



TOTAL SCROTAL RECONSTRUCTION USING BILATERAL ANTEROMEDIAL THIGH FASCIOTOMEAL FLAPS – A CASE REPORT

Plastic Surgery

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ABSTRACT

Reconstruction of extensive defects of the scrotum and perineal region, following avulsion injury or severe infections represents a significant challenge, especially with exposure of the testes. Replacement with sensate and durable cover is mandatory for functional, aesthetic and psychological reasons. Our patient had a total loss of scrotal and penile skin and here we describe the reconstruction with the superiorly based pedicled anteromedial thigh fasciotomeal flap with skin graft of the raw area of the penis. This flap has provided a good durable cover for the testes with an acceptable aesthetic appearance.

KEYWORDS

Post-traumatic, Scrotal defect, AnteromedialThigh Flap, Rare

INTRODUCTION

Extensive penoscrotal wounds with the exposed testes represent a challenging problem for the reconstructive surgeon. Generally, most scrotal defects occur as a result of trauma, they may also be post-infective. Reconstruction of the scrotum with a durable, functional and cosmetic cover for the testes is important for physiological, social, and psychological reasons.⁽¹⁾ Many surgical options for the closure of large scrotal wounds include burying of testicles under the thigh, expansion of the remaining scrotal and adjacent skin, skin grafting, and using flaps like the deep inferior epigastric artery perforator (DIEP) flap, omental pedicle flap, rectus abdominis muscle flap and gracilis myocutaneous flap.²⁻¹⁰ Anterolateral thigh fasciotomeal island flap, anteromedial thigh flap, or superomedial thigh flap have been used extensively in this region.¹¹⁻¹³ Post-traumatic scrotal defects are difficult to reconstruct because of crushing components in the surrounding area and hence the method chosen must be individualized depend on the local anatomical conditions such as the extent of a tissue defect, associated injuries, and the viability of adjacent skin.¹⁴ The ideal choice for scrotal coverage would be an early single-stage sensate flap that provides complete and adequate protection of the exposed testicles.¹⁵ Local pedicled fasciotomeal flaps from the medial thigh and the groin area offer the advantages of avoiding skin-graft problems, preserving adequate sensation, and covering a large defect.¹⁵

CASE REPORT

A 28 year old male, married with two children presented to the casualty with total avulsion of the penile skin and scrotum by a cement mixer at the work spot, exposing the both testes with gross contamination.(Fig. 1)



Fig.1 – Clinical Photograph Showing Extensive Degloving Of Penile Skin And Scrotum Exposing Intact Testes With Gross Contamination

He was planned for a staged procedure, initial debridement followed by a skin cover as a second stage. The patient was taken up for emergency debridement under spinal anaesthesia.(Fig. 2)



Fig. 2 – Photograph Showing The Clean Raw Area After Debridement

After a week, the definitive procedure of bilateral anteromedial fasciotomeal thigh flaps for forming the neoscrotum with split skin grafting of the penile skin was done.(Fig. 3,4,5,6)



Fig. 3 – Picture Showing Flap Markings

Fig. 4 – Photograph After Flap Elevation



Fig. 5 – Photograph After Flap Inset And Split Skin Grafting Done For Penis



Fig. 6 – Late Post-operative Picture After 6 Months With A Well Settled Flap And Skin Graft

DISCUSSION

An ideal flap should be a single-stage procedure providing reliable and sensate skin with a potential for normal function, minimal donor site morbidity and good aesthetics. Skin graft for exposed testes was first introduced by C. Balakrishnan, required healthy granulation tissue and intact tunica vaginalis.^{4,16} In spite of good cosmetic results of the skin grafting procedure, the patient was not fully satisfied because of contractions, less mobility, and poor protection of the underlying testicles.¹⁶ Placement of the bare testes into the subcutaneous thigh pouch followed later by local skin mobilization along with the testes was used to reconstruct the scrotum.¹⁷ The limitation of this technique is constant pain caused by mechanical trauma.¹⁸

The dartos musculocutaneous flap has been used for small to medium-sized defects.¹⁹ Myocutaneous flaps as the rectus abdominis myocutaneous flap and gracilis myocutaneous flap, are reliable in contaminated wounds but can be technically challenging and bulky.^{8,20} Perforator-based thin cutaneous flaps as island anteromedial thigh flap and pedicle deep inferior epigastric perforator flap are aesthetically and functionally optimum, but the surgery is technically difficult and blood supply is less predictable.²¹ Fasciocutaneous flaps give an excellent cosmetic result and are simple to perform with minimal donor morbidity. Commonly used fasciocutaneous flaps are the medial thigh fasciocutaneous flap, superomedial thigh flap, superiorly and laterally based thigh pedicle flap, and anterolateral island thigh fasciocutaneous flap.^{11,15,22,23} Medial thigh fasciocutaneous flap of Hallock is supplied by the suprafascial plexus of the medial thigh from septocutaneous branches of the superficial femoral artery and musculocutaneous branches through the adductor muscles.¹⁵ The superomedial thigh flap is oriented in the horizontal direction and is based on the anterior branch of the deep external pudendal artery, the obturator artery, and the medial femoral circumflex artery. The main disadvantage is the transverse dimension.²⁴ The anteromedial flap has advantages over medial thigh flap such as more accessible dissection, arc of rotation being less acute and hence less kink at the pedicle, easier inset, small standing cone deformity, and donor scar site away from friction areas in the medial thighs. Hence, the anteromedial flap was preferred over standard medial thigh flap. The anteromedial flap could be easily elevated, transposed, and inset into the defect. No compromise to the circulation was encountered and the donor site could be closed primarily in both cases leaving a nicely healed scar resembling the median scrotal raphe. This flap could be used in both trauma and infection situations. The anteromedial flap may have limitations in fat patients where it will be bulky and may affect spermatogenesis.

CONCLUSION

The use of superiorly based pedicled anteromedial thigh fasciocutaneous flap is an excellent option for scrotal reconstruction, as it is easy to execute, provides good durable testicular coverage, and does not produce sequelae in the donor area, in addition to providing functionally and aesthetically lasting results.

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