

Tc-99m MAG₃ 신장스캔에서 신외 배설과 함께 발견된 이식신 경색

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Infarction of Renal Transplant with Extrarenal Excretion of Tc-99m MAG₃ Demonstrated by Renal Scintigraphy

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Abstract

A 38-year-old woman with end stage renal disease received a living related donor-renal transplant to the right iliac fossa. She developed anuria a week later. Tc-99m MAG₃ renal scintigraphy demonstrated no perfusion, uptake, or excretion of the radioactive tracer from the renal transplant. The expected area of the renal allograft appeared as a photopenic area with increased rim activity. The gallbladder and bowel activities were observed on delayed images at 24 hours. There was no blood flow within the renal artery on renal doppler examination. This case shows total absence of perfusion and function in the infarcted renal transplant with extrarenal excretion of Tc-99m MAG₃ caused by acute renal artery thrombosis.

Key Words : Kidney transplant, Infarction, Extrarenal excretion, Tc-99m MAG₃, Renal scintigraphy

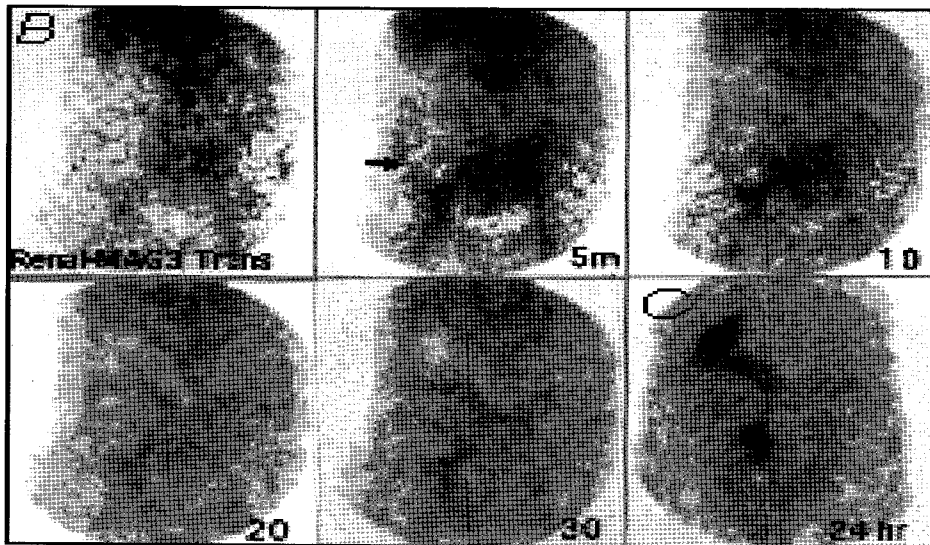
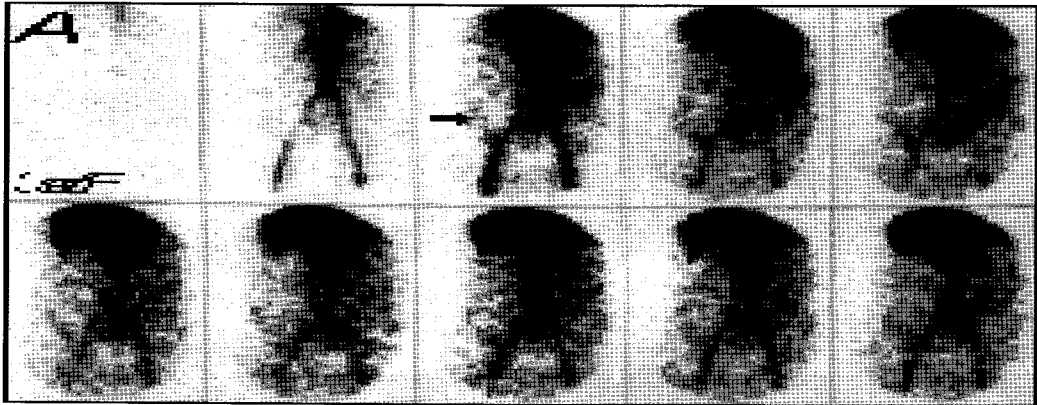
Legends

Fig. 1. A 38-year-old woman with end stage renal disease received a living related donor-renal transplant to the right iliac fossa. She was doing well during the earlier posttransplantation period. However, she developed anuria at a week after transplantation. A Tc-99m MAG₃ renal scintigraphy was performed. (A) Anterior flow images at 3 sec/frame revealed no significant perfusion of the

renal transplant in the right iliac fossa (arrow). The expected site of the renal transplant appeared as a photopenic area with a rim-increased activity maintaining the shape of a kidney. Thereafter, (B) on anterior images taken until 30 minutes, there was no tracer uptake or excretion from the renal transplant. A photopenic area with rim activity was still seen (arrow). (C) On delayed images at 24 hours, the gallbladder and bowel activities were observed. On the same day, a renal ultrasonogram with doppler demonstrated the renal transplant with no renal arterial flow.

The avascular graft can be caused by arterial thrombosis, end-stage rejection, hyperacute rejection, and venous occlusion. Although these causes were indistinguishable by the scintigraphy alone, total absence of perfusion to the renal transplant with

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photopenic area on renal scintigraphy strongly indicated that the renal allograft was totally infarcted.¹⁾ An ultrasonographic examination with doppler further demonstrated no blood flow to the renal transplant. Thrombosis of the main renal artery occurs in less than 1% of renal transplantation patients, and is usually an acute event in the early postoperative period (<1 month).²⁾

Although most radioactivity (91.1%) was known to be excreted in the urine at 6 hours in an animal study using the commercial Tc-99m MAG₃ kit, some

radioactivity (5.2%) was also excreted into the gallbladder and bowel.³⁾ Therefore, radioactivities in the gallbladder and bowel can be seen, particularly on delayed views. The biliary and bowel activities were also shown in a patient with renal dysfunction on anterior abdominal images taken at 2 hours after injection of Tc-99m MAG₃.³⁾ The normal radioactivity in the bowel on delayed images could be incorrectly interpreted as a urine leak in a renal transplant recipient with a sudden decrease in renal function.⁴⁾

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