


Case Report

Acute Epididymitis and Reactive Hydrocele Following Trans-Femoral Access During Cardiac Catheterization in a Nigerian: A Case Report

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Abstract

Background: The use of invasive cardiac procedures has increased significantly in Nigeria since its first introduction in the country two decades ago. Increased procedural volume inadvertently leads to increased recognition of complications especially access site related ones even though the overall complication rates of cardiac catheterization remain low. Acute Epididymitis and reactive hydrocele are rare but significant complications following trans-femoral access during cardiac catheterization. The first case of such complication has now been identified in Nigeria. Awareness and prompt management of these complications are essential for preventing further morbidity.

Case Report: We report the case of a 79-year-old male who developed acute scrotal pain and swelling shortly after undergoing cardiac catheterization via trans-femoral access. Ultrasound examination revealed epididymitis and reactive hydrocele. The patient was treated with empirical antibiotics and anti-inflammatory medications, resulting in full recovery without long-term sequelae.

Conclusion: This case highlights the importance of recognizing and managing rare complications of cardiac catheterization. Early diagnosis and appropriate treatment are critical for ensuring favorable outcomes and minimizing morbidity in affected patients.

Keywords: Hydrocele testicular; Femoral artery; Urology; Coronary angiography; Nigeria

Introduction

Cardiac catheterizations have been performed safely over the past seven decades with complications occurring rarely. Major complications including myocardial infarction, stroke and death occur in less than 1% of cases [1]. The incidence of vascular access-site complications following cardiac catheterization varies depending on the study population. Trans-femoral access complications are generally higher for interventional procedures than diagnostic procedures, likely related to anticoagulant therapy and sheath diameter. Trans-femoral access complications like hematoma, pseudoaneurysm and arteriovenous fistula have been reported to range from 0 to 17% in patients undergoing diagnostic and interventional cardiac procedures [2]. Our patient developed scrotal swelling a week post procedure with epididymitis and reactive hydrocele on ultrasonography.

Case Summary

79-year-old man with history of hypertension, dyslipidemia, dual

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chamber permanent pacemaker presented earlier with a six-months history of left-sided chest pain radiating to the left arm. Social and family histories were non-contributory. Medications included rosuvastatin 10 mg, isordil 5 mg and nifedipine 30 mg daily. Physical examination and vitals were normal. A previous coronary computerized tomography angiography (CCTA) showed 67% proximal LAD and 63% mid RCA stenoses. Echocardiogram showed normal cardiac chamber sizes and systolic function with pacemaker leads in the right sided chambers. Due to worsening chest pain, a diagnosis of unstable angina was made with elevated thrombolysis in Myocardial Infarction (TIMI) risk score of 4. He was scheduled for left heart catheterization (LHC). Initial coronary angiogram revealed 95% proximal and mid left anterior descending (LAD) sequential stenoses and 65-70% mid right coronary artery (RCA) stenosis. Ejection fraction (EF) was normal. Left main and left circumflex coronary arteries were angiographically normal. He had successful PCI of LAD with drug eluting stent (DES) placement via right trans-femoral approach and was discharged home the next day on dual antiplatelet therapy (DAPT) as well as high dose statin. He presented 2 days later with significant typical chest pain associated with shortness of breath. He denied missing his DAPT dose. ECG showed ventricular paced rhythm with uninterpretable ST segment due to the paced rhythm. Cardiac enzymes were drawn and repeat coronary angiogram via left trans-femoral approach was performed to rule out early stent thrombosis. Left coronary angiogram revealed widely patent LAD stents. Due to non-availability of intravascular physiologic and anatomic assessment technology, and persistent chest pain, decision was made to proceed with RCA PCI. A 3.0 × 18 mm DES was placed successfully in the RCA with good angiographic result and TIMI 3 flow in the vessel. Catheters and wires were removed, and femoral angiography performed to confirm suitability for closure device. The access site was then sealed with a MYNX CONTROL vascular closure system (Cardinal Health, Dublin, OH, USA).

Shortly after completion, the patient developed access site pain, hypotension and dizziness while holding pressure on the groin with no significant groin swelling compatible with a vasovagal episode. He was successfully treated with fluid resuscitation, vasopressors and discharged home next day with stable hemoglobin levels.

He presented a week later to the clinic with left scrotal swelling and no history of trauma, fever or urethral discharge. On examination, the scrotum was swollen, warm to touch and non-erythematous. There was tenderness along the posterior and superior aspect of the left testis. Urinalysis was negative. Vascular doppler ultrasound of the left common femoral artery was negative for a pseudo-aneurysm, arteriovenous fistula or significant hematoma. Scrotal ultrasound revealed bulky left spermatic cord with significant contour irregularities, marked increased vascularity and markedly echogenic fat planes. The left epididymal tail and body were enlarged and showed increased vascularity and echogenicity. The scrotal skin was

thickened; moderate hydrocele was noted with septation. The right epididymis was normal in size and showed normal vascularity with no discrete mass. Both testes were normal in size, volume and echo pattern. (Figure 1). He was managed conservatively with oral antibiotics analgesics and the swelling gradually resolved.

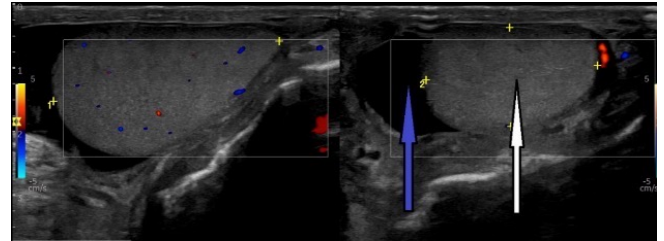


Figure 1: Ultrasonography of the left scrotum showing left testicle (white arrow) and moderate hydrocele (blue arrow).

Discussion

Cardiac catheterization is a frequently performed procedure generally considered safe with low complication rates. However, when complications arise, they can pose diagnostic and therapeutic challenges, necessitating timely intervention to prevent further morbidity [3]. Bleeding or hematoma remain the commonest risk associated with cardiac catheterization. Less common risks include dye reactions, contrast nephropathy, arrhythmia, infection, stroke, the need for emergency cardiac surgery, and death [4]. Epididymitis and reactive hydrocele occurring following cardiac catheterization are extremely rare complications with only a few cases reported in literature [5,6]. Epididymitis, the inflammation of the epididymis, can result from various etiologies, including infections, trauma, and non-infectious causes [7]. Reactive hydrocele, the accumulation of fluid around the testicle, often accompanies epididymitis. The inflammatory response leads to increased vascular permeability and fluid exudation, resulting in hydrocele formation [8]. This case of epididymitis and reactive hydrocele following trans-femoral access during cardiac catheterization is an uncommon but significant complication. In our patient, it is postulated that the trans-femoral access is the initial trigger with several mechanisms considered. Bacteremia following cardiac catheterization is rare, with a reported incidence of 0.11% [9] and usually staphylococcus related. While procedural sterility minimizes this risk, transient bacteremia during catheterization might seed the epididymis, leading to infection [9]. Chlamydia trachomatis and Neisseria Gonorrhoea are culprits in younger men while Escherichia coli are found in older men [10]. Trauma and Inflammation is another mechanism leading to epididymitis and reactive hydrocele. Vascular access and the manipulation involved during cardiac catheterization can cause localized trauma. This trauma can lead to an inflammatory response that may extend to adjacent structures, including the epididymis

[5]. A small post procedure hematoma is also conceivable with proximity to the scrotal structures. Acute Epididymitis secondary to drug use has been reported [11]. Isolated case of acute epididymitis from non-ionic iodinated contrast use during cardiac catheterization has also been reported [6].

In addition, increased intra-abdominal pressure during the procedure might cause retrograde urine flow or lymphatic congestion, contributing to inflammation of the epididymis [11]. Epididymitis post cardiac catheterization may pose diagnostic challenges. The onset of scrotal pain and swelling post-procedure necessitates a differential diagnosis, including infectious etiologies, and non-infectious inflammation as described above. However, vascular complications such as hematoma or pseudoaneurysm at the femoral access site could present similarly with referred pain or swelling.

Ultrasonography is a critical diagnostic tool, providing real-time visualization to differentiate between hydrocele, hematoma, and other scrotal pathologies [12]. The use of prophylactic antibiotics during cardiac catheterization is not a common practice and was not used in our case. Management of this complication involves antibiotic therapy. Bui and Nawathe reported a similar case which was managed conservatively with antibiotics as in our case with prompt resolution of symptoms.[13] Empirical antibiotic therapy targeting common pathogens (e.g., *E. coli*, other Gram-negative rods) is initiated, especially in cases with signs of infection or systemic symptoms. Anti-inflammatory agents such as non-steroidal anti-inflammatory drugs (NSAIDs) can reduce inflammation and pain [14]. Supportive care including scrotal elevation and rest can help alleviate symptoms and reduce swelling. The prognosis for epididymitis with reactive hydrocele, when promptly and appropriately treated, is generally good. Most patients recover fully without long-term sequelae.

Conclusion

While rare, epididymitis and reactive hydrocele can occur following trans-femoral cardiac catheterization. Understanding the potential mechanisms, ensuring accurate diagnosis, and initiating appropriate treatment are crucial for managing this complication effectively. This case adds to the growing body of knowledge on the diverse complications associated with cardiac catheterization and highlights the need for comprehensive patient care post-procedure.

Authors' Contributions

All authors have made substantial contributions to drafting, revision and contents of the manuscript and have given final approval of the version to be published.

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Ethics statement and patient consent

The research reported has adhered to the relevant ethical guidelines and written consent for publication of this article and related images has been obtained from the patient.

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