CLINICAL VIGNETTE

Epididymo-orchitis Following a Common Clinical Procedure

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Case

Our patient is a 46-year-old man with prior history of coronary artery bypass graft surgery who presented with inferior wall ST elevation myocardial infarction. He received percutaneous intervention and stent placement to the right coronary artery vein graft from the right femoral artery approach. During the hospitalization, he received heparin infusion and dual antiplatelet therapy with aspirin and ticagrelor. After the cardiac catheterization, he developed discomfort from a hematoma at the right groin. He was subsequently discharged home on post-operative day two. Patient returned to the emergency room one week later with worsening of this right groin pain and severe discomfort, such that now he was unable to stand and ambulate due to severe pain. Examination revealed ecchymosis from the right anterior iliac crest to the right scrotum, tender to touch, and the pain worsening with standing. Vascular Doppler ultrasound of the right low extremity was negative for a pseudo-aneurysm or an arterio-venous fistula. CT scan of the abdomen and pelvis did not show any significant hematoma locally in the groin or in the retroperitoneal area. Scrotal and testicular ultrasound excluded testicular torsion. Inguinal hernia was ruled out and confirmed by general surgery consultation. Urology consultation and repeat ultrasound evaluation revealed slight erythema of right scrotum without clinically significant hematoma or hydrocele, but a very tender right testes and epididymis without masses. Complex fluid collection was noted at the distal end of the right inguinal canal. Right testis and epididymis were extremely tender to palpation. Right-sided scrotal elevation resulted in considerable relief of symptoms. Patient had developed epididymo-orchitis. Urinalysis was negative. Scrotal elevation with ice pack, scrotal support, ibuprofen, and ceftriaxone was initiated. Patient improved clinically and was subsequently able to get out of bed with decreasing discomfort. He was discharged home on oral ciprofloxacin with urology follow up. Follow-up discussion with the patient confirmed complete resolution of the ailment.

Discussion

Cardiac catheterization is a common procedure in today's clinical practice. Agency for Healthcare Research and Quality lists diagnostic cardiac catheterization as the fifth most common procedure resulting in a hospital stay in the United States at 1293 per 100,000 population in year 2010. In the same year, the incidence of percutaneous coronary intervention (PCI) was 562 hospital stays per 100,000 population.[1] The anatomy of the inguinal canal with its relation to the epididymis and testes, makes epididymo-orchitis a rare but potential complication, following cardiac catheterization by femoral approach.

Femoral Artery Access Site

The common femoral artery is the recommended access site for cardiac catheterization by femoral approach. The common femoral artery is a continuation of the external iliac artery and crosses the pelvic brim at the level of the inguinal ligament, which extends from the spine of the anterior superior iliac crest to the pubic tubercle. The common femoral artery then passes through the femoral sheath and branches into the superficial femoral artery and the profunda femoris artery.[2]

Anatomy of inguinal canal to epididymis/testes/scrotum

The inguinal canal is situated above the medial half of the inguinal ligament. The spermatic cord runs within the inguinal canal from the deep inguinal ring to the back part of the testis. The roof or the superior wall of the spermatic cord includes the aponeurosis of the external oblique muscle, internal oblique and transversalis fascia. The anterior wall is comprised of aponeurosis of external oblique muscle, internal oblique in the lateral third and superficial inguinal ring in the medial third. The posterior wall includes the transversalis fascia, conjoint tendon, and in the lateral third with the deep inguinal ring. The floor of the canal includes the inguinal ligament, iliopubic tract in the lateral third, and lacunar ligament in the medial third. In the abdominal wall the spermatic cord passes obliquely along the inguinal canal. It then escapes at the subcutaneous ring, and descends nearly vertically into the scrotum. It is composed of the ductus deferens, the testicular artery, pampiniform plexus, and lymphatic vessels.

The ductus deferens, the excretory duct of the testis, is the continuation of the canal of the epididymis. Commencing at the lower part of the tail of the epididymis it is at first very tortuous, but gradually becoming less twisted as it ascends along the posterior border of the testis and medial side of the epididymis, and, as a constituent of the spermatic cord.[3]

Complications related to cardiac catheterization include contrast associated allergic reaction and kidney injury; cardiac complications such as myocardial infarction from coronary artery occlusion and coronary artery dissection; vascular complications such as hematoma formation, pseudoaneurysm, and arterio-venous fistula formation; and post procedure complications such as stent thrombosis. With sterile techniques,

infections are rare. Prophylactic antibiotic use for a cardiac catheterization procedure is not a common practice, as was the case in our patient. Bacteremia post cardiac catheterization is rare and has been reported at an incidence of 0.11%.[4] Our patient presents a case of a late complication, not as a direct result of the procedure itself but related to post procedure hematoma and its anatomic proximity to the scrotal structures. Togan and colleagues report an isolated case of epididymo-orchitis following non-ionic contrast administration.[5]

Bacteremia associated with cardiac catheterization is commonly Staphylococcus related.[6] Bacterial culprits for acute epididymo-orchitis are Chlamydia trachomatis and Neisseria gonorrhoeae in younger men; Escherichia coli and other enterobacteriaceae are found in older men.[7] Noninfectious causes are trauma, autoimmune diseases, and vasculitis. Etiology in our case was unclear. Urine culture was negative, which is a common finding.

Considered a rare complication following cardiac catheterization, we believe it is important to be aware of its possibility. High index of suspicion and appropriate care early in the treatment process can reduce patient distress and morbidity.

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