
Case Report

Replantation of the Complete External Genitals

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Complete amputations of the external genitals in males have two characteristic pathomechanisms, according to the literature: self-mutilation in the majority of cases¹⁻⁹ and traumatic causes in a minority of cases,¹⁰⁻¹⁷ not taking into account an epidemic entity in Siam (reported in an article documenting a series of violent attacks by wives against philandering husbands¹⁸). In most of the former cases, a penile amputation is performed; the combined amputation of both penis and testes is reported very seldom.⁷ We are reporting a case of self-mutilation with amputation of penis, scrotum, and both testes.

CASE REPORT

A 29-year-old patient had amputated his penis, scrotum, and both testes with a kitchen knife at the level of the penile root in an acute psychotic situation. This traumatic experience interrupted the psychotic status, and the patient himself sought medical advice. Owing to secondary transport, the period between amputation and beginning of replantation was 3 hours. Only minimal debridement was necessary because of clean-cut wound edges (Figs. 1 and 2). The perineal aspect of the scrotum was sutured first, followed by an end-to-end anastomosis of the urethra over a urethral catheter and the dorsal aspect of the white coat of the cavernous corpus. The urethral catheter served as a guide only; urine flow was drained with a suprapubic catheter.

As the first step, the stumps of the testicular artery and the plexus pampiniformis were identified and were secured with vascular microclamps. Consecutively, the profound penile arteries of both cavernous corpus, the dorsal penile artery, and the dorsal penile vein were identified and were secured with vascular microclamps (Figs. 3 and 4). Replantation started with revascularization of the right testicle, because of the low ischemic tolerance of the germinative tissue. The testicular artery and vein of the right testicle were anastomosed first, using an end-to-end anastomosis with a microsurgical technique. The deferential duct was marked with clips; a primary reconstruction was not performed to minimize the length of



FIG 1. Amputated penis with both testes and the scrotal skin.

the replantation period. After restoration of blood flow to the testis, the replantation of the penis was performed, in an attempt to minimize the ischemic period, for the complete reconstruction of the functional parts. The profound penile arteries were reconstructed first with four 10-0 sutures; the diameter of the vessels ranged between 0.5 and 1 mm. After suturing the dorsal aspect of the white coat, the dorsal arteries and the dorsal vein were reconstructed. The diameter of these arteries again was smaller than 1 mm. Finally both dorsal nerves, located laterally to the arteries, were coapted. After 9 hours of ischemic time, we did not attempt to revascularize the left testis, because the chance to restore its endocrine function was considered to be minimal. A primary resection was not performed because some venous bleeding was observed from the plexus pampiniformis. Figure 5 demonstrates the situation at the end of the replantation.

POSTOPERATIVE COURSE

Almost complete primary wound healing was achieved, except for a small strip of the perineal aspect of the scrotal dermis with a maximal width of 2 cm. Secondary resection was performed on the fourth postoperative day. During this operation, the now nonvital left testis was resected. The remaining wound healing was completely primary. Intravenous infu-

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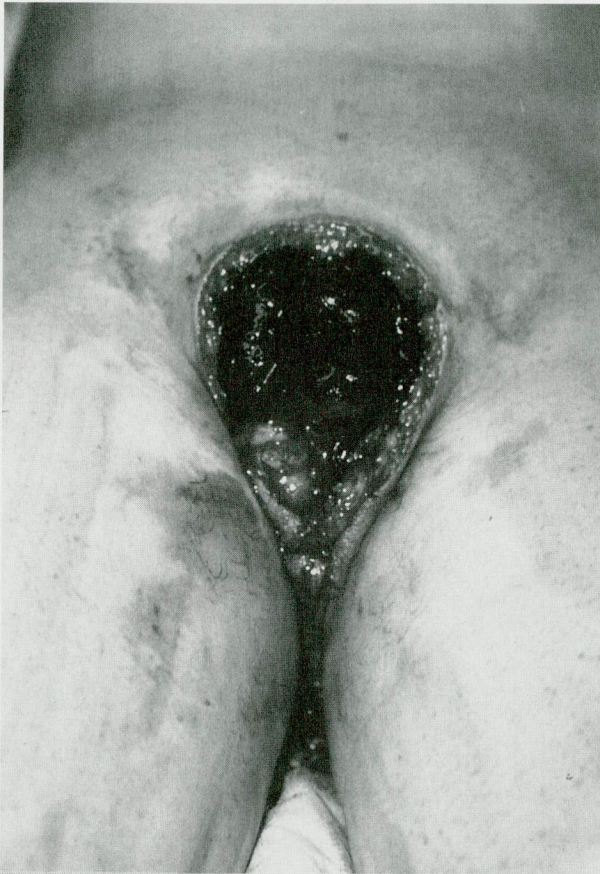


FIG 2. Stump at the level of the amputation.



FIG 3. Operative situation before the revascularization. Perineal scrotal skin, urethra, and perineal aspect of the white coat of the cavernous corpus are sutured.

sions of high molecular weight dextrans were administered for 5 days postoperatively. The urethral catheter was removed on postoperative day 21. After normalization of urine flow, the suprapubic catheter was removed an additional 3 days later. At this time, erectile function had been restored, according to the patient. Because reinnervation of the amputated

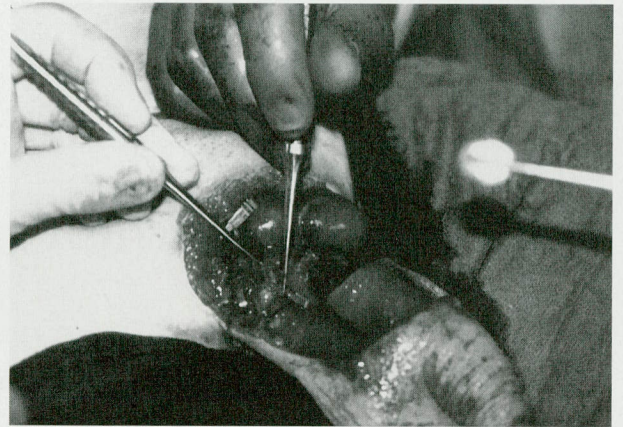


FIG 4. Anastomosis of the testicular vessels.

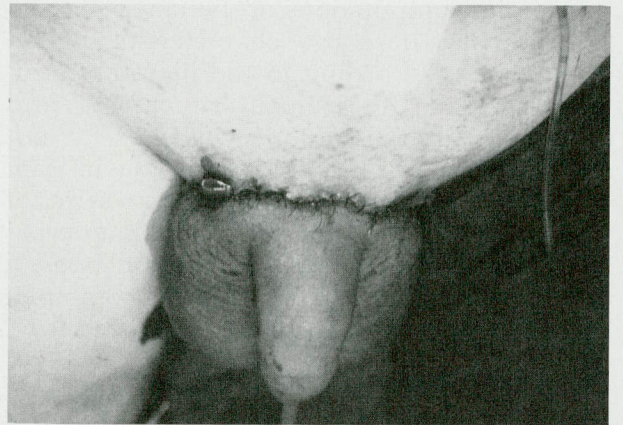


FIG 5. Postoperatively, the urethra is guided by a catheter for 3 weeks, urine drainage was secured by a suprapubic catheter.

genitals is still in progress, this erectile function has to be regarded as random.

Psychologically, the patient appeared friendly but uninvolved and was not willing to give detailed explanations for the reason of his behavior until 6 months after the trauma. During this period, repeated psychiatric evaluation could not explain any kind of psychopathologic disorder. After this time, the patient described the situation as an acute state of distress caused by problems where human relations are concerned, in which he partially lost control over himself. As a personal consequence, the patient tried to avoid being alone after these situations. According to the literature, however, a psychotic background is described in a high number of penile reamputations.^{1,2,19,20} One year after the amputation, the psychologic status of our patient seemed to be stable.

One year postoperatively, restoration of function was complete, with normal urinary, erectile, and endocrine function. No stenosis

of the urethra was present according to radiologic examination (Figs. 6, 7, 8). Sensibility of the glans penis was restored, according to the patient, and normal sexual intercourse is possible. Clinical examination revealed absent sensibility (S0) at the penile root, hyposensibility with possible temperature differentiation at the penile shaft, and "normal" sensibility of the glans, according to the patient, who was asked to compare it with the preoperative status. Sensibility of the scrotal skin was S2.

DISCUSSION

Ischemic Periods

Amputations of the external genitals are rare and most frequently are the result of self-mutilation. Traumatic causes are less frequent, not taking into account an epidemic situation in Siam.¹⁸ In this case of self-mutilation, replantation conditions are favorable owing to the clear-cut wound edges. Ischemic tolerance for the testes is substantially shorter compared with the penis. The critical period, with respect to the possible return of the endocrine function, can be estimated in comparison to the torsion to the testes, where complete loss of endocrine function is to be expected 4 to 6 hours after the onset of the disorder. In our case, the ischemic period for the testis was 5 hours; 4 weeks and at 6 months postoperatively the return of endocrine function was verified biochemically. According to the literature, return of endocrine function was described after an ischemic period of 6 hours.¹⁵

Operative Technique

From the technical point of view, the size of the vessels with a diameter below 1 mm was surprising. Furthermore, it was difficult to dis-

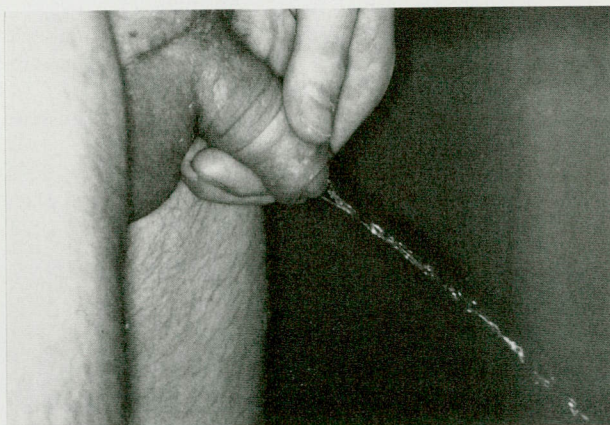


FIG 6. Normal micturition postoperatively.

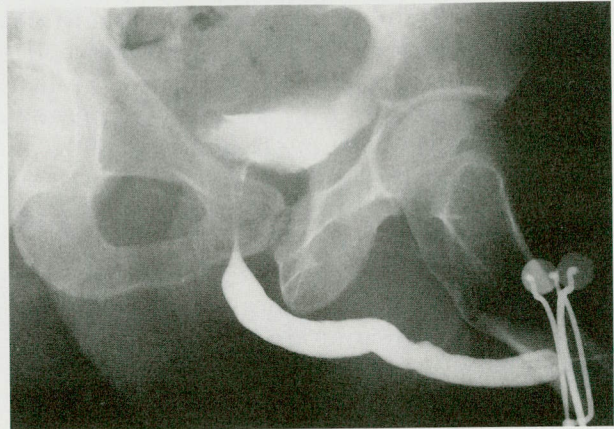


FIG 7. No signs of stenosis or fistulas in the radiography.



FIG 8. 1 year postoperatively, the appearance of the external genitals is normal.

tinguish the testicular artery from the veins of the plexus pampiniformis. One vessel with comparatively strong walls was chosen for the arterial anastomosis and was flushed with heparinized saline, and good backflow was verified from the veins.

An anastomosis of the perineal artery was not performed. The postoperative course showed an insufficient collateralization of the

scrotal skin via the penile anastomosis and the testis; this insufficiency led to the above described partial scrotal necrosis. This complication had no influence on the final result; however, it could have been avoided with an anastomosis of the perineal vessels.

Indication

According to the high incidence of recurrent self-inflicted amputation of the penis, the indication for replantation in these cases is still in discussion. In our opinion, primarily regarding urinary function, replantation is indicated in self-inflicted amputation.^{21, 22} In most of these cases, the psychotic situation has not been diagnosed before, and, after conversion of the psychotic situation, there is a chance to continue a normal life.

SUMMARY

Most cases of genital amputation represent an isolated penile amputation; the combined amputation of both penile and testes is reported very seldom. We describe a case of complete amputation of the external genitals with successful replantation and good functional outcome. The problem is analyzed with respect to operative strategy, ischemic periods, postoperative management, and psychiatric background. For the replantation of the testes, time frames are comparable to those for macroreplantations.

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