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LETTERS TO THE EDITOR OPEN ACCESS

The Use of Abdominal FDG-PET/CT Images in Coincidental Diagnosis of Common Left Renal Vein Variations

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To the Editor,

I want to draw attention to the utility of abdominal [^{18}F] 2-fluoro-2-deoxy D-glucose (FDG)-positron emission tomography (PET)/computed tomography (CT) images of oncology patients in diagnosis of coincidental retroaortic left renal vein (RLRV) and circumaortic left renal vein (CLRV), which are among the most common left renal vein (LRV) variations. Demonstration of these major LRV variations by FDG-PET/CT imaging as well as by other imaging methods is of great significance, both surgically and diagnostically.

Before retroperitoneal surgery, being aware of LRV variations is very critical to prevent damage to these vascular structures and thus, to abolish the risk of subsequent complications such as massive hemorrhage (1, 2). For this reason, detection of RLRV or CLRV is much more important in oncology patients who would undergo retroperitoneal surgery. It is also diagnostically necessary to differentiate LRV variations from retroperitoneal lymphadenopathy (3). On some CT images, normal vascular structures in left paraaortic region may look like tumours (4).

Besides colour Doppler ultrasonograpy (US) (5), helical CT (6), multidetector CT (7) and magnetic resonance imaging (MRI) (8), FDG-PET/CT (9) has also been utilized to demonstrate RLRV and/or CLRV. There are some advantages of FDG-PET/CT over the above mentioned radiological methods in detection of major LRV variations. Unlike in colour Doppler US, obesity does not cause diagnostic problems in FDG-PET/CT imaging. In routine oncological FDG-PET/CT studies, intravenous iodinated contrast material (CM) is not generally used (9-12), which is a major advantage of FDG-PET/CT compared to contrast-enhanced CT studies in detection of LRV variations. Unlike FDG-PET/CT, MRI is contraindicated in patients with cardiac pacemakers (13). Also, some unique features of FDG-PET/CT imaging are helpful in differentiation of RLRV or CLRV from other neighbouring structures. Metastatic retroperitoneal lymph nodes demonstrate increased FDG uptake

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which provide us to differentiate them from the major LRV variations. Additionally, FDG collected in the left renal pelvis or in the left ureter can somehow simulate the contrast effect of iodinated CM, helping us distinguish these structures from the neighbouring LRV (9). In my opinion, above mentioned imaging methods other than FDG-PET/CT are not necessary to exclude any RLRV or CLRV in vast majority of cases during routine oncological FDG-PET/CT practice.

In conclusion, in oncological FGD-PET/CT imaging I highly recommend to identify and report any major LRV variations on routinely obtained abdominal fused PET/CT images and abdominal plain CT images of the same patient, without performing any additional scanning in order not to give unnecessary radiation to the patient.

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