

Pudendal Thigh Flap for Repair of Rectovaginal Fistula

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Summary

The pudendal thigh flap or the Singapore flap is a versatile flap that can be used in the repair of recto-vaginal fistulae. Apart from the potential problem of hair growth, this neurovascular flap proves to be surprisingly simple in technique, robust and has a high potential for normal or near-normal function.

Key Words: Rectovaginal fistula, Internal pudendal artery flap, Pudendal flap

Introduction

Recto-vaginal fistulae (RVF) poses a challenging problem to the surgeon as there are a variety of surgical procedures that may be employed in its repair. Causes of RVF include obstetrical injury, Crohn's disease, post-operative fistulas and cryptoglandular disease. Amongst the choices of surgical repair are mucosal advancement flap, rectal sleeve advancement flap, fistulotomy with overlapping sphincter repair and fibrin glue.

The pudendal thigh flap was originally used bilaterally for surgical reconstruction of the vagina. It was first described in 1989 by Wee and Joseph¹ who called it the Singapore flap. In 1998 Cardon *et al*² described the use of a unilateral neurovascular pudendal thigh flap in the treatment of complex rectovaginal fistulae.

Repair of rectovaginal fistula is planned according to the anatomic and clinical features of the defect. Simple fistulas, less than 2.5cm and located in the mid to low anal canal occurring secondary to trauma or infection, are usually repaired through transvaginal, transanal approach or through transformation into a complete perineal laceration followed by perineal repair.

This article presents two cases of rectovaginal fistula post surgery; one which had two rectal sleeve advancement flaps that failed, the second case of a 20 year history of fistula but with no attempted surgical repair. Repair with unilateral pudendal thigh flap was carried out for both these cases and to date has been successful.

Case 1

A 23 year old lady who underwent an ultra low anterior resection with stapled anastomosis and a covering loop ileostomy three years previously for megacolon. She developed a rectovaginal fistula a year after the operation for which she had had two mucosal sleeve advancement flaps carried out, both of which failed. She was referred to us for an alternative surgical option. The patient underwent a pudendal flap repair with closure of the fistula with bilateral 'turnover' vaginal flaps from adjacent tissue. Intraoperatively, there was a rectovaginal fistula with a diameter of about 1.5cm extending from above the dentate line to 5cm beyond the introitus.

The operative time was two hours and there was minimal blood loss. Postoperatively, recovery was

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CASE REPORT

uneventful. The flap took well with presence of sensation to pin prick on the 3rd post operative day. After four months of follow-up this sensate flap has proven successful but there was hair growth on the flap.

Case 2

A 41 year old lady who is a known case of vaginal atresia had vaginoplasty at age 21. This was complicated by vaginal stenosis which required a second corrective surgery, after which a vaginal mould was left in-situ. The patient had several follow-up visits but soon defaulted follow-up care. She used the mould on and off for almost 15 years not seeking any medical help even after noticing that the mould was occasionally stained with faeces. When she finally sought medical help she was diagnosed to have a large rectovaginal fistula measuring 15cm by 5cm. Almost the whole posterior wall of the reconstructed vagina was fistulous. Despite being such a large vaginal defect, it was possible to use bilateral vaginal 'turnover' flaps to close it and a right pudendal flap was 'on-layered' over the resultant raw surface generated. A covering colostomy was done.

The operative time was about two hours for the flap repair with minimal blood loss. Two months after surgery, the flap had healed well.

The mapping of the right pudendal flap for both these cases was done on the medial aspect of the right thigh. The borders of the flap are demarcated as such; superiorly the groin crease just beyond the labia majora

(Figure 1-A), inferiorly just above the femoral triangle (Figure 1-C) and the base of the flap at the posterior margin of vagina (Figure 1-B).

Subfascial dissection was done to include the epimysium of the adductor muscles and the de-epithelialized flap was tunneled under the labia (Figure 2). The flap filled the vaginal defect and functioned as the posterior vaginal wall. The vaginal side of the fistula was repaired after excising the fistulous tract. Repair was done with local turnover flap of vaginal tissue incised 1cm from the margin and dissected from the underlying perirectal tissue.

Discussion

The pudendal thigh flap is a sensate fasciocutaneous flap based on the posterior labial vascular bundle and innervated by the posterior labial branch of the pudendal nerve. There are multiple blood supplies of pudendal-thigh flap but the major vessels of pudendal-thigh flaps used to form a neovagina are the lateral branches of the posterior labial arteries and not the main stem itself.

Because of its abundant blood supply, the pudendal thigh flap is robust. In fact, even in patients who have had previous irradiation and multiple procedures where vascular supply to the flaps were questionable, these flaps have survived². The rich vascularity of the flap also prevents wound contracture and more importantly infection which would lead to possible

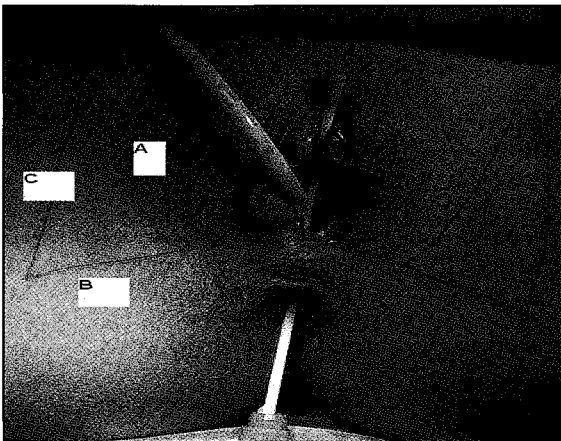


Fig 1: Demarcation of potential flaps with probe through rectovaginal fistula. Bladder catheter in situ.

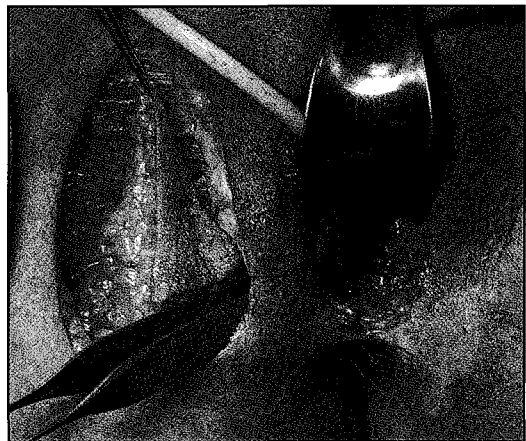


Fig 2: Subfascial dissection of flap. Forceps demonstrating tunnel under labia. Bladder catheter in-situ.

recurrence of fistulae. In addition, the thigh flap is a sensate flap, receiving innervation through the posterior labial branches of the pudendal nerve and through the perineal rami of the posterior cutaneous nerve of the thigh. It has been reported to have similar erotic sensation as the perineum and the upper thigh.

The cosmetic advantage of this flap is that the donor site can be closed primarily, leaving an inconspicuous linear scar which in time, becomes hidden in the groin crease. This is in contrast to the more complicated gracilis myocutaneous flap.

During follow-up, we found that one patient was experiencing hair growth in the vagina. This was troublesome and caused some discomfort. The observation of hair growth after pudendal thigh flaps have been reported³ and preoperative depilation have been suggested to eliminate this problem.

Conclusion

Most rectovaginal fistulas can be repaired, although repeated operations may be necessary. We suggest that use of a pudendal thigh flap should be considered in the management of a complex rectovaginal fistula.

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