

## Iatrogenic Penile Amputation an Anatomy Lesson

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**A case report is presented of a young male patient seen at the University Teaching Hospital Lusaka Zambia with a right scrotal mass. During orchidectomy which was performed through a low inguinal incision iatrogenic complete penile amputation occurred. Subsequent direct replantation was done without microsurgical repair. The excellent outcome achieved with complete sexual function but no sensory or skin loss leads the authors to a discussion on the blood supply to the penis and the possible clinical significance in the management of penile disease.**

**It is well known that the blood supply to the skin of the penis is from the superficial external pudendal artery and distinct from the dorsal artery to the penis which supplies the erectile cylinders. The dorsal artery to the penis is considered an end artery. The case report suggests good anastomosis between these two arteries probably through the prepuce. Microsurgical vascular repair services are not readily available in many parts of the developing world.**

### Case Report

A case is reported of a 34-year old male Zambian patient with a 3 month old history of a right scrotal mass. The patient was a subsistence farmer living in the rural areas in the southern province of Zambia. The mass was clinically diagnosed as a testicular tumour probably a seminoma. The mass was routinely investigated. It was agreed that in view of the high likelihood of testicular cancer an orchidectomy by an inguinal approach be performed. Inguinal approach was favoured to secure the testicular vessels early and prevent tumour spread. The surgeons found that there was distortion of the spermatic cord marked adhesions to surrounding tissues including the base of the penis. The dissection of the cord proved extremely difficult. The penile shaft was pulled inadvertently into the inguinal incision wound while mobilizing the spermatic cord. Both the proximal penile shaft and the spermatic cord were clamped and cut. A careful survey found that a clean incision wound had been made through the corpora cavernosa bilaterally and through the corpora spongiosum and the bulbar urethra. The dorsal artery, vein and nerve had been severed, while the skin over the penile shaft had remained intact. It was recognized that the penile skin and its blood supply had

remained intact and the whole procedure had been performed through the inguinal incision wound. In the absence of both an operating microscope and a skilled surgeon to perform revascularization of the penile vessels, it was decided to perform a simple anastomosis of the two ends and to use the penile skin as a natural pedicle graft for blood supply.

The edges were freshened further though they were clean and actively bleeding. No attempt was made to control the bleeding at these sites. The corpora cavernosa were repaired with a 3/0 suture of chromic cat gut which was the smallest suture available. Interrupted sutures were used round the two cylinders, taking both the fascia of Buck and tunica albuginea in one layer. The bulbar urethra was spatulated and anastomosed in two layers. The first layer was a mucosal layer with 3/0 chromic cat gut and the second layer of tunica albuginea and the bulbar spongiosus muscle was interrupted with 3/0 chromic cat gut. The patient was catheterised with a size 16 Foley's catheter with continuous drainage. The penile shaft was carefully placed back into the penile jacket, which was completely intact.

Routine orchidectomy was performed and the inguinal wound closed with 2/0 chromic cat gut. The patient was informed of the complications resulting from the surgery the following

morning by which time the patient reported having had an early morning erection. A sleeve haematoma around the area of anastomosis was observed immediately post operatively. The patient reported neither loss of sensation nor difference in sensation between the glans and the prepuce. The glans showed no signs of ischaemic damage nor did the distal penile shaft.

The patient was kept in the hospital for seven days on continuous catheter drainage. He was examined daily by the consultant urologist to assess for skin loss, sensory loss, erectile function, urinary leakage and wound infection. He however developed superficial wound infection of the inguinal wound 2 days post operatively. This resolved with broad spectrum antibiotics and wound cleaning. During this period he had regular early morning erections and did not complain of any numbness of the glans penis. He was discharged on the 7<sup>th</sup> day post operation and the catheter removed.

The patient was reviewed in the urology clinic after one month. The penile shaft was normal; he had a right lateral moderate chordee which he stated he had had since childhood. His sexual function was normal, and he had been having regular sexual intercourse with his spouse without difficulty. There was no skin loss over the shaft or sensory loss. The capillary refill on the glans penis was normal. There was no urinary fistula or stricture. He described some mild pain on passing urine but no frequency, straining or weak stream.

## Discussion

The literature on iatrogenic amputation of the penis was reviewed. Penile amputation in general is an uncommon genital injury. The largest reported series was in Thailand of 18 cases<sup>1</sup>. The most common iatrogenic injury is in children following circumcision and is usually distal<sup>2</sup>. In adults self mutilation in psychiatric patients<sup>3</sup>, domestic violence for male infidelity<sup>1</sup>, burns<sup>4</sup> and industrial accidents<sup>1</sup> are reported. We could not find any other report in our search in the literature of a similar case.

The technique of replantation has developed over the years. Ehrlich reported the first cases in 1929, which were based on approximation of penile structures without neurovascular repair<sup>5</sup>. The key complications were skin loss, sensory

loss and stricture disease. This led to the development of microsurgical techniques which were describe independently by Cohen<sup>6</sup> and Tamai<sup>7</sup> in 1977. These techniques have shown excellent results<sup>8</sup>. However the skills and equipment for this is not freely available in resource poor settings and sometimes in emergency situations.

The blood supply to the skin of the penis is from the superficial external pudendal artery a branch of the femoral artery. In our report we believe the penile skin acts as a pedicle graft based on the superficial external pudendal artery<sup>9,10</sup>. This ensures viability of the corpora cylinders in spite of ligation of the dorsal and deep penile arteries. The speed at which function is restored and the lack of the common complications associated with vascular interruption indicate already existing anastomosis between the two vessel systems. The anastomotic channels being probably based distally and running through the inner preputial mucosal layer<sup>11</sup>. This challenges the opinion that the dorsal artery is an end artery. The nerve overlaps in this area as other skin dermatomes is well known and probably the explanation of the preservation of sensation to the glans. The nerve supply to the penis is the dorsal nerve with some overlap with the scrotal nerve and ilioinguinal nerves. The anatomy of the nerve and arterial supply in this area needs review.

## Conclusion

Though the report is of a single case, it nonetheless raises interesting questions about the vascular anatomy of the penile area and the necessity of microneurovascular repair in a case in which the neurovascular supply to the penile skin is intact. In emergencies and where technical experts for this surgery are absent direct repair is likely to yield good results in these circumstances.

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