

## Scrotal Flap for Hypospadias Urethroplasty Fistulae

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The fistula formation after repair of hypospadias has been encountered by every surgeon in some percentage of his cases. Therefore, the management of such fistulae is often required of him.

This paper describes a method of closure of these fistulae by the use of the scrotal flap. The scrotum has plenty of lax skin consequently, it can easily lend sufficient amount of the skin for these local flaps. The blood supply of the scrotum is from the periphery, therefore, the peripheral based transposition flap can be used with safety.

### Material and Methods

This paper is a report of sixteen cases of fistulae, following hypospadias repair, closed by scrotal rotation advancement or transposition flaps. These patients have been operated in the Plastic Unit of Medical College (Rajendra Hospital), PATIALA, (INDIA) from June, 1967 to June, 1972. There were in all 19 fistulae in these 16 cases. The size of fistulae varied from 0.5 cm. to 2.0 cm. approximately, Table I.

**Table I**  
*Size of The Fistulae*

Size	No. of Fistulae
0.5 to 0.75 cm.	2
0.75 to 1.0 cm.	7
1.0 to 1.5 cm.	6
More than 1.5 cm.	4
Total	19

Single flap was given in 15 cases. But in the last patient of this series, two flaps one from each side of the scrotum and positioned transversely one adjoining the other were given.

The site of fistulae is shown in Table II.

**Table II**  
*Showing the Site of Fistulae*

Site	No. of cases
Penoscrotal	6
Posterior Penile	4
Mid Penile	3
Penoscrotal and Posterior Penile	2
Posterior Penile & Mid Penile	1
Total	16

The length breadth ratio of the scrotal flaps is shown in Table III.

**Table III**  
*Showing length & breadth of the flap*

Length	Breadth	Ratio	No. of cases
6 cm.	4 cm.	3:2	4 (In one case the flap was taken from each side of the scrotum)
5 cm.	4 cm.	5:4	6
5 cm.	4 cm.	1:1	6

Therefore, the length ratio has varied from 1:1 to 3:2.

### Technique

Perineal Urethroostomy is done. The fistula or fistulae, if near each other are marked out as shown in figure 1. The local flap, around the fistula thus marked out, is raised as thick as possible. This skin flap

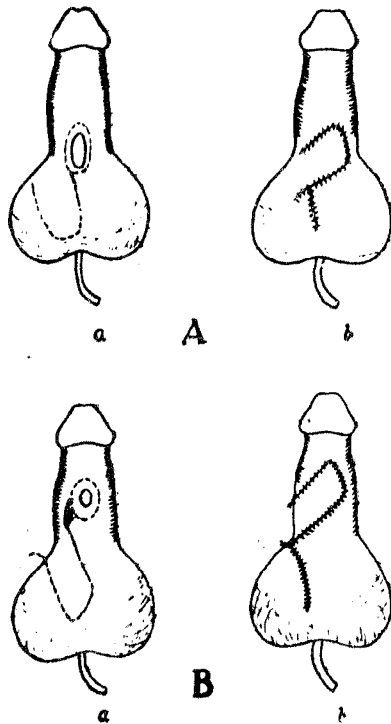


Fig. 1A Showing technique of repair of penoscrotal fistula.

B—Transposition of scrotal flap in midpenile fistula.

is then inverted and sutured by 5-0 chromic catgut by few stitches taken through the subcutaneous tissue only. This results in a vertical closure, and a wound over and adjoining the original fistulous site. The defect in the penile skin is measured in vertical and transverse directions and a flap of adequate size based peripherally at the suitable position is marked out. It is raised thick including all the layers of scrotum and then transposed through  $60^{\circ}$ – $90^{\circ}$ , either to

the adjoining wound (Fig. 1A) or transposed across a bridge of skin to a relatively distant defect (Fig. 1B). The flap is meticulously sutured in two layers and the donor area defect is closed by direct suturing. The skin stitches are removed on 8th-10th day and the perineal catheter is removed a day or two later.

### Results

There has been no necrosis in all the 17 scrotal flaps given so far. All fistulae have



Fig. 2—Postoperative appearance after 4 months. Scrotal flap outlined by marking. Penoscrotal fistula closed.

been successfully closed (Figs 2-5) except in one recently operated case where a double scrotal flap was provided to close a big fistula. In this case there was break down at the suture line between the distally transposed flap and the penile skin resulting in a small fistula in the anterior part of the penis.

### Discussion

The scrotal skin has been used by a number of workers for the repair of the hypospadias (Cecil, 1932; Blair & Byars, 1938; Smith, 1938; Culp, 1951); Culp, 1958, Fraser, 1964.) either as primary procedure or where previous attempts at urethroplasty by other methods have failed. In all these techniques the transfer of the scrotal skin is in stages.



Fig. 3—Appearance of the scrotal flap 1 year after the repair of a posterior penile fistula.

The closure of the fistulae following hypospadias repair has been achieved with the use of penile skin (Mustarde, 1965; Hinderer, 1971, Williams, 1971). In these methods the suture lines of the closure done in layers overlap to some extent. In large fistulae the failure results, due to the shortage of local skin, and the breakdown at some site of the overlapping suture lines. The

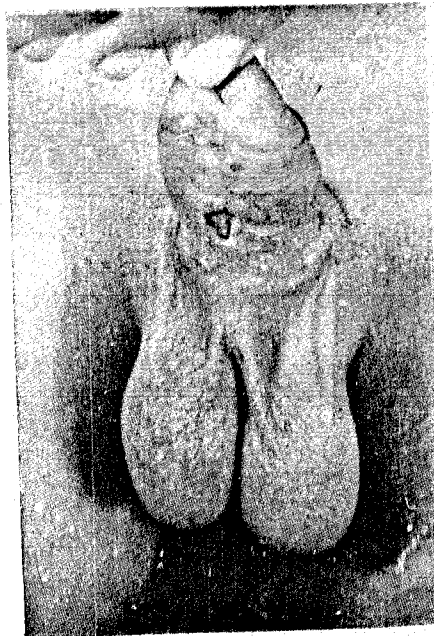


Fig. 4 (a)—Pre-operative photograph. One large fistula in the middle penis and another small one anterior to it.



Fig. 4 (b)—Appearance 2 months after operation. Scrotal flap transposed to the middle of penis.

method described by the Author obviates both of these shortcomings. It provides scrotal skin which is sufficiently available and the suture lines do not overlap. This procedure is thus principally sound and the repair is achieved in one stage. The vascularity of the flap is good, provided it is kept thick. This has been proved by the absence of necrosis in all the 17 flaps, inspite of the fact that the length breadth ratio in some cases has been 3:2. The recurrence of fistula in one case has been possibly due to too early attempt at its closure. It was carried out three weeks after its formation. The suitable time for the repair of fistula is after 3-4 months of its formation.

The scrotal flaps have been used in this series for the repair of fistulae at the various sites on penis (Table 2, Fig. 3-5) except in the most anterior fistula. It is not possible to close an anterior penile fistula by scrotal flap in one stage as the flap required in such a case would be too long to survive.

The experience of the Author proves

that the transposed scrotal flap is a very satisfactory method of repair of big post-operative fistula, in severe hypospadias cases.

### Summary

Sixteen patients having nineteen fistulae following urethroplasty in hypospadias are described.

The repair of fistulae at various penile sites have been done by the transposition scrotal flap in single stage. The procedure has been detailed.

The advantages of this method are that it provides additional skin and the suture lines of the two layers do not overlap each other. Therefore, it is a principally sound single stage procedure for the repair of the big postoperative fistulae.

Follow up in this series is for the period varying from of 4 months to 5 years and all the fistulae except one were successfully closed.

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