SHORT REPORT

Vascular Graft Thromboses: 99mTc-HMPAO Leukocyte Scintigraphy False Positive Result in Diagnosis of Infection

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We describe a case of a 76-year-old male admitted with fever and pain in his left leg. He had an axillofemoral bypass, 1 year previously physical examination revealed weak peripheral pulses in both legs and a fluid collection in the left groin. A technetium scan showed intense leukocyte uptake in pelvic graft and in the left groin. This was considered diagnostic for infection. On removal of the graft it was found to be thrombosed. Culture of the graft was negative. Thrombosis of vascular prosthetic grafts can give a false positive result with labelled leukocytes. In case of positive uptake in 99mTc-HMPAO labelled leukocyte scintigraphy, thrombosis must be ruled out by means of complementary techniques.

Keywords: Technetium-99m-HMPAO leukocyte scintigraphy; Vascular graft infection.

Introduction

Prosthetic graft infections are associated with high morbidity and mortality rates after vascular surgery. 99mTc-HMPAO labelled leukocyte scintigraphy, validated for imaging infection and inflammation, is a sensitive test for the diagnosis and localization of vascular graft infection.1,2 However, several causes of false-positive results of this technique, like perigraft inflammatory reaction, usual in the 1st week after surgery, thrombosis, hematomas and lymphoceles have been described.3,4

We report a case of uninfected thrombosis of axillofemoral bypass in a patient with positive blood cultures, groin septic collection and positive uptake on both areas in leukocyte scintigraphy. Graft culture, after removal, was negative.

Case Report

A 76-year-old male was admitted for fever associated with pain in his left leg. He had an axillofemoral bypass, from the right axillary artery, 1 year previously. Physical examination revealed weak peripheral pulses in both legs and in the right arm, borderline ankle-brachial pressure index with normal colour and temperature and a fluid collection in left groin. Two blood cultures and culture of the collection, obtained by needle aspiration, showed *Staphylococcus aureus*.

99mTc-HMPAO labelled leukocyte scintigraphy was performed to evaluate the possibility of graft infection. Leukocytes labelling can be performed by using either 111In-Oxine or 99mTc-HMPAO. We chose 99mTc-HMPAO, due to, easier process of labelling, greater availability and lower cost, lower radiation dose and superior image quality.

Scintigraphic imaging, 30 min after Tc99m-HMPAO reinjection, showed no uptake along chest subcutaneous graft section (Fig. 1(a)), and a mild uptake in the hipogastric region and in the groin abscess (Fig. 1(b)). Two hour images showed still no uptake in the chest area (Fig. 2(a)), confirming the absence of infection in this section, and intense leukocyte uptake in pelvic graft and in the clinically infected abscess. This was considered as diagnostic for infection in both locations (Fig. 2(b)).

Conservative treatment was elected initially due to
limited options for a new revascularization with good long-term benefits. However, the bypass was removed 30 days later due to acute limb ischemia. The graft was thrombosed and its culture was negative.

Thrombosis of vascular prosthetic grafts can give a false positive result with labelled leukocytes. In case of positive uptake in 99mTc-HMPAO labelled leukocyte scintigraphy, thrombosis must be ruled out by means of complementary techniques, like Doppler ultrasound or computed tomography.

References


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