
Bladder tumor and foreign body after osteosynthesis of the femoral neck using screws and rods - a clinical case report

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Abstract

Femoral endoprosthesis surgery, sometimes referred to as hip replacement surgery, is a proven and effective method for treating a variety of hip joint problems. Despite being very uncommon, bladder issues after femoral endoprosthesis surgery might affect the patient's comfort and overall rehabilitation. Although Iatrogenic bladder injury in endoprosthesis surgery is very rare, there are several cases described.

Our report describes the case of a 65-year-old man who, due to long-term delay of removal of temporary femoral fixation devices, developed migration of the latter into the bladder cavity and rectal wall, with perforation of the bladder and the development of a malignant tumor of the bladder.

The patient underwent resection of the left wall of the urinary bladder and evacuation of the fixation sticks from the side of the hip joint, as well as from the side of the pelvic cavity. All fixation devices were evacuated, resection of the left wall of the bladder without violating the integrity of the rectum. Additionally, excision of the iliac lymph nodes was conducted in one block. The postoperative period went without complications. According to control examinations, the general condition and act of urination were satisfactory.

We believe that the case described above is interesting from both a theoretical and a practical point of view, as during an intervention such as femoral endoprosthesis, such iatrogenic complications as migration and perforation of a foreign body (in this case, operative material) in the surrounding anatomical structures are quite rare.

It is important that, despite the pathology and the abundance of the latter's complications, the correct diagnosis and intervention took place, on the basis of which remission and complete elimination of complaints were achieved.

Key words: femoral endoprosthesis, bladder tumor, foreign body, iatrogenic injury.

Literature Review

Femoral Endoprosthesis Surgery

Femoral endoprosthesis surgery, sometimes referred to as hip replacement surgery, is a proven and effective method for treating a variety of hip joint problems, including osteoarthritis, rheumatoid arthritis, avascular necrosis, and hip fractures. A femoral endoprosthesis, an artificial device created to replace the diseased or injured portion of the femur (thigh bone), is implanted during this surgical procedure.

Cemented and uncemented femoral endoprostheses are the two primary varieties of femoral endoprostheses utilised in hip replacement surgery.

Complications

Other organs and systems may potentially be impacted in addition to the hip joint by possible problems.

Despite being very uncommon, bladder issues after femoral endoprosthesis surgery might affect the patient's comfort and overall rehabilitation. Urinary retention, urinary tract infections, and transient bladder impairment are the main risks. The inability to completely empty the bladder - a condition known as urinary retention - can be brought on by things like the side effects of anaesthesia, painkillers, or postoperative immobility.

Following femoral endoprosthesis surgery, healthcare practitioners take a number of precautions to prevent bladder problems. To avoid urine retention and preserve healthy bladder function, it is essential to promote early mobility and ambulation. Minimising the negative effects of painkillers on urine function can be achieved by monitoring and improving pain management.

Patients need to be aware of the symptoms of bladder issues and should notify their doctor right away if they encounter any of them, including urination discomfort, frequent urgency, or blood in the urine. Having open lines of communication with medical specialists guarantees that any new problems are dealt with as soon as they arise. [3]

Although Iatrogenic bladder injury in vascular surgery is very rare, there are several cases described. Augustine Pirvu and colleagues described a case of an intravesical graft detected by computed tomography 1 week after surgery. [5]

A. Häcker and colleagues have reported a case of femorofemoral crossover bypass graft inadvertently placed through the urinary bladder, diagnosed in 3 months after surgery by cystoscopy performed because of dysuria. [2]

Yih Chyn Phan and colleagues have described a case of a patient who underwent a right total hip replacement owing to osteoarthritis and later flexible cystoscopy revealed hip prosthesis in the bladder. [4]

This latter is especially similar with ours, since the prosthesis was also detected in case of our patient with the difference that our patient additionally developed bladder cancer.

Bladder cancer

Bladder cancer is a significant health concern worldwide, ranking as the ninth most common cancer globally. It primarily affects the cells lining the bladder, the organ responsible for storing urine.

Symptoms: The primary symptom of bladder cancer is hematuria, which is blood in the urine. Hematuria may be visible (macroscopic) or detectable only under a microscope (microscopic). Other symptoms can include frequent urination, pain or a burning sensation during urination, and lower back pain. However, these symptoms can also be caused by non-cancerous conditions, making it essential for individuals experiencing such symptoms to seek medical evaluation promptly. [1]

Diagnosis: Diagnosing bladder cancer involves a combination of physical examination, medical history review, and various tests. Urinalysis can detect blood and other abnormalities in the urine. Imaging studies, such as ultrasound, computed tomography (CT) scan, or magnetic resonance imaging (MRI), provide detailed images of the bladder and surrounding structures. Cystoscopy is a crucial diagnostic procedure in which a thin, flexible tube with a camera is inserted into the bladder through the urethra, allowing the doctor to visually inspect the bladder's interior. [6]

Advancements in treatment: In recent years, significant advancements in immunotherapy and targeted therapy have revolutionized bladder cancer treatment. Immune checkpoint inhibitors, such as pembrolizumab and atezolizumab, have shown promising results in advanced bladder cancer by helping the patient's immune system recognize and attack cancer cells. Targeted therapies, which specifically target molecules involved in cancer growth and progression, have also emerged as potential treatment options. [7]

Clinical case

Our report describes the case of a 65-year-old man who, due to long-term delay of temporary femoral fixation devices, developed migration of the latter into the bladder cavity and rectal wall, with perforation of the bladder and the development of a malignant tumor of the bladder.

Anamnesis: as a result of a traffic accident in 2008, the patient underwent femoral endoprosthesis surgery with temporary (short-term use) fixation sticks (Kirschner stick). Subsequently, due to the satisfactory condition, he did not undergo the evacuation of the fixing sticks.

Complaints: in 2021, the patient had macrohematuria, pain in the lower back, dysuria (polakiuria), general weakness, feeling of discomfort in the left hip area.

Objective examinations: during the examination, deformation of the left hip joint was revealed, swelling, peripheral lymph nodes were not enlarged by palpation, nor painless.

CT-examination of the chest and abdomen revealed no secondary foci of the disease.

General blood analysis: eosinophilia, ESR 52mm/h

General analysis of urine - hematuria, leukocyturia, bacteriuria. Specific weight - 1030.

As a result of instrumental-laboratory examinations, bladder cancer was suspected. In order to clarify the diagnosis, additional studies were appointed: MR tomographic study of the pelvic organs and the pelvic-femoral area, X-Ray, diagnostic urethroscopy, morphological study of biopsy.

MR tomography and X-Ray: post-fracture deformation was noted in the area of the back wall of the acetabulum on the left. 5 hyperdense (metallic) rods and 2 bolts were visualized. A detailed evaluation of the pelvic cavity was complicated by rough metal inserts. Metal rods extended from the posterior wall of the pelvis towards the pelvic cavity and were attached to the left lateral wall of the bladder (Fig. 1).

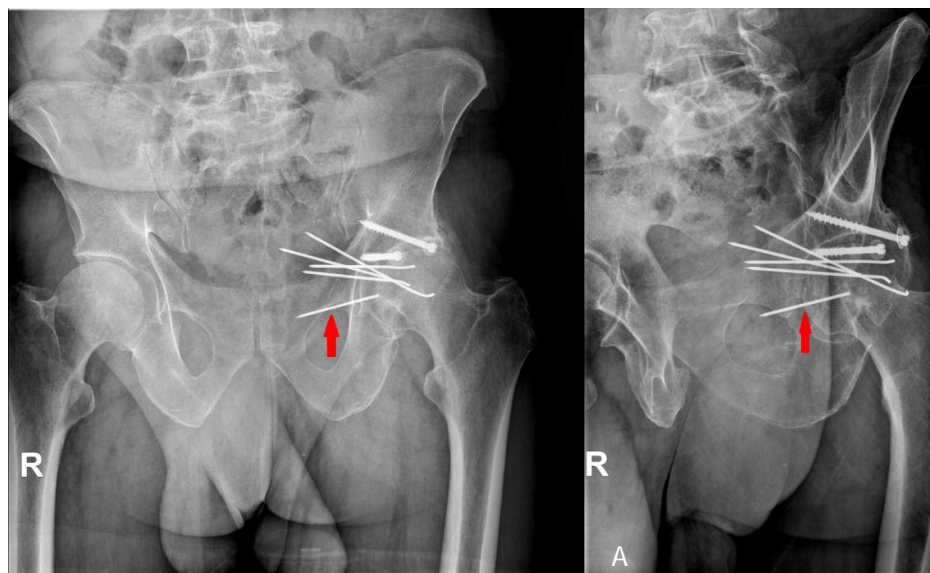


Fig. 1

X-Ray scan of the pelvis in anterior (A) and lateral (B) projections.

The arrow indicates the metal rod penetrated into the bladder.

Urethroscopy: cystoscopic examination showed mucosal swelling and inflammatory hyperplasia on the left wall of the urinary bladder, perforation was also noted in this area - a foreign body with a metal spike penetrated bladder cavity about 1-2 cm deep (Fig. 2).

On the artefact-free incisions, the bladder was full, somewhat deformed, at the level of the right ureter's inclusion in the bladder, an irregular shape of 11 mm and 5 mm size, inhomogeneous, hypodense filling defect in the excretory phase was shown laterally.

The second fixation stick was penetrated into the wall of the rectum, up to the mucous layer. According to the colonoscopy report, the rectal mucosa was not damaged.

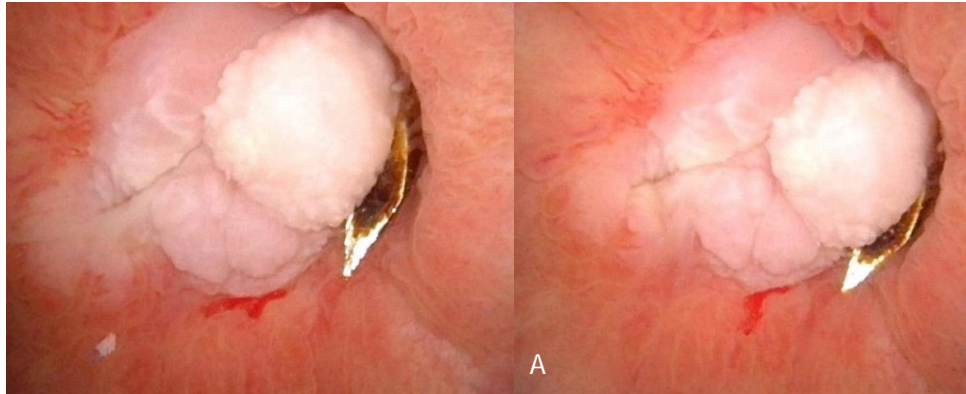


fig. 2
Urethroscopy

The picture shows a cancerous growth of the bladder and a metal rod penetrating the cavity near it.

Duplex scan of blood vessels of the lower extremities: unremarkable changes in the arterial system of both lower extremities. Deep vein dilatation. Varicose changes of the left great saphenous vein.

Conducted consultations - onco-urologist consultation. The presence of a bladder tumor was suspected, and a transurethral resection (TUR) of the bladder was performed at the clinic.

Histopathological findings of TUR biopsy: highly differentiated urothelial carcinoma of the urinary bladder. Morphological examination did not confirm tumor invasion in the wall of the urinary bladder.

Treatment: operative intervention was planned. The patient underwent resection of the left wall of the urinary bladder and evacuation of the fixation sticks from the side of the hip joint, as well as from the side of the pelvic cavity. All fixation devices were evacuated, resection of the left wall of the bladder without violating the integrity of the rectum, excision of the iliac lymph nodes in one block. The postoperative period went without complications. According to control examinations, the general condition and act of urination were satisfactory.

Morphological research: tissue samples from the urinary bladder showed marked fibrosis and infiltrative-inflammatory changes. No neoplastic lesions were detected. 12 femoral nodes with reactive changes.

The postoperative period went without complications. According to control examinations, the general condition and act of urination were satisfactory. The patient's mobility improved. Clinical data were regularly monitored, as a result of which it was determined that the disease is not progressing.

(repeated) MR tomographic study of the pelvic organs: fibrotic-inflammatory changes were observed in the structure of the present gland 2 years after the operation. The walls of the bladder were somewhat thickened, hardened, deformed, corresponded to postoperative changes. A region of different density was not revealed. There were no visible measurable lymph nodes and free fluid in the pelvic cavity.

Repeated histopathological study - 2 years after the operation, the tissue samples from the bladder showed pronounced fibrosis and infiltrative-inflammatory changes. No neoplastic lesions were detected. 12 femoral nodes with reactive changes.

Prognosis: it is difficult to talk about the long-term results, the disease progressed severely, remission has now been achieved. There are no additional complications.

Conclusion:

We believe that the case described above is interesting from both a theoretical and a practical point of view, as during an intervention such as femoral endoprosthesis, such iatrogenic complications as migration and perforation of a foreign body (in this case, operative material) in the surrounding anatomical structures are quite rare.

In this case, it is particularly interesting that the sticks were not removed because of the patient's own decision, and thus it is difficult to conclude whether they were found immediately after the operation in the thickness of the walls of the bladder and rectum, or over time.

Also, it should be emphasized the development of a tumor adjacent to the damaged area of the urinary bladder, whose connection with the injury is unknown.

It is important that, despite the pathology and the abundance of the latter's complications, the correct diagnosis and intervention took place, on the basis of which remission and complete elimination of complaints were achieved.

References:

1. Cumberbatch, M. G., et al. (2020). Updated EAU Guidelines on Muscle-Invasive and Metastatic Bladder Cancer.
2. Häcker A, Uysal Z, Badawi K, Langbein S, Kamp S, Hatzinger M, Aiken P, Michel MS, Freudenberg S. Ein Corpus alienum in der Harnblase nach gefässchirurgischem Eingriff [Foreign body in the urinary bladder after vascular surgery]. Aktuelle Urol. 2005 Jun;36(3):249-51. German. doi: 10.1055/s-2004-830174. PMID: 16001342.
3. National Institute for Health and Care Excellence (NICE). Urinary tract infection in under 16s: diagnosis and management. Published August 2020. Accessed July 12, 2023. <https://www.nice.org.uk/guidance/NG109>
4. Phan YC, Eli N, Pillai P, O'Dair J. A rare presentation of haematuria: hip prosthesis in the bladder. BMJ Case Rep. 2018 Mar 22;2018:bcr2017222831. doi: 10.1136/bcr-2017-222831. PMID: 29572365; PMCID: PMC5878411.

5. Pirvu A, Ducos C, Sessa C, Magne JL. Unusual foreign body in urinary bladder due to vascular surgery intervention. Urology. 2013 Feb;81(2):e11-2. doi: 10.1016/j.urology.2012.11.004. PMID: 23374848.
6. Powles, T., et al. (2017). Atezolizumab versus chemotherapy in patients with platinum-treated locally advanced or metastatic urothelial carcinoma (IMvigor211): A multicentre, open-label, phase 3 randomised controlled trial.
7. Rosenberg, J. E., et al. (2016). Atezolizumab in patients with locally advanced and metastatic urothelial carcinoma who have progressed following treatment with platinum-based chemotherapy: A single-arm, multicentre, phase 2 trial.]

შარდის ბუშტის სიმსივნე და უცხო სხეული ჭანჭიკებისა და ჩხირების გამოყენებით ბარდაყის ყელის ოსტეოსინთეზის შემდეგ - კლინიკური შემთხვევის აღწერა

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აბსტრაქტი

ბარდაყის ენდოპროთეზირების ოპერაცია მენჯ-ბარდაყის სახსრის მრავალი პრობლემის მკურნალობის აღიარებული და ეფექტური მეთოდია. მიუხედავად სიიშვიათისა, ბარდაყის ენდოპროთეზირების შარდის ბუშტისმხრივმა გართულებებმა შესაძლოა რიგი პრობლემები შეუქმნას როგორც პაციენტის პოსტოპერაციულ კომფორტსა და საერთო რეაბილიტაციას, ისე საკუთრივ საშარდე სისტემას. მიუხედავად იმისა, რომ ენდოპროთეზირების შემდეგ შარდის ბუშტის იატროგენული დაზიანებების ფაქტები საკმაოდ იშვიათია, ლიტერატურაში მოიძებნება რამდენიმე კლინიკური შემთხვევა.

ჩვენი სტატია აღწერს 65 წლის მამაკაცის კლინიკურ შემთხვევას, რომელსაც დროებითი საფიქსაციო მოწყობილობების ევაკუაციის ხანგრძლივი დაგვიანების გამო განუვითარდა ამ უკანასკნელთა მიგრაცია შარდის ბუშტის ღრუსა და სწორი ნაწლავის კედელში, შარდის ბუშტის პერფორაციითა და მოგვიანებით შარდის ბუშტის ავთვისებიანი სიმსივნის განვითარებით.

პაციენტს ჩაუტარდა შარდის ბუშტის მარცხენა კედლის რეზექციისა და საფიქსაციო ჩხირების მოცილების ოპერაცია ბარდაყისა და მენჯისმხრივი მიდგომით. ყველა საფიქსაციო მოწყობილობის ევაკუაცია და შარდის ბუშტის რეზექცია განხორციელდა სწორი ნაწლავის

დაზიანების გარეშე. აგრეთვე, თემოს ლიმფური კვანძები ამოიკვეთა ერთ ბლოკად. პოსტოპერაციულმა პერიოდმა ჩაიარა გართულებების გარეშე. საკონტროლო გამოკვლევებისას პაციენტის ზოგადი მდგომარეობა და მოშარდვის აქტი აღმოჩნდა დამაკმაყოფილებელი.

მიგვაჩნია, რომ ზემოთ აღწერილი შემთხვევა საინტერესოა როგორც თეორიული, ისე პრაქტიკული თვალსაზრისით, რამდენადაც ისეთი ჩარევის დროს, როგორცაა ბარძაყის ენდოპროთეზირება, საკმაოდ იშვიათია ისეთი იატროგენული გართულებები, როგორცაა უცხო სხეულის (ამ შემთხვევაში, ოპერაციული მასალის) მიგრაცია და პერფორაცია მიმდებარე ანატომიურ სტრუქტურებში.

მნიშვნელოვანია, რომ პათოლოგიათა და ამ უკანასკნელთა გართულებათა სიმრავლის მიუხედავად, მოხდა დიაგნოზის სწორად დასმა და ინტერვენცია, რომლის საფუძველზეც მიღწეულ-იქნა რემისია და ჩივილების სრულყოფილი აღმოფხვრა.

საკვანძო სიტყვები: ბარძაყის ენდოპროთეზირება, შარდის ბუშტის სიმსივნე, უცხო სხეული, იატროგენული დაზიანება.