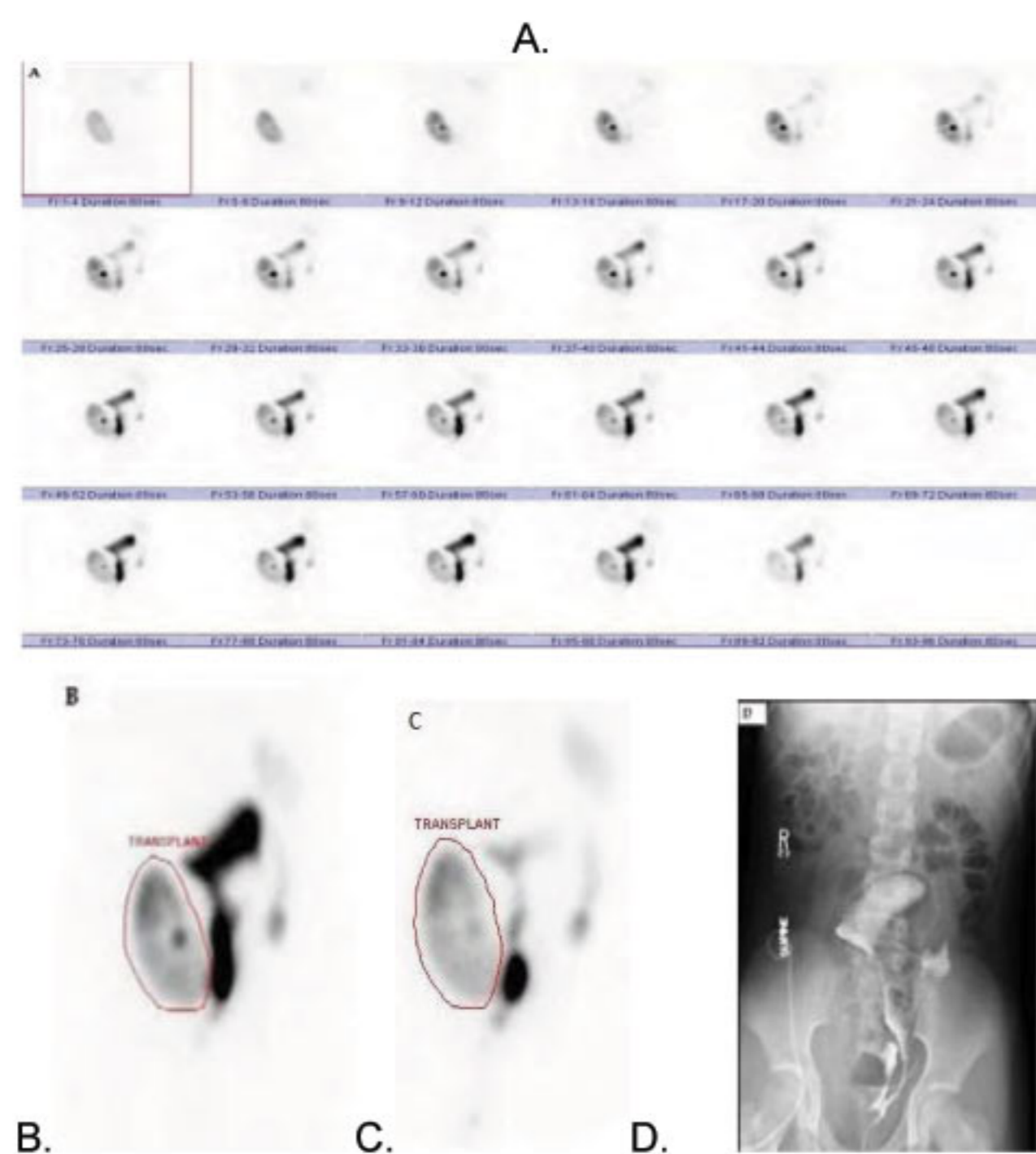


A malconfigured urinary bladder on post renal transplant scintigraphy in a patient with Prune Belly syndrome

To the Editor In HJNM we have read with interest papers about atypical extrarenal activity representing a malconfigured urinary bladder indicating bladder cancer; and urinary leak on a post transplant renal scan [1]. In this paper we shall describe an atypical extrarenal collection of tracer on a post transplant MAG3 renal scintigraphy in a boy 14-years old with Prune Belly syndrome, which represents a malconfigured urinary bladder simulating urinary leak (Fig. A). A boy who also had congenital absence of right kidney, and end stage renal disease, was hospitalized three weeks following renal transplant with rising serum creatinine, and a perirenal fluid collection on sonography, suspicious for a urinary leak. The perinephric fluid aspiration was biochemically non diagnostic, and, subsequently, he underwent ^{99m}Tc -MAG-3 renal scintigraphy, which showed atypical irregular extrarenal collection of tracer (Fig. A). The irregular extrarenal tracer collection is explained usually as activity in the ileal conduit [2]. The pattern was not that of bowel accumulation of the tracer as it did not conform to a bowel pattern [3, 4]. There was no activity in the expected region of the urinary bladder. The absence of a discrete photopenic area or mass excluded a large perirenal lymphocele or urinoma distorting or displacing the urinary bladder (Fig. A) [5]. In our case, the irregular area of increased tracer accumulation on sequential images remained equivocal for rapid extravasation of urine with non-filling of the urinary bladder versus an unusual malconfigured urinary bladder, until we had appropriate anatomic correlation. A cystogram (Fig. D) was performed shortly after the radionuclide study. The extrarenal radiotracer accumulation was shown to be a remarkably distorted urinary bladder rather than representing urine extravasation.



Figures A-D: MAG3 renal scintigraphy (A): Renal dynamic images depict good tracer uptake in the transplanted kidney and excretion into the pelvis. Faint

cortical uptake is identified in the native left kidney with no visualization of the ureter. No photopenic area is noted perirenally or elsewhere in the pelvis and abdomen. (B): At 5min, a collection of urinary activity is seen in proximity to the inferior pole of the transplanted kidney, medially, which progresses superiorly in a linear pattern parallel to the transplanted kidney into an inverted 'U' shape at its upper end with progressively increasing tracer accumulation. (C): The irregular extrarenal activity appears less intense on the post void image. (D): The configuration of the area of extrarenal tracer accumulation conforms to an irregular, vertically oriented, distorted urinary bladder reaching to the umbilicus.

The Prune Belly syndrome is characterized by the triad of congenital deficiency or hypoplasia of abdominal wall musculature, genitourinary anomalies, and, in males, bilateral undescended testes. Its pathogenesis is proposed to be secondary to a defective mesodermal development or urethral obstruction. It is associated with upper urinary tract dilatation, which is usually enormous and dysmorphic, and is frequently associated with high grade bilateral VUR, a large bladder with thin wall, a wide bladder neck, dilated posterior urethra with prostate utricle typically in absence of obstruction, and a massively enlarged vertical oriented irregular urinary bladder with thickened walls in presence of obstruction [6].

Urinary leak is a rare but critical complication after renal transplant surgery. It typically occurs within the first month after renal transplantation [7]. Radionuclide imaging plays an important role in the detection of post renal transplant urinary leaks [8]. The literature contains several case reports of a number of diverse conditions that may confound urinary leak detection on renal scintigraphy [2-5, 7, 9]. Distorted bladder activity is likely to occur in patients with Prune Belly syndrome with the associated urinary bladder anomalies. This can easily be misinterpreted as a leak on post transplant MAG-3 renal scintigraphy. *In conclusion*, awareness of Prune Belly syndrome in the scintigraphic detection of urine leak would contribute to the correct diagnosis.

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