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TWO-STAGE RECONSTRUCTIVE PLASTIC SURGERY FOR GIANT OLEOGRANULOMA OF THE EXTERNAL GENITALIA IN A KIDNEY RECIPIENT

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The paper presents the clinical case of successful treatment of giant oleogranuloma of the external genitalia in a kidney recipient. The relevance of the problem, which has not diminished over time due to identification of new cases, is presented. Stages involving pathological tissue removal and reconstructive plastic surgical intervention to restore the anatomical form and functionality of the penis are described and illustrated in detail. The authors conclude that reconstructive plastic intervention for penile oleogranuloma can be effectively performed in a patient with end-stage chronic renal disease treated via renal transplant and who is receiving triple immunosuppressive therapy.

Keywords: kidney transplantation, oleogranuloma of the penis, reconstructive plastic surgery.

INTRODUCTION

The number of kidney transplantations (KTx) performed in Russia every year is on the rise. Despite improvements in dialysis methods of treatment, the duration and quality of life in patients with a transplanted kidney remain high [1]. The increasing number of observations of patients with a transplanted kidney has led to identification of paradoxical complications arising in the post-transplant period and not previously described in medical literature. We present a clinical case of successful two-stage surgical treatment of a giant oleogranuloma of the external genitalia in a transplant kidney recipient.

Oleogranuloma of the male external genitalia remains an urgent problem of modern urology [2, 6]. Oleogranuloma of the external genitalia is a pathological condition that develops after injection of oily-like substances into the penile skin. It is represented by a cascade of inflammatory and trophic changes in the skin-facial cover [6]. The patient takes these actions in order to provoke an inflammatory response to the introduction of a foreign agent, development of lymphostasis and subsequent increase in penis size. Introduction of oily substances (Vaseline oil, paraffin, baby cream, various ointments) is done at home, fortunately, as a rule, in compliance with aseptic rules. Over time, the pathological process manifests as inflammatory and trophic changes in the skin and penile fascia (due to subcutaneous injection of the above oily substances) and formation of dense infiltrates on the penile body with subsequent genital scar deformity, edema and pain during erection [3, 7]. Penile oleogranuloma is often complicated by paraphimosis, ulcerous defects and fistulas. Diagnosis of oleogranulomas is usually straightforward and is made on the basis of previous injections of oily substances under the skin, physical and radiological examinations [4].

There are three stages of the disease depending on the extent of the pathological process [5]. In the first stage, the pathological process spreads to one third of the surface of the penile shaft; in the second stage, it spreads to the entire surface; and in the third stage, the process spreads to the scrotal skin, perineum, and suprapubic area.

Conservative treatment, both in the acute and chronic stages of the disease, turns out to be ineffective. Surgical treatment is basic and is aimed at radical removal of granulation tissue and deposits of the injected foreign agent. The efficiency of surgery depends on the degree of severity of the pathological process and the presence of complications. Patients with the third stage of oleogranuloma are considered the most difficult. The main method of treatment in the third stage of the disease is two-stage Reich–Sapozhkov operation. No cases of oleogranuloma in patients on immunosuppressive therapy have been described in the available literature.

The aim of this paper is to present a clinical case of a patient with a transplanted cadaveric kidney, who is on a triple immunosuppressive therapy and underwent two-

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stage reconstructive plastic surgery for a giant oleogranuloma of the penis, scrotum and suprapubic soft tissues.

MATERIALS AND METHODS

Patient G., born on November 23, 1978, was diagnosed in 2010 with chronic glomerulonephritis (not histologically verified) with nephrosclerosis, end-stage chronic kidney disease. Replacement therapy by long-term hemodialysis was initiated. On September 29 of the same year, the patient underwent an allotransplantation of a kidney obtained from a deceased donor to the left iliac region. From anamnesis, it was also established that in 2008 and 2012, the patient had injected a total of about 25 mL of Vaseline ointment into his penile area on his own. From 2017, he started noticing a progressive increase in scrotal and penile volumes due to a dense infiltrate. By 2019, the infiltrative inflammation had spread to the soft tissues of the suprapubic area. It should be noted that since transplantation, the patient has been monitored by a nephrologist at his place of residence, where there was routine correction of immunosuppressive therapy. He had refused the proposed surgical treatment all these years.

On October 9, 2020, the patient was routinely admitted to the urology department of the branch of Shumakov National Medical Research Center of Transplantology and Artificial Organs in Volzhskiy for the purpose of surgical treatment.

At the time of admission, the patient's general condition was satisfactory, he was fully conscious and active. Body temperature was normal. Skin and visible mucous membranes, except for the pathological focus, were of physiological color and there was normal humidity. Breathing was independent, free, hemodynamics was stable. Independent urination was preserved. Bowel and bladder functions were normal. Renal graft function was satisfactory, creatinine level was 115 μmol/L. Immunosuppressive therapy: 4 mg/day methylprednisolone, 10 mg/day tacrolimus divided into two doses and 1080 mg/day mycophenolic acid divided into two doses.

Fig. 1. View of the external genitalia before surgery

Fig. 2. Estimated volume of excised pathological tissues

The external genitalia were shaped like those of a man. The penis and scrotum were sharply enlarged in size. The skin on the genitals was edematous, with a solid infiltrate of dense elastic consistency, spreading to the suprapubic region, hypogastrium, right and left iliac region. It is impossible to open the glans due to the pronounced infiltrative process and scar deformity of the foreskin (Fig. 1).

The patient was comprehensively examined by a therapist, nephrologist, transplant surgeon and an anesthesiologist: no contraindications for surgical treat-

ment were found. Clinical diagnosis: oleogranuloma of the penis, stage 3. Complete nephrological diagnosis: chronic glomerulonephritis with outcome in bilateral nephrosclerosis. Chronic kidney disease C5(T). Cadaveric renal allotransplantation to the left iliac region on September 29, 2010. Triple immunosuppressive therapy.

RESULTS

On November 10, 2020, the 1st stage of surgical treatment was performed under combined anesthesia: dissection of altered tissues of the scrotum, penis and anterior abdominal wall with plasty using local tissues (Figs. 2 and 3).

The operation lasted for 250 minutes. Blood loss volume was 340 mL. Removed pathological tissues

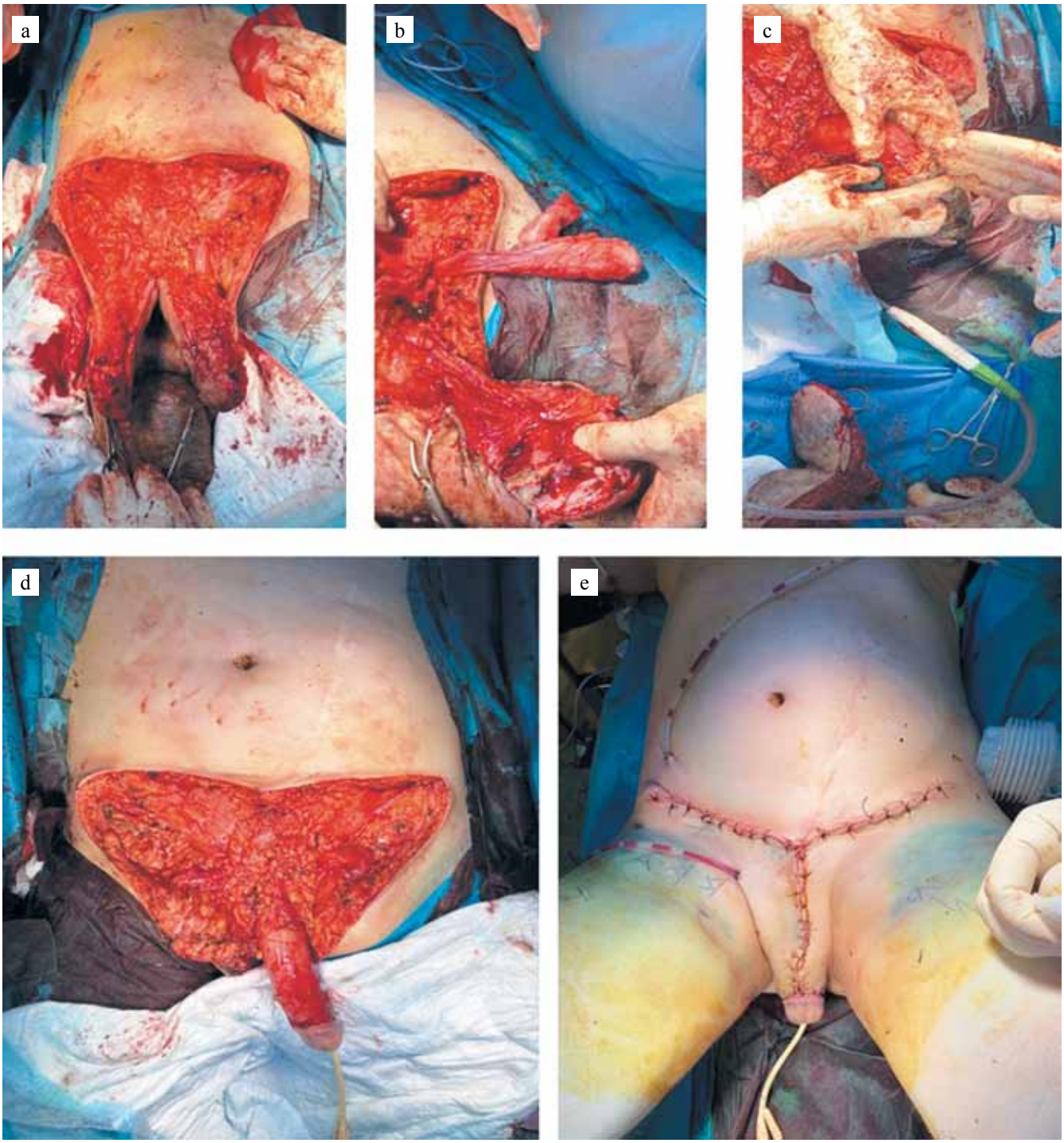

Fig. 3. Surgical intervention: a, wide excision of indurated skin with subcutaneous tissue of the pubic region to the deep fascia; b, testicle isolation and scrotum excision; c, scalping of the penis; d, final view of the surgical wound. The testicles are submerged under the skin of the medial surface of the thighs; d, layered wound closure. The penis is covered by the perineum

weighed 2472 g. Pathohistological examination result: macro specimen was represented by dense fibrous tissue with adipose tissue, with the presence of mixed cellular inflammatory infiltration; there was accumulation of foreign large multinucleated cells. Abundant capillary outgrowths, irregular edema, the epidermis in a state of acanthosis and sharply pronounced papillomatosis. Vacuolization of epidermal upper layers. Stratum corneum consists of parakeratotic cells. Condylomata acuminata.

Renal graft function in the intra- and postoperative periods remained satisfactory; no signs of dysfunction were noted. The patient was discharged on day 10 after surgery, creatinine level was 121 μmol/L at the time of discharge.

Subsequent 7-month outpatient follow-up by physicians demonstrated good repair of the operative area, absence of pathological tissue areas and progression of the local inflammatory process (Fig. 4). Renal graft function was stable.

On June 8, 2021, the patient was readmitted at the urology department for the reconstructive stage of treatment for the penile oleogranuloma. Due to no contraindications for surgical treatment and a stable renal graft function, the second stage of treatment was performed on June 10, 2021: "release" of the penis (Fig. 5).

The operation lasted for 120 minutes; blood loss was 100 mL. The postoperative period was uneventful. The safety drain and Foley catheter were removed on day 2 after surgery. Wound healing mainly occurred by primary tension and partly by secondary tension in the penile root area.

The second stage of surgical treatment also had no adverse effect on renal graft function. The patient was discharged on day 8 after surgery, with 112 μmol/L creatinine level.

The 11-month patient follow-up demonstrated a good clinical outcome (Fig. 6), restoration of erectile function and the possibility of resuming his sexual activity.

Fig. 4. Patient's condition before the second stage of surgery

CONCLUSION

The clinical case demonstrates the variety of pathological processes that can occur over the course of

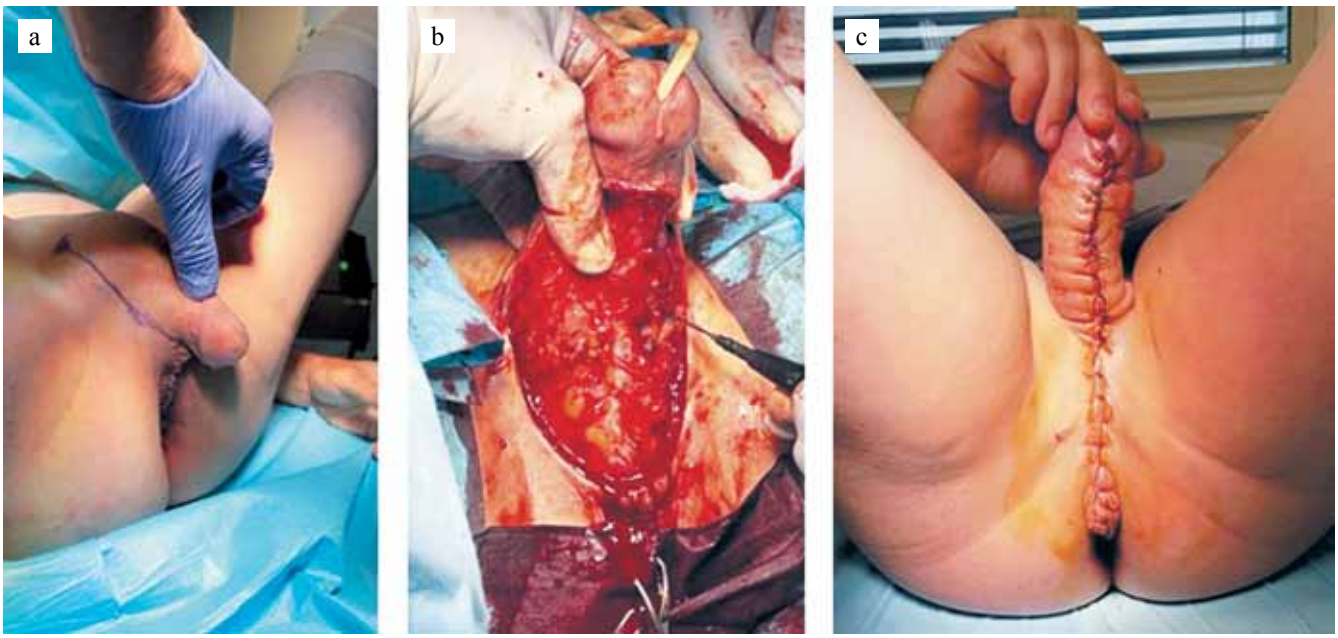

Fig. 5. Reconstructive stage of penile oleogranuloma treatment. a, marking the skin incision line to mobilize the penis; b, U-shaped incision of the perineum; c, final view after penile skin reconstruction on day two after surgery

Fig. 6. Day 40 after surgery

a lifetime in an organ transplant recipient. The severity of the pathological process and the giant size of the oleogranuloma were probably due to the duration of the disease, the patient's reluctance to seek specialized medical care, and the peculiarity of the course while taking immunosuppressive drugs. Oleogranulomas of the external genitalia can occur even in such an exclusive category of patients as kidney recipients, and reconstructive plastic surgery remains the only radical method of treatment.

The authors declare no conflict of interest.

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