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A Case of Local Groin Abscess Caused by Transfemoral Coronary Procedures

Dongfeng Zhang*, Shuzheng Lyu*, Xiantao Song#

Department of Cardiology, Beijing An Zhen Hospital, Capital Medical University, Beijing Institute of Heart, Lung and Blood Vessel Disease, Beijing, China
Email: #xiantao_song@163.com

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Abstract

Bacterial infection due to coronary angiography is an uncommon but important complication of percutaneous coronary intervention (PCI) which is responsible for significant morbidity and extended hospital stay. The reasons for this symptom are still unclear. We report a case of local groin abscess two weeks after the latest procedure. The reasons responsible for the groin abscess in this case might be diabetes mellitus without being properly controlled, left ventricular (LV) systolic dysfunction, multiple operations in the same site, the usage of vascular closure device (VCD), and long time pressure after the procedure. We should pay enough attention to these risk factors in the future clinical practice to avoid this serious complication.

Keywords

Groin Abscess, Angiography, Percutaneous Coronary Intervention, Fractional Flow Reserve, Coronary Artery Bypass Grafting

1. Introduction

Bacterial infection due to coronary angiography is an uncommon but important complication of percutaneous coronary intervention (PCI) which is responsible for significant morbidity and extended hospital stay. In previous studies, the reported incidence of local infection at the site of arterial access was less than 1% in patients following coronary interventional procedures [1]. With the development of interventional treatment equipment and the specification of operation process, local groin abscess is even rarer. Here, we report one rare case of local groin abscess caused by transfemoral coronary procedures, which developed two weeks after the latest procedure.

*Dongfeng Zhang and Shuzheng LYU contributed equally to the work.
#Corresponding author.

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2. Case Report

A 66-year-old man with a significant medical history of acute myocardial infarction (AMI), unstable angina (UA), hypertension, and type 2 diabetes mellitus and who had previously undergone coronary artery bypass grafting (CABG), diagnostic and interventional percutaneous coronary procedures was admitted to the cardiology with atypical cardiac chest pain. He had an AMI in 1994 which was treated by thrombolytic therapy successfully. In 2000, he had a nonfatal AMI again and was presented to have a CABG in 2001. The left internal mammary artery (LIMA) graft was implanted to the left anterior descending artery (LAD) successfully. Due to positive symptoms, he underwent coronary angiography and revascularization by percutaneous coronary intervention (PCI) on his left circumflex (LCX) and obtuse marginal (OM) branch arteries through right femoral artery in 2007, which required implantation of two stents. New angiography was performed without any intervention procedures 1 year before administration, which revealed multivessel coronary artery disease.

He complained of intermittent chest discomfort that had persisted for 20 years and aggravated for 1 year. Common symptoms were chest pain and shortness of breath lasted for a few minutes each time. The echocardiography showed motion and thickening rate reduction and myocardial thinning of lower 2/3 of anterior interventricular septal, anterior wall and the basal segment of posterior wall. The left atrium and left ventricle were enlarged, while the ejection fraction (EF), as 33%, was lower than normal. Left ventricular end diastolic diameter was 60 mm while systolic diameter was 48mm. The blood test of fasting glucose was 7.69 mmol/L and hemoglobin A1C was 9.0%. A subsequent coronary angiography demonstrated significant multivessel coronary artery disease while the LIMA graft to the LAD was patent. Fractional flow reserve (FFR)-guided PCI was performed and three stents were placed on the posterior branches of left ventricular and distal-left main coronary artery to mid-LCX. FFR results were increased from 0.63 - 0.64 to 0.88 - 0.89 of the distal-left main coronary artery to mid-LCX stenosis. An arterial closure device (Angioseal) was used and local pressure was applied to the puncture site for 2 hours. The patient was discharged from the hospital two days after PCI without any signs of infection or bleeding events. Medications at discharge included aspirin, clopidogrel, statins, diuretics, hypotensor, β receptor blockers and hypoglycemic drugs.

The patient was presented to our hospital again for groin abscess characterized by redness, swelling, pain and a pus-like drainage in the right groin two weeks after PCI. These signs of infection started six days after the procedure. Examination revealed cutaneous redness of 5.31 cm × 5.53 cm and the puncture site was still discharging pus in the right groin (**Figure 1**). His temperature was normal and the white blood cell count was 5.24 G/L. Doppler ultrasound of right lower extremity showed arteriosclerosis but the artery, superficial and deep vein were patent. The subcutaneous soft tissue was severely thickening with multiple irregular hypoechoic parts which communicated with each other. Cultures of purulent material obtained by puncture of the abscess grew staphylococcus aureus. The patient was treated with antibiotics administered systemically. The abscess in the

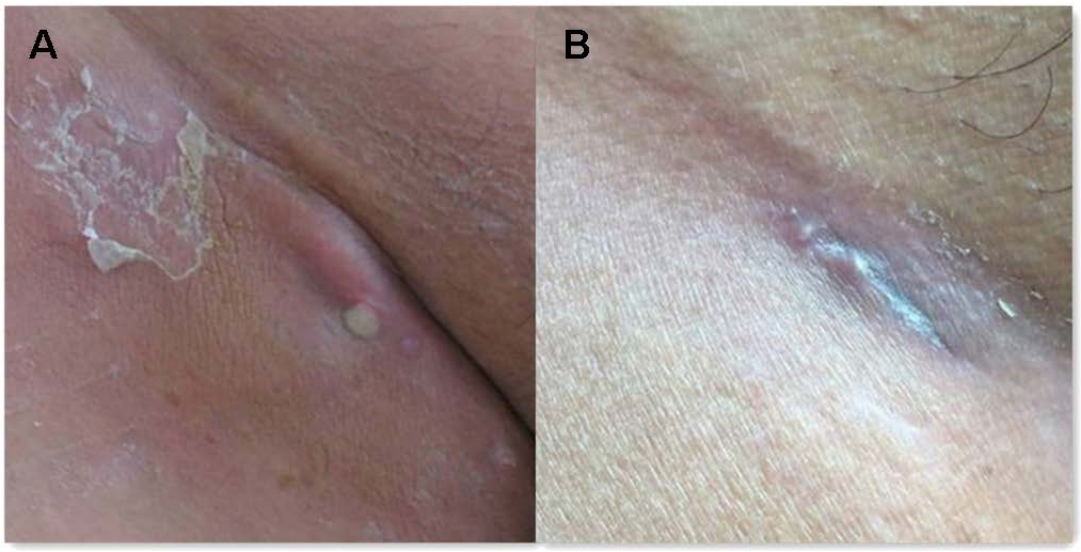

Figure 1. Local groin abscess at administration (A) and discharge (B).

right groin was drained. After 7 days of intravenous antibiotic treatment, the groin abscess was gradually disappeared. The patient was discharged after 12 days of oral antibiotic therapy. Telephone follow-up revealed no discomfort 1, 3, and 6 months after discharged.

3. Discussion

Bacterial infection caused by percutaneous procedures is an important complication of PCI. The most common organisms isolated are staphylococcus aureus and epidermis [2]. Staphylococcus aureus is by far the most common pathogen causing infectious complications after PCI [1] [3] [4]. Previous studies demonstrated that PCI-related staphylococcus aureus infection apparently occurs within 5 days of the procedure [5]. EF < 30% and resuscitation are two independent predictors of *S. aureus* infection following PCI [5]. Several other risk factors have previously been shown to be of importance for the development of staphylococcus aureus infections post-PCI, including the number of PCI performed in the same site, the length of time the sheath was left in place (>24 h) and diabetes mellitus. Furthermore, a meta-analysis have associated vascular closure devices (VCDs) deployment with increased rates of access-site infection compared with manual/mechanical compression [6]. To identify patients with a higher risk of infection post-PCI who would require a closer follw-up or even prophylaxis is important. Standard prevention criteria are still not established. Recognition of the risk factors may help to improve prognosis and additional precautions should be considered in patients with these risk factors.

4. Conclusion

In this case, there might be four reasons responsible for the groin abscess: 1) the patient had diabetes mellitus without properly controlled; 2) the EF was decreased than normal; 3) PCIs were performed in the same site for three times; 4) the usage of VCD and 2 hours of pressure after the procedure. We should pay enough attention to these risk factors in the future clinical practice to avoid this serious complication.

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Conflict of Interest

Nothing to report.

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