Car Safety Seat Belts as a Risk Factor after Percutaneous Renal Biopsy

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Dear Sir,

A clinically significant perinephric hematoma is known to complicate about 1 % of percutaneous renal biopsies [1-5] and, when severe, the need for surgical intervention has to be carefully considered. The decision to operate is often a difficult one. We herein report a case of a perinephric hematoma with severe clinical manifestations, triggered by an unusual event, treated conservatively with good results.

A 33-year-old man was admitted for persistent proteinuria (0.8 mg/min), hematuria and cylindruria with normal renal function (serum creatinine 88.4 $\mu\text{mol/l}$, Cr clearance 117 ml/min) and borderline hypertension. Except for a significant increase of IgA immunoglobulins (4.99 g/l), common blood analysis, physical examination and renal ultrasound scan did not reveal any abnormality. An uneventful percutaneous biopsy of the lower pole of the right kidney was performed under ultrasound control with a Travenol Tru-cut disposable needle. The patient, at strict bedrest for 24 h, was discharged 48 h later after a normal ultrasound control of the biopsied kidney with a pathologic diagnosis of IgA nephritis.

Three days later, he was readmitted with an acute right flank pain. The pain appeared immediately after the patient somewhat suddenly braked, while driving his car with his seat belt fastened. The examination revealed right upper quadrant and loin tenderness, while the spontaneous pain was progressively decreasing. Blood pressure was normal. Diuresis and urine analysis were unchanged. Serum creatinine had risen to 114.9 $\mu\text{mol/l}$ (1.3 mg%) and hemoglobin had fallen from 150 g/l at the time of the biopsy to 140 g/l. An ultrasound scan showed a $2 \times 9 \times 6$ cm

subcapsular hypoechoic fluid collection, anterolateral to the right kidney, compatible with a recent perinephric hematoma. In the same kidney, the medullary pyramids were enlarged and less echogenic; there were no signs of pelvicalyceal dilatation. A ^{99m}Tc MAG 3-furosemide renogram showed a normal left kidney, but markedly decreased uptake (35%) with no excretion on the right. Peripheral plasma renin activity and aldosterone were normal.

In the next 72 h, the patient had moderate fever and leukocytosis (16,300/mm³); a further moderate increase of serum creatinine (up to 133.05 $\mu\text{mol/l}$ = 1.5 mg%) with a creatinine

clearance of 92 ml/min, and a decrease of hemoglobin (to 132 g/l) confirmed the ultrasound and renographic findings. During the following days, the stabilization of the clinical situation made us adopt a conservative approach. Three months later, serum creatinine was 97.2 $\mu\text{mol/l}$ (1.1 mg%), Cr clearance 118 ml/min, an ultrasound scan showed a subcapsular thickening with a maximum width of 5 mm, a $^{99\text{m}}\text{Tc}$ MAG 3 scan showed a normalization of the curve with an uptake of 45%.

Some aspects of this case, the delayed appearance of the hematoma, the temporary loss of renal function and the triggering event, have conferred unusual characteristics to a relatively common complication of percutaneous renal biopsy. A delayed appearance, 8-60 days after the needle biopsy, has sometimes been reported with early ambulation or stressful physical exercise as the precipitating event [2, 4, 5]. A temporary loss of renal function has been rarely described, related to a complication of a perinephric hemorrhage – with modalities similar to the one presented here – in 3 cases [4] and in a series of 1,000 consecutive percutaneous renal biopsies to transient episodes of posthemorrhagic hypotension in two cases and to unilateral ureteral obstruction secondary to blood clots in one [1]. Regarding the triggering event, this is very likely to be the crushing effect of the safety belt on the biopsied kidney. Incidentally, it could be suggested that in such a clinical setting the risks involved in wearing a seat belt may offset the advantages.

Finally, two observations can be made: (1) a slow but complete recovery of the kidney function without surgical evacuation, even in the face of a perinephric hematoma with severe functional impairment, is possible, and (2) radionuclide studies to monitor sequentially the degree of functional impairment are useful.

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