

Tc-99m HMPAO 표지 백혈구스캔상 대퇴 절주에서 우연히 발견된 가성동맥류

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Incidental Detection of a Pseudoaneurysm at an Amputation Stump in a Tc-99m HMPAO Labeled Leukocyte Scan

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A 20-year-old man underwent a Tc-99m HMPAO labeled leukocyte scan for the evaluation of an infection at the stump of an AK amputation, which was conducted due to an open communicated fracture of the left lower leg. Blood-flow and blood-pool images demonstrated a pseudoaneurysm with a focus of intense activity medial to the stump, and centered within a large photopenic defect by surrounding hematoma. Delayed image obtained at 3 hours post-injection showed persistent intense and slight increased activity. Contrast angiography confirmed the presence of a pseudoaneurysm arising from a branch of the left superficial femoral artery.(Nucl Med Mol Imaging 2007;41(4):337-338)

Key Words: leukocyte scan, radioisotope angiography, pseudoaneurysm, amputation

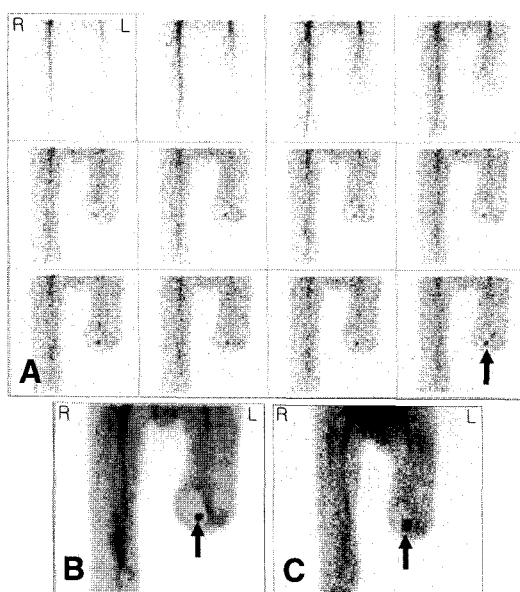


Fig. 1. A 20-year-old man was admitted with an open, communicated fracture of the left lower leg after being struck by an automobile. The patient underwent AK amputation of the left extremity. Five weeks after amputation, he developed pain, redness, a heat sensation, and daily episodes of spiking fever. A laboratory examination demonstrated mild anemia and leukocytosis. Accordingly, a Tc-99m HMPAO labeled leukocyte scan was performed under the clinical impression of infection at the stump site. Following an intravenous bolus injection of Tc-99m HMPAO labeled leukocytes, sequential images of the thigh were obtained at 3-second intervals followed by a blood-pool image at 1 minute and a delayed image at 3 hours. (A and B) The blood-flow and blood-pool phases demonstrated a focus of intense activity medial to the stump (arrow), which was centered within a photopenic defect. (C) The delayed image obtained at 3 hours post-injection demonstrated the persistence of intense activity of slightly increased intensity (arrow).

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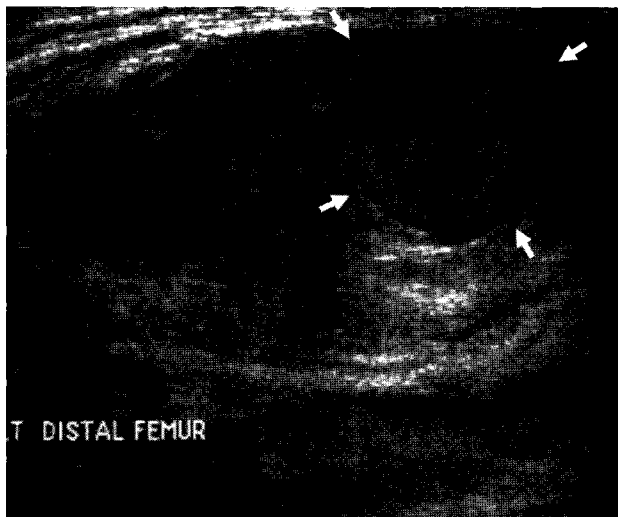


Fig. 2. Sonography revealed a hyperechoic round mass (arrows) measuring approximately 2.3 cm in diameter, which represented a pseudoaneurysm filled with thrombi. Duplex color Doppler sonography showed the swirling blood flow characteristic of a pseudoaneurysm within the mass.

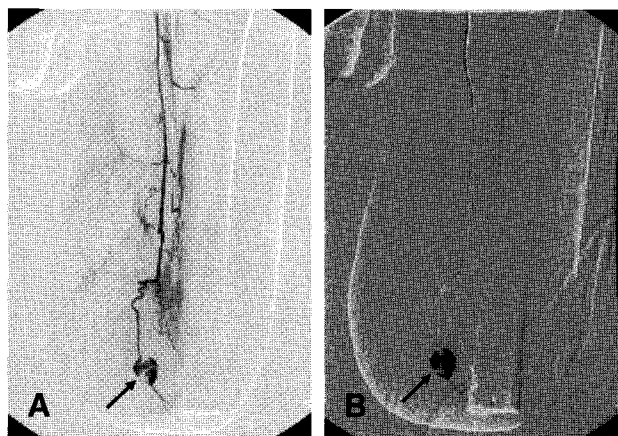


Fig. 3. (A) A contrast angiogram of the left femoral artery revealed a pseudoaneurysm with extravasation of contrast from a branch of the left superficial femoral artery (arrow). (B) A delayed film demonstrated the persistence of the extravasated contrast media, which was slightly increased in amount (arrow). Coil embolization of the pseudoaneurysm was performed.

Pseudoaneurysms are characterized by an encapsulated hematoma with a central lumen that dynamically communicates with the arterial lumen and represents an untreated arterial laceration. Vascular surgery, arterial catheterization, trauma, infection, tumors, chronic pancreatitis, and intravenous drug abuse have all been identified as predisposing factors. Dynamic radionuclide angiography has been used as a means of screening pseudoaneurysms, and is a part of the nuclear medicine evaluation of organ perfusion.¹⁻⁴⁾ Pseudoaneurysms have been detected on three-phase bone⁵⁻⁸⁾ and Tc-99m labeled red blood cell scans.²⁻⁴⁾ However, little information is available on pseudoaneurysms demonstrated by leukocytes scans.

In the present case, a pseudoaneurysm was incidentally detected by a Tc-99m HMPAO labeled leukocyte scan. Visualized activity on images represented extravasated unclotted blood in dynamic communication with a lacerated arterial lumen. The surrounding photopenic defect represented the avascular nature of a hematoma versus surrounding tissue.

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