CASE REPORT
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A Case of Femoral Endarteritis Related to Using a Percutaneous Closure Device after Coronary Angiography

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ABSTRACT

Percutaneous arterial closure devices allow earlier mobilization and discharge of patients after arterial catheterization than manual compression for achieving puncture site hemostasis. Our case is representative of Perclose® associated infections; our patient had a delayed presentation of a staphylococcal arterial infection that required arterial debridement and reconstruction. Physicians should be aware of this uncommon, but serious complication to expedite the evaluation and treatment of patients with suspected infections that can arise from using these devices. **(Korean Circulation J 2006;36:762-763)**

KEY WORDS : Percutaneous arterial closure device ; Endarteritis.

Introduction

Hemostasis of the femoral artery puncture site by using percutaneous arterial closure devices has some advantages, including earlier ambulation, a shortened observation time and earlier discharge compared with performing conventional manual compression.[1-2] However, several cases of serious vascular complications that required surgery have surfaced with using these devices.[3-7] We have experienced such a case and we present the first case of femoral artery infection in Korea after coronary angiography with the arterial access controlled with using the Perclose® percutaneous closure device.

Case

A 61-year-old man with a past history of essential hypertension was admitted to evaluate his coronary arteries because of significant ST-segment depression on the exercise ECG. He underwent a diagnostic coronary angiography via the right common femoral artery with a 6F catheter sheath after standard skin preparation with povidone-iodine & alcohol. His coronary artery was minimally stenotic. After the procedure, his femoral artery was closed with the Perclose® device. He was discharged on the next day after catheterization with a mild bruise on the right groin. The patient presented to the hospital 20 days after catheterization complaining of a febrile sensation, right groin pain, swelling and purulent discharge from the puncture site for three days. The patient was hemodynamically stable and his body temperature was 38.4℃. Physical examination of the right groin revealed a possible hematoma with overlying erythema. Several scattered red 2-4 mm papules were noted on the right great toe and sole (Fig. 1). His cardiac and pulmonary examination was unremarkable. Laboratory investigations revealed a white blood count of 9,060/mm^3, an erythrocyte sedimentation rate of 28 mm/hr and a C-reactive protein level of 6.4 mg/dL. Both the cultures of the blood and purulent discharge yielded positive cocci in clusters on Gram staining; these were demonstrated to be methicillin-sensitive Staphylococcus aureus. Skin biopsy on the right sole and great toe demonstrated organized fibrin thrombi in the deep dermal vessels (Fig. 2). A diagnosis of septic endarteritis of the right femoral artery with distal microembolization was made, and the patient was taken to the operating room at 24 days after catheterization. Under the general anesthesia, the operative treatment consisted of sharp debridement of the common femoral artery and the overlying tissue, removal of the suture material with arterial resection

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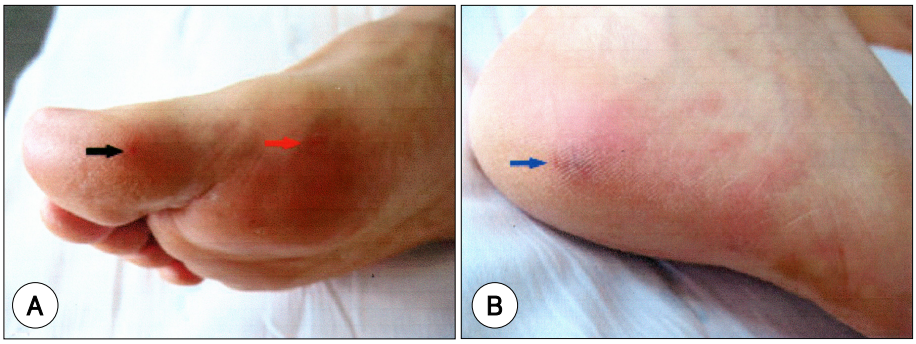

Fig. 1. A: 2-3 mm sized several scattered red papules on the right great toe (black arrow) and sole (red arrow). B: 8×9 mm sized blurish papule on right heel (blue arrow).

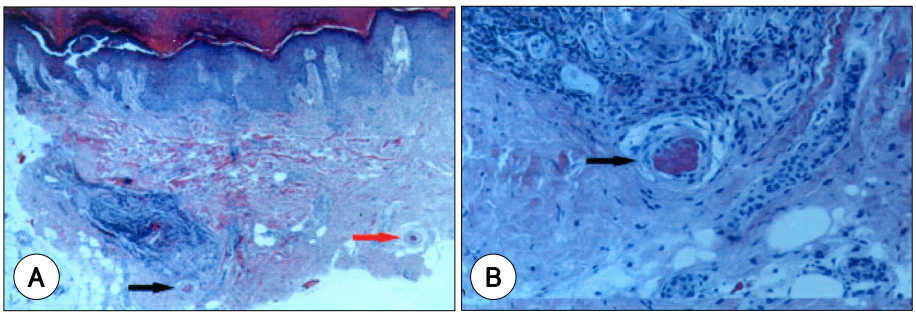

Fig. 2. Skin biopsy of right great toe. A: black and red arrows indicate organized fibrin thrombi in deep dermal vessels (hematoxylin-eosin stain, ×40). B: the black arrow indicates magnified organized fibrin thrombi (hematoxylin-eosin stain, ×200).

and repair of the artery with saphenous vein patch angioplasty. The methicillin-sensitive Staphylococcus aureus infection was treated with 2 weeks of intravenous cefazolin, and the patient recovered uneventfully.

Discussion

There have been a few reports of arterial infections being more common after the use of a closure device than after performing traditional manual compression.[4-8] The Perclose® is a device that places a nonabsorbable braided polyester suture on both sides of a femoral artery defect after removal of the femoral catheter. The arteriotomy is then closed by tying the suture. Because it is placed percutaneously and represents a potential conduit for infection from the skin flora down to the arterial wall, providing a route and nidus for infection, these infections require more aggressive and invasive surgical management, including drainage, device material removal with arterial resection and major vascular reconstruction.[3][5][6] To prevent this femoral endarteritis, changing gloves and repeated sterilization of the puncture site with povidone between removal of the sheath and insertion of the Perclose® device may be helpful. Some reports recommend prophylactic periprocedural antibiotics[3][4][7] that are directed against common skin flora when a percutaneous closure device is used after femoral artery catheterization. However, it has been not known whether the use of periprocedural antibiotics may decrease the incidence of infectious complications. Further prospective studies will be needed to evaluate whether this prophylaxis will be of benefit. In conclusion, arterial infection after using the Perclose® device is rare, but it can become a serious complication if it is not recognized promptly and treated with adequate and aggressive surgical management.

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