

Small bowel perforation with iliac artery prosthesis stump: a case report

Perforacija tankog crijeva bataljkom proteze ilijačne arterije: prikaz slučaja

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Abstract. Aim: In this case we report an unusual complication after retroperitoneal formation of an iliac artery prosthesis-stump – a bowel perforation and sepsis. **Case report:** During the open urology surgery a right external iliac artery was iatrogenic injured and iliofemoral bypass grafting was performed. Eight months thereafter, due to an inguinal site graft infection and graft occlusion, the distal part of the prosthesis was transacted and removed, and the proximal, retroperitoneal part, was closed and over sewn in the zone without any sign of infection present. This prosthesis-stump caused a very unusual complication – a small bowel perforation three months thereafter. **Conclusion:** The whole retroperitoneal graft should always be removed with no stump formation to avoid this complication.

Key words: complication; iatrogenic injury; iliac artery; prosthesis

Sažetak. Cilj: U ovom slučaju prikazujemo neuobičajenu komplikaciju nakon retroperitonealnog formiranja bataljka vaskularne proteze ilijačne arterije – perforaciju tankog crijeva s posljedičnom sepsom. **Prikaz slučaja:** Tijekom otvorene urološke operacije nastala je iatrogena lezija desne vanjske ilijačne arterije te je učinjeno ilijakofemoralno premoštenje. Nakon osam mjeseci, zbog infekcije grafta u području prepone te njegove okluzije, distalni dio grafta presječen je i odstranjen, a proksimalni je prešiven i ostavljen kao dobro inkorporirani bataljak u okolnom tkivu bez prisustva znakova infekcije. Taj je bataljak proteze nakon tri mjeseca doveo do izuzetno neuobičajene komplikacije – perforacije tankog crijeva i posljedične sepse. **Zaključak:** Čitav retroperitonealni graft svaki put bi trebalo odstraniti prije formiranja bataljka da bi se izbjegla ova komplikacija.

Ključne riječi: iatrogena ozljeda; ilijačna arterija; komplikacija; proteza

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INTRODUCTION

In every surgical field, a reoperative surgery usually increases the rate of intraoperative complications due to changes in anatomic relations after previous surgery and therefore iatrogenic injuries are more frequent and

Even though stump blow-out is the most devastating complication of prosthetic stumps, bowel perforation is unusual, but also possible complication.

In case of sepsis in patient with vascular reconstruction, prosthetic graft complication must be ruled out.

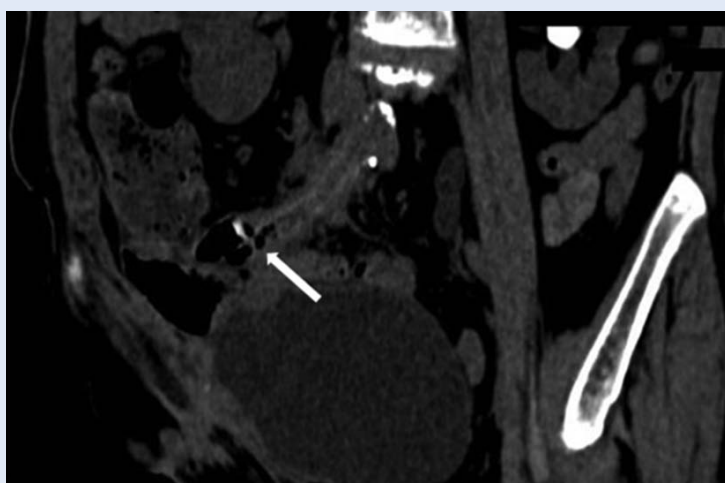


Figure 1. The CT finding of the iliac artery prosthesis-stump protrusion into a small bowel (arrowed)



Figure 2. The intraoperative finding of the retroperitoneal and small bowel perforation (arrowed) due to iliac vascular prosthesis-stump protrusion

more complex than at the initial surgery. Most feared complication in vascular reconstruction is prosthesis infection, especially in retroperitoneal region because it is usually related to severe sepsis and death. When the infection surrounds a vascular prosthesis in a small, localized part, a partial extraction is allowed, provided that transection is in non-infected region, and that closure forming a prosthesis stump is done in an uninfected part of the prosthesis. This usually does not lead to any complication. Most feared stump complication is the stump blow-out, which usually occurs due to infection progression. Small bowel perforation due to iliac artery prosthesis-stump formation is extremely rare complication (no cases found in literature – only secondary aorto-enteric fistulas after aortic reconstruction or ligation and after multi-visceral transplantation)¹.

CASE REPORT

A 64-year-old female underwent her second open surgical ureterocystoneostomy operation after multiple ureteroscopies with stone removals. During this procedure a right external iliac artery was severely injured and iliofemoral bypass reconstruction was performed using Dacron prosthesis (Interguard Silver, Maquet, Rastatt, Germany). Eight months later, owing to groin anastomosis-site infection and graft occlusion, the graft was partially removed through inguinal incision with proximal prosthesis-stump formation in retroperitoneal region. The stump was formed in no-infection zone, well incorporated in surrounding tissue and an extra-anatomic axillopopliteal bypass revascularization was performed. In period between three and six months thereafter, the patient was intermittently febrile with white blood count and C-reactive protein intermittently elevated despite antibiotics. A scintigraphy with radionuclide marked leucocytes suggested an infection in right iliac region. A computed tomography (CT) was then performed which revealed a very unusual cause of sepsis – a protrusion of unremoved prosthesis-stump into a small bowel (Figure 1, arrowed). The open reoperative surgical procedure was performed during which the diagnosis was confirmed (Figure 2, ar-

rowed), the prosthetic stump was removed, the iliac artery was over sewn and the perforated small bowel was resected with side-to-side anastomosis performed.

Ten years follow-up after complete graft removal and bowel suturing revealed no local complication. The patient eventually died due to left colon carcinoma, after subtotal colectomy and irradiation therapy ten years after stump removal.

DISCUSSION

Iliac artery prosthesis-stump penetrating into a small bowel causing sepsis is very unusual complication. Common complication causing pus and sepsis is continuous infection progression along the prosthesis. In this patient the cause of bowel perforation might be the stump's continuous pressure to the small bowel which, owing to adhesions formation after multiple revision surgeries, caused that some parts of the small bowel were fixed to the parietal peritoneum just above and in close contact with the stump. This continuous pressure could have led to localized bowel ischemia and ulceration all of that supported and accelerated with local infection spreading along the prosthesis. Eventually, this stump literally penetrated into a small bowel which caused even more aggressive infection and sepsis despite oral antibiotics.

In patients with vascular reconstruction and sepsis the prosthesis infection must be ruled out and computed tomography (CT) and scintigraphy with radionuclide marked leukocytes² are common the methods for infection diagnostics. CT has sensitivity of 90%–100% in intra-abdominal fluid collections and abscesses detection³⁻⁷. In this patient CT almost clearly showed the stump in the small bowel which is very rare and intraoperative finding matched the preoperative diagnosis. In cases like this, the whole prosthesis must be extracted and bowel must be resected with stoma formation or bowel anastomosis formation – depending on the intraoperative finding. If the peritonitis is absent, a side-to-side small bowel anastomosis is the method of choice, as it was done in this patient.

Post-procedural in-hospital and outpatient follow-up up to ten years revealed no local compli-

cations, although the patient eventually died of left colon carcinoma after subtotal colectomy and irradiation therapy.

CT and scintigraphy are the methods of choice in detecting infection, but also nowadays, a positron emission tomography CT is another emerging imaging method in infection detection⁸.

CONCLUSIONS

Even though this complication is very rare, retroperitoneal prosthesis stumps should not be formed to avoid this complication. A partial removal of the infected prosthesis and stump formation can be a good solution after femoropopliteal bypass, but it might be safer for the patient to remove the whole infected prosthesis if possible in centrally positioned vascular reconstruction prosthesis, then to risk a life-threatening complication like this one.

Conflicts of interest: Authors declare no conflicts of interest.

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