



## TOTAL PENILE AMPUTATION DUE TO GUNSHOT INJURY AND REIMPLANTATION OF THE PENIS

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Article Info	ABSTRACT
<p><i>Received 29/05/2015</i> <i>Revised 07/06/2015</i> <i>Accepted 20/06/2015</i></p> <p><b>Key words:</b> Gunshot injury, Penile amputation, Penile Reimplantation.</p>	<p>The patient underwent penile reimplantation following penile amputation due to gunshot injury. Anastomosis of urethra, corpus spongiosum and corpus cavernosum was performed three hours after the trauma. In early period penile doppler ultrasound was used. Blue/black color change was observed on the postoperative 3<sup>rd</sup> and 7<sup>th</sup> days respectively and debridement of tissue was performed under anesthesia. Cavernosal and spongiosal tissues were found to be vital and pink in color. Because necrosis was consistent, debridement was performed twice on postoperative 15<sup>th</sup> and 45<sup>th</sup> days. Despite all interventions, total penectomy was performed on postoperative second month due to persistent necrosis.</p>

### INTRODUCTION

Traumatic penile amputation is a rare event. It is an autoamputation, and it is a sharp, smooth cut with intact tissue integrity [1]. There is no standard treatment and follow-up protocol. Reimplantation with microsurgery is mainly advised method of treatment, however when for these patients it is not possible to perform microsurgery, macro surgical reimplantation should be done [2].

### CASE PRESENTATION

A forty-six years old male patient was admitted to emergency service with a gunshot that extends from left scrotal region to his belly. On his physical examination, it was observed that his left scrotum and left testicle were crushed. Radiologic examination revealed that pellets were spilled through his pelvis, abdomen, and thoracic regions. A ureteral catheter application was scheduled for the patient, but later it was unsuccessful. Patient was operated under emergency conditions. Laparotomy was performed through the median incision. Hemorrhagic foci on the bladder from pellet spillage were observed. Following hemorrhagic control, the bladder was opened. Pellets on bladder walls and inside bladder cavity were cleaned. Surgical exploration of the left scrotum from pellet entry

point was performed. Left scrotal crush and complete rupture of corpus cavernosum, corpus spongiosum and urethra on proximal penile urethral level, fragmentation of 5 cm of corpus cavernosum, corpus spongiosum along with peripheral muscular tissue of urethra was observed. Antegrade and retrograde Foley catheterization was done. The crushed tissue in the trauma field was dissected. Retrograde applied Foley catheter was taken into the bladder via the antegrade guide. There was nearly 6 cm long tissue defect between distal and proximal sides of the surgical wound. Despite a thorough examination, cavernosal arteries, deep dorsal arteries, dorsal testicular nerve and deep dorsal vein could not have been identified during the exploration. Penile reimplantation was accomplished by macrosurgery. The urethral anastomosis was done with 2/0 vicryl by one to one stitching. Corpus cavernosum were anastomosed on both sides of tunica albuginea in the midline by 2/0 vicryl. A tissue graft was prepared from healthy tissue at right scrotum, and it was placed into anastomosis region by 4/0 vicryl. The fascia of Buck was closed with 3/0 vicryl and skin was closed with 3/0 prolene. A cystostomy catheter was placed into the bladder and operation was finished by closing of the



bladder. Patient received enoxaparine calcium 0.3mL/day subcutaneously and ceftriaxone 2gr/day/i.v. for postoperative seven days. The penile blood supply was healthy on his daily penile Doppler ultrasound. On the postoperative 3<sup>rd</sup> day, blue/black discoloration was observed at penile level (Figure 1). Necrotic tissues were debrided on the postoperative 7<sup>th</sup> day under anesthesia. Cavernal and spongiosal tissues were observed pink in color and vital. Due to continuous necrosis, necrotic tissues were debrided twice on postoperative 15<sup>th</sup> and 45<sup>th</sup> days under anesthesia. There was no positive response to touching with the cold object and needle piercing. Despite all attempts, necrosis continued in penis and penectomy was performed with the patient in postoperative 2<sup>nd</sup> month (Figure 2).

**DISCUSSION AND CONCLUSION**

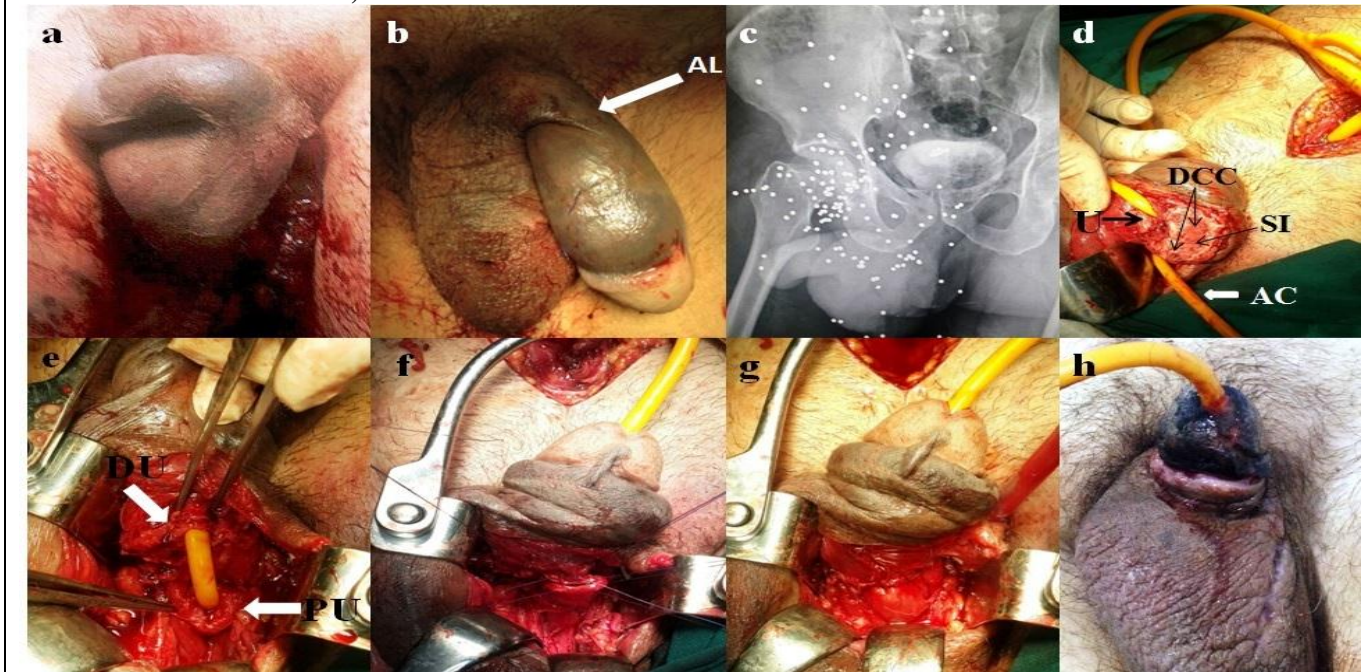
Factors like presence of a straight penis cut, the degree of tissue integrity in the cut area, time of ischemia, and availability of microsurgery techniques for anastomosis are necessary to have successful penis reimplantation [3]. In the presented case, microsurgical replantation was considered as first line treatment, however due to severely damaged tissue integrity, surgeon were not able to identify vascular and neural structures to make anastomosis. Despite to the fact that excess tissue loss and crushed amputation area, a scrupulous macrosurgery was performed to reconstruct the tissue integrity. It is possible to obtain a healthy arteriovenous blood supply in the penis by corpus cavernosum anastomosis [4]. In our patient,

macrosurgery was performed due to patient’s unique anatomy and the aim of the surgical team was to protect the physical integrity.

Loss of sensation, erectile dysfunction, urethral stenosis, urethral fistula, skin, and glans necrosis may be seen following macrosurgery [1]. In our patient, loss of sensation and glans penis necrosis were experienced as early stage complications. In the following days, the blood supply of penis was severely disturbed, and necrosis was observed at glans. Therefore, the patient underwent total penectomy at postoperative 2<sup>nd</sup> month.

To the best of our knowledge, total amputation of the penis due to the gunshot is reported for the first time in the literature. Despite to the negative factors like defragmented penis tissue; 5 cm loss of penile tissue, intraoperative lack of identification of penile and neuronal tissues and thermal damage of scattered pellets in the tissue, surgical team tried their best in scrupulous follow-up of the patient in name of protecting the patient’s penis at least cosmetic aspect of the art. Unfortunately despite all the efforts of the surgeons, total penectomy was inevitable. There is limited information about the choice of technique in penile reimplantation, follow-up protocol and postoperative success rates [5]. Urologists may not have enough knowledge as well as the experience of microsurgery. For this reason, it is important to build up a standard treatment and follow-up protocol for urologists under the guidance of articles in the literature to enable them to make thorough and quick decisions for this very rare and timing important trauma.

**Fig 1. Preoperative, operative and postoperative images. (a,b) Preoperative appearances (c) Radiological image (d,e) Demonstration of penile structures (f) Urethral anastomosis (g) Final step of operation (h) Postoperative 7<sup>th</sup> day images (AC: Antegrade catheter AL: Amputation line DCC: Distal corpus cavernosum DU: Distal urethra PU: Proximal urethra U: Urethra)**



**Fig 2. Post-penectomy image**



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