Labium Majus Martius Skin Graft with Vascular Fat Pedicle

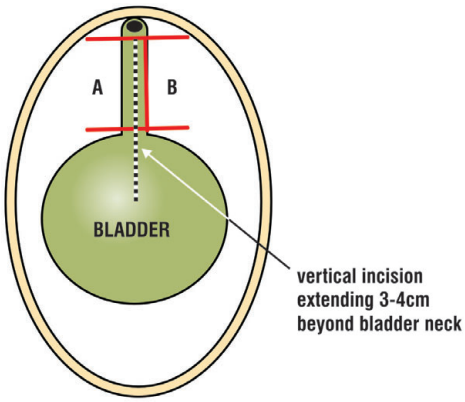
Professor Klaus Goeschen reports significantly better results with this technique than with I-plasty or free skin graft (see figs 4-71 to 4-75). He compared three methods for cure of the 'tethered vagina syndrome (n=57): I-plasty (n=13); free skin graft (n=21); bulbocavernosus-muscle-fat-skin-flap from the labium majus.(n=23). At 6 month follow-up, cure rates were 23%, 52% and 78% (urine loss of <10gm/24 hours). The mean operating time was 73 minutes (range 41 – 98 min) for the scar dissection and the flap-repair. No serious bleeding was observed. No patient required a blood transfusion. A major problem with this operation is the constriction of the space created to transfer the graft. This may strangulate the blood supply to cause failure.

Labium Minus Flap Graft

The labium minus flap graft operation (figs 4-76 to 4-81) works well in patients with normal or large labia minora (LM). In essence it consists of separating the inner mucosal surface of LM from its outer surface, opening it out and swinging it across to provide new tissue to the urethra area of the vagina. One graft is usually sufficient for the tethered vagina syndrome. It is anticipated that these grafts could be useful for fistula surgery where there is tissue damage around the urethra and bladder neck.

The operation has two stages. Firstly, two flaps 'A' and 'B' (fig 4-76) are created separate from the urethra and swung down towards the bladder neck. Secondly, the labium minus graft is stretched across to cover the bare area left by 'A' and 'B'. Three full-thickness incisions (as indicated in fig 4-76) are made, beginning with a vertical incision extending from external meatus 3-4 cm beyond bladder neck exactly as per an I-plasty incision. Flaps 'A' and 'B' are created with two horizontal incisions: one just below the external urethral meatus, the other at the level of the bladder neck and opened out. Dissect vagina clear of urethra, bladder and where relevant pubic bone from below.

The dissection aims to free vagina from scar tissue, mobilizing it as far as possible inferiorly, laterally and superiorly.



Post-operatively, there is very little pain. The labium minus becomes vestigal and is displaced medially. (The vestigal labium minus is situated just above the label 'flap' in figure 4-81.) There have been no complications recorded thus far with this procedure. Failure rate has been 25% at 12 months due to re-scarring at the operation site.

The limitation of this operation is that it cannot be performed in patients with small labia minora.

Fig. 4-76 Labium minus flap graft. An 'H'-shaped vaginal incision is made to create vaginal flaps 'A' and 'B'.

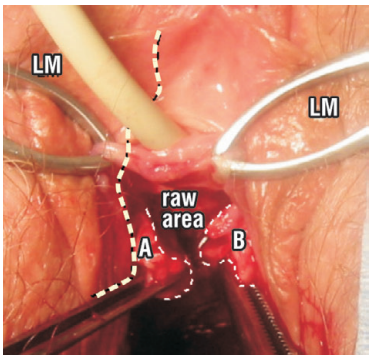


Fig. 4-77 Preparation of flap. 'A' & 'B' are mobilized and swung downwards into the ZCE. Using a sharp scalpel, a transverse incision is made across the base of the inner surface of LM extending up towards the clitoris (broken lines).

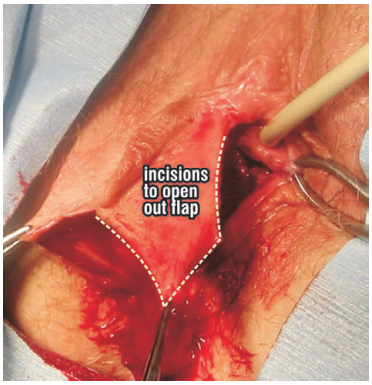
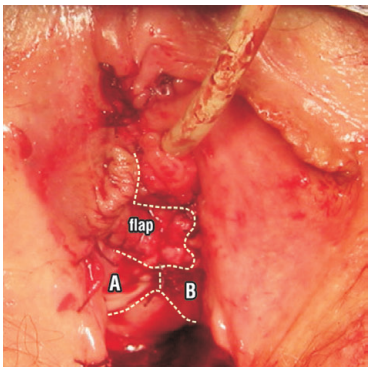


Fig. 4-79 LM flap completed and opened out. The inner (mucosal) surface of LM has been separated from its outer (skin) surface.



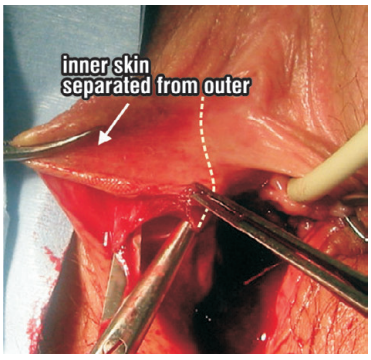


Fig. 4-78 Separation of outer and inner surfaces of LM. Dissecting scissors are used to separate inner and outer surfaces of the LM flap, taking care not to 'buttonhole' the outer surface, as the labium minus tissue is often very thin. Two parallel vertical cuts are made along the sides of the labium minus to the central ridge to open the flap.

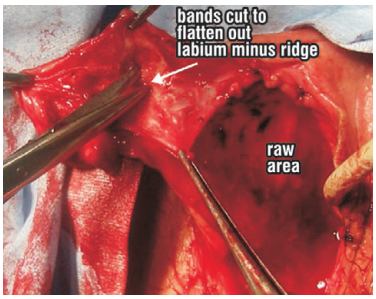


Fig. 4-80 Release of ridge bands to open out ridge. The flap is turned over and the collagenous bands which form the ridge are divided, 'flattening out' the ridge. This greatly increases the available surface area of the graft.

Fig. 4-81 (left) Completion. The LM flap is now attached to the laterally sited pubococcygeus muscles, urethra and the two parts of the hammock, A and B which have now been mobilized and rotated downwards. 'A' & 'B' are sutured to the new tissue brought into the bladder neck area of the vagina. It may be necessary in some patients to insert a midurethral sling if in the opinion of the surgeon, there is a possibility of stress incontinence post-operatively.

Cure of "tethered vagina" with bladder neck skin graft

A 68 year old patient gave a history of a previous abdominal colposuspension, hysterectomy and cystocoele repair with a wedge excision of vaginal tissue 16 and 24 years previously. She presented with classic symptoms of the "tethered vagina syndrome", uncontrolled bladder emptying immediately her foot touched the floor on getting out of bed in the morning, in her case, without any urgency whatsoever. There was no SI on objective testing. Her 24 hour urine loss was 201 gm, experienced mainly on getting up off a chair, out of bed, squatting etc, but not with coughing or sneezing. Bladder neck descent was only 1.4mm on straining. There was no evidence of detrusor overactivity on urodynamic testing. The bladder neck was scarred and immobile. On grasping and stretching the vagina just behind bladder neck backwards with a Littlewood's forceps, stress incontinence was provoked during coughing. The patient became completely dry immediately after a labium minus flap graft to the bladder neck area of vagina. She remained dry at 6 month review, but she lost 1.0 ml of urine on SI testing with 10 coughs performed with a full bladder.

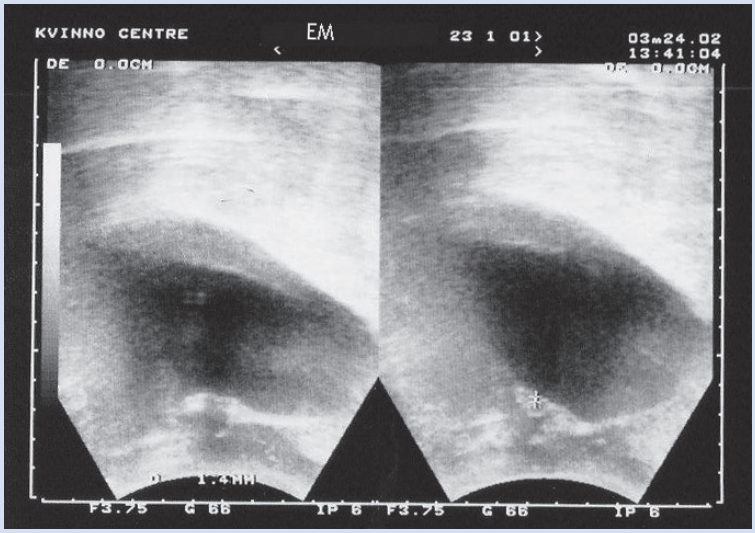


Fig. 4-81a Minimal descent of bladder neck on straining. The bladder neck and distal urethra are closed during straining.

Interpretation: The zone of critical elasticity, ZCE, was compromised by multiple operations in the area of bladder neck. Scar tissue contraction over a 16 year period produced symptoms of "tethered vagina". The restoration of elasticity with the graft restored the closure mechanisms, but appeared to have induced some minor vaginal laxity, evidenced by recurrence of mild SI.