Chapter 11

IMAGING-GUIDED PERCUTANEOUS KIDNEY BIOPSY

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Percutaneous kidney biopsy (PKB) is an important diagnostic intervention in both the diagnosis and management of kidney diseases. PKB is first used in the diagnosis of acute and chronic kidney disease in both native and allograft kidneys by Iversen and Brun in 1951 (1). In 1954, Kark and Muehrcke modified this procedure by lying the patient in the prone position and inserting an exploratory needle to localize the kidney (2). Today, the ultrasound (US) guidance and usage of automated biopsy systems have increased the reliability of the procedure by ensuring adequate tissue safely (3). Complication rates are significantly reduced by performing the procedure with image guidance (4). In a recent study, it is shown that bleeding rates due to the biopsy are similar in both blindly performed and US-guided kidney biopsies, but blind biopsies have mostly resulted in inadequate biopsy results and obtained fewer glomeruli (5).

INDICATIONS:

PKB can be used in the diagnosis and follow-up of diffuse renal parenchymal disease, suspicion of glomerulonephritis, cases with renal failure whose etiology cannot be revealed, nephrotic and nephritic syndrome, suspected rejection of kidney transplants, and also in the diagnosis of solid kidney masses. In patients with extrarenal primary malignancy, a biopsy can be performed to differentiate kidney metastasis from the primary tumor of the kidney. It can be performed to obtain a pathological diagnosis in complicated cystic lesions. It can be also used to have a histopathological result before performing tumor ablation (6). The sensitivity and specificity of percutaneous PKB in renal masses is 99.7% and it is a diagnostic tool that can be used safely (7).

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can be used easily before kidney biopsy in daily practice. This calculator calculates the risk of minor and major bleeding using the information of age, body mass index, platelet count, hemoglobin, kidney size, native or graft kidney (35). Also, it is shown that the evaluation of the biopsy tract by Doppler USG after biopsy in cases with low GFR is a very useful guide to evaluate the risk of developing complications (36).

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