90Y administration, tomographic PET-CT images revealed trough increased intra-articular activity, reflecting optimal synovial distribution of 90Y. Contrarily, in patient 2, after an achieved anterior-external injection, a non expected and non optimal synovial distribution of 90Y was observed, showing increased activity deposition exclusively in the anterior and superior lateral aspect of the knee. No changes were visualized when repeat images after slight walk. Although not achieved optimal fibrosis of the synovial membrane, no complications were recorded during clinical follow-up period.

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joint effusion (Fig. 1). In both, after needle placement inside the joint and aspiration, and intra-articular injection with either 185 MBq $^{90}$Yttrium plus 40 mg of triamcinolone hexacetonide was achieved.

Fused PET-CT images were obtained on a GE PET/CT DISCOVERY ST and processed on a GE Advantage work station. After an initial scout scan over the knees, CT scan was acquired using 120 kVp, 80 mA and 3.75 mm slice collimation. Patients were positioned in supine. Consecutively, PET emission data were acquired with knees centered in a 40 cm of bed, for 15 min/bed position for two patients.

References

