

“COLLIDING RIVERS SIGN” IN URINARY BLADDER IN ¹⁸F¹⁸FDG PET/CT SCAN

Maseeh uz Zaman,¹ Nosheen Fatima,² Areeba Zaman,³ Unaiza Zaman,³ Rabia Tahseen⁴

¹ Nuclear Medicine Section, Department of Radiology, Aga Khan University Hospital (AKUH), Karachi, Pakistan.

² Nuclear Medicine Section, Department of Radiology, Dr. Soliman Fakeeh Hospital, Jeddah, Saudi Arabia.

³ Dow Medical College, Dow University of Health Sciences (DUHS), Karachi, Pakistan.

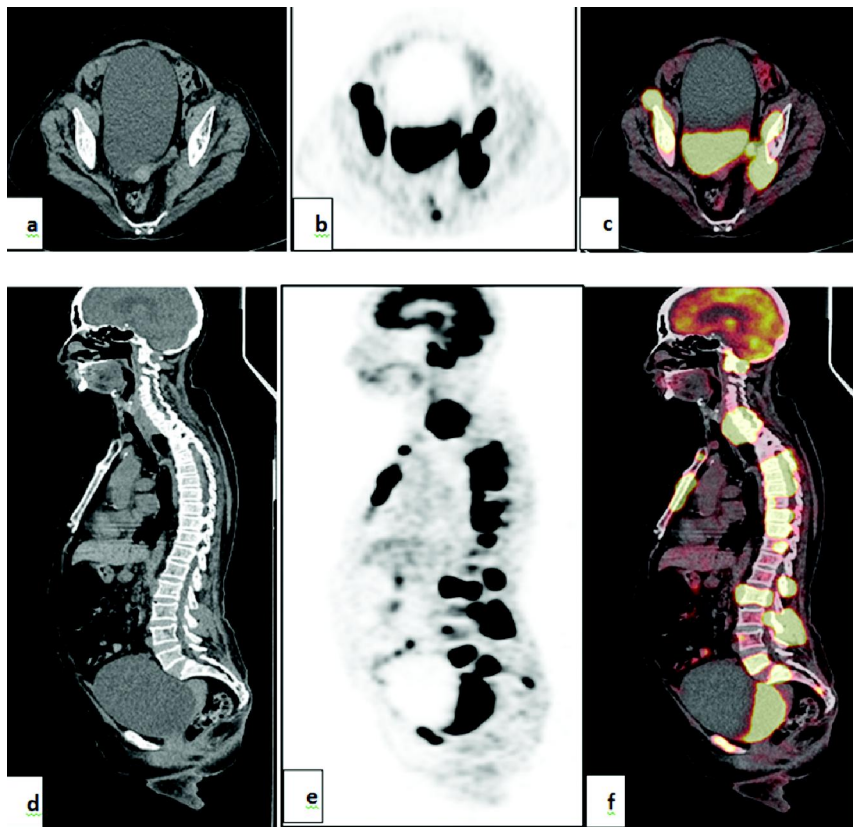
⁴ Department of Medicine, Civil Hospital Karachi, Pakistan.

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ABSTRACT

A 75 years old lady known case of recurrent diffuse large B-cell lymphoma (DLBCL) referred for 18-fluorodeoxyglucose (¹⁸F¹⁸FDG) positron emission tomography and computed tomography (PET/CT) without contrast enhancement. Images showed widespread hypermetabolic deposits with soft tissue components at multiple skeletal sites consistent with recurrent DLBCL. Interestingly urinary bladder showed a unique presentation of hot and cold segments resembling Colliding Rivers.

Key words: Colliding River sign; hot urine; anterior layering; posterior layering



Correspondence : Dr. Maseeh uz Zaman
Department of Radiology,
Aga Khan University Hospital,
Karachi, Pakistan.
Tel: 34930051 - Ext.: 2020
Email: maseeh.uzzaman@aku.edu

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Legend

Axial (Fig. 1a-c) and sagittal (Fig. 1d-f) images show widespread hypermetabolic deposits with soft tissue components at multiple skeletal sites consistent with recurrent DLBCL. In addition, urinary bladder is distended with a layer of ^{18}F FDG containing excreted urine (hot urine) posterior to non- ^{18}F FDG containing anterior layer (cold urine). This configuration of Hot and Cold urine on axial and sagittal slices gives an appearance of “Colliding Rivers Sign”. This appearance is reported in 4% of FDG PET/CT cases where bladder is distended and no intravenous contrast is used.¹ The possible mechanism is sluggish excretion of “hot urine” and gradual mixing with pre-existing “cold urine” in a distended bladder. In contrary anterior layering is more common and always seen when IV contrast is used.^{2,3,4} Disparity between physical density of FDG containing and iodinated contrast containing urine presumably allows this separation. Colliding Rivers sign caused by posterior layering may mask pathology in the posterior part of bladder and may pose an interpretation challenge. While anterior layering unmasks hidden pathologies and could improve the diagnostic accuracy of the study.

References

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