An Unusual Complication Of a Kidney Biopsy

INTRODUCTION

Kidney biopsy is the gold standard procedure for the diagnosis of multiple kidney disorders. Various complications can occur during the procedure including bleeding due to puncture of an intra-renal vessel. Injury to the extra-renal vessels is rare. We present a case of a bleeding complication due to injury to the lumbar artery after a kidney biopsy.

CASE PRESENTATION

A 54-year-old female with a history of diabetes mellitus, hypertension and colon cancer presented to the nephrology clinic for evaluation of proteinuria and chronic kidney disease stage 3b. She has had hypertension for about 12 years, relatively well controlled. Diabetes mellitus was recently diagnosed. She had proteinuria for the past 10 years, but it was never quantified. Our workup showed proteinuria of 3 gm. Her serum albumin level was 3.9 gm/dL and urinalysis was unremarkable. Serological workup for evaluation of proteinuria including hepatitis B, hepatitis C, HIV, ANA, ANCA, urine protein electrophoresis, serum protein electrophoresis, phospholipase A2 receptor antibody and anti-double stranded DNA antibody level was negative. A decision was made to pursue a kidney biopsy.

With the patient in the prone position, the left kidney was identified with an ultrasound. An 18-gauge spring loaded needle was used to obtain 2 cores of kidney tissue under ultrasound guidance. After the second pass the patient developed sudden pain at the biopsy site. A quick look with the ultrasound did not show any obvious hematoma but because of patient's discomfort, the procedure was abandoned. Given severity of the pain, a CT scan of the abdomen was obtained that showed a 14 cm perinephric hematoma. An immediate arteriogram by interventional radiology showed bleeding from a saccular pseudoaneurysm of a muscular branch of the L1 lumbar artery which was stopped with micro-coil embolization. There was no evidence of bleeding from the intra-renal arteriogram. The patient was kept in the hospital for one night and was discharged with no further evidence of active bleeding.

RESULTS

Left renal arteriogram demonstrating no bleeding

DISCUSSION

Bleeding is one of the common complications of kidney biopsy. Macroscopic hematuria can occur in up to 3.6% of the patients [1]. A perinephric hematoma requiring blood transfusion can occur in 1-5% of the patients [1,2]. Most of the bleeding episodes occur due to an injury of an intra-renal vessel. Injury of a lumbar artery is rare, with only a few cases reported so far [3]. Four pairs of lumbar arteries arise from the aorta in parallel with the intercostal arteries. They run lateral and backward on the lumbar vertebrae, dorsal to the kidneys, and then continue into the abdominal wall. Small branches of lumbar arteries may not be detectable on doppler ultrasound and are vulnerable to injury during a kidney biopsy. In our case the patient likely suffered injury to a muscular branch of the lumbar artery on the second pass. Immediate post procedure ultrasound did not demonstrate an appreciable hematoma likely because the boundaries of the hematoma were out of the view field of the ultrasound making it impossible to detect an echogenicity difference. Our suspicion, however, remained high and a hematoma was confirmed on the CT scan. Prompt evaluation by interventional radiology saved the patient from a catastrophic event.

CONCLUSION

Puncture of a lumbar artery is a rare but potentially lethal complication of a kidney biopsy. Severe pain or hemodynamic compromise should raise concern for hemorrhage and prompt evaluation should be undertaken. Injury of a lumbar artery should be considered in case of a negative renal arteriogram. Hence a kidney biopsy should only be performed at or near a center with angiographic and surgical support.

REFERENCES