Incidental finding of horseshoe kidneys in whole-body $^{18}$F-FDG PET/CT evaluation

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Incidental finding of horseshoe kidneys (HK) in a 77-years old patient who underwent $^{18}$F FDG PET/CT during a check-up evaluation is presented in figures 1 and 2.

In the horseshoe kidneys, the normal rotation is incomplete, so that the ureters leave the kidneys from its ventral aspect and the longitudinal axes of the kidneys converge (fig. 1A-D). It is probably the most common of all renal fusion anomalies, with incidence of 3%.

FIG. 1.—Unenhanced multiplanar CT reconstruction images. 1A, horseshoe kidneys, the isthmus is lying anterior to the inferior vena cava and aorta, a Greenfield’s intracaval filter is seen in the inferior vena cava and an atherosclerotic plaque in the abdominal aorta. B, C, and D: both ureters were seen along their course until the ureterovesical junction.

FIG. 2A-D.—Contiguous multiplanar fused PET/CT reconstructions show $^{18}$F-FDG uptake in the whole horseshoe kidneys, the isthmus region depicted also $^{18}$F-FDG uptake, indicating presence of renal parenchyma and not fibrous tissue.
CT multiplanar and $^{18}$F-FDG PET reformatted fused images in Figure 2A-D depict the fused lower poles connected by an isthmus (in this case of renal parenchyma) lying anterior to the aorta and inferior vena cava.

There is a higher incidence of transitional cell carcinoma in horseshoe kidneys, this is conceivably due to the presence of chronic urinary tract infections. Other tumours such as renal cell carcinoma, squamous cell carcinomas, Wilms’s tumors, lymphomas, carcinoid tumors and sarcomas have also been reported.

KEY WORDS: horseshoe kidneys, PET/CT, 18-F FDG, transitional cell carcinoma.

REFERENCES