

Video

Urethrolisis and Martius flap graft for recurrent urinary stress incontinence with fixed urethra

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Abstract: This video discloses a 59 year old patient with recurrent USI after two previous failed sling and fixed urethra. She underwent urethrolisis, had a urethral lesion repaired immediately and a Martius flap to restore normal mobility. Re-sling may be performed should it become necessary.

Keywords: Pipestem urethra; Urethrolisis; Martius fat graft.

<https://youtu.be/iqTQMqjQJgA>

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Comment

Consideration of Martius graft as a salvage and treatment procedure in current pelvic floor reconstruction patients

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There are, as with most procedures, a few “surgical pearls” which need to be highlighted to enhance the simplicity of the surgery and decrease the risk of repair and graft failure and complications. The video did highlight the fact that there is a significant and growing need for this procedure to be part of the armamentarium of all Pelvic Floor Reconstructive Surgeons today¹³.

In my experience, most of which was in South Africa during the 1970’s at the Baragwanath/Soweto hospital, management of vesico-vaginal and urethra-vaginal fistulae as a consequence of obstructed obstetrical cases in the main involved bladder base and proximal urethra. The Unit was part of the Johannesburg University Tertiary Hospital campus and the Department Head at the time was Professor D. Lavery.

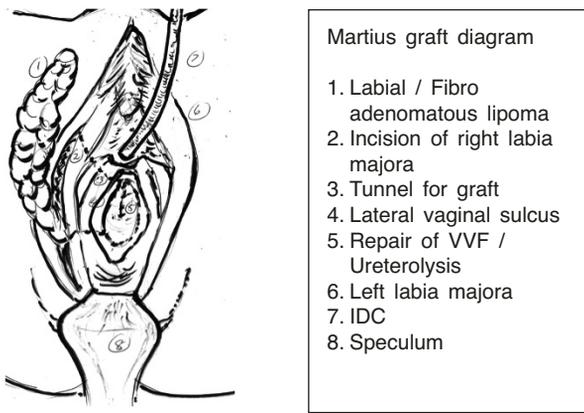
Approximately 60-70 case presentations were seen per year and often these staged over several months, depending on their complexity and size of the injury. Approximately 10-20% of cases were considered to benefit from adjunctive modified Martius graft procedures.

It is estimated that between 1 and 2 million women (possibly grossly underestimated) suffer this injury per year. In first world countries the injury is most likely to be iatrogenic.^{1,2,3}

The Martius Labial Fibro adipose Flap Graft (M.L.F.F.G.) was first described by H. Martius in 1928 and involved transposition of bulbocavernosus muscle and vulvo fibro adipose tissue for urethro vaginal fistula repair.⁴

Since the discovery of this procedure it has been modified many times and now refers to the M.L.F.F.G. without the dissection of the bulbous cavernosus and ischio cavernosus muscles. The exclusion and avoidance of these muscles reduces the risk and added complications of haemorrhage and haematoma formation. Hence it is important to dissect lateral to these structures. The labial “fat pad” is enveloped in a fascial sheath. Hydro dissection is helpful in the isolation and preservation of blood supply and in creating the tunnel from the vaginal operating site, lateral under the vaginal sulcus, to the site of labial graft which has been harvested. The tunnel must be 4-5cms wide. The blood supply to the graft is from the external pudendal artery superiorly and major supply is from the internal pudendal vascular complex arising inferio-postero lateral. The pedicle graft is usually separated and dissected superiorly without compromising the viability of the graft which must be handled very gently with non-traumatic instruments taking care to not compromise the blood supply of the pedicle graft with passage through the tunnel and attachment of it to the contra lateral side and the positioning of the graft over the vaginal repair site without tension and sutured to the peri vaginal fascia and periurethral fascia to prevent slippage of the pedicle. The vaginal and labial incisions are closed in layers and if vascular, small negative pressure soft drain tubes may need to be employed.

The above diagram has been modified from Copyright by the Polish Urological Association (an open access article¹³)



Martius graft diagram

1. Labial / Fibro adenomatous lipoma
2. Incision of right labia majora
3. Tunnel for graft
4. Lateral vaginal sulcus
5. Repair of VVF / Ureterolysis
6. Left labia majora
7. IDC
8. Speculum

Post-operative instructions:

1. IDC / bladder drainage – preferable to use low negative pressure soft drain system for 7 – 10 days (silastic catheter size 14-16)
2. Appropriate prophylactic antibiotics.

Relative indications for M.L.F.F.G consideration in my opinion would be:

- Increased success rate of first procedure with regard to:
 - Scarring and tethered vaginal syndrome
 - Post-menopausal
 - Radiotherapy
 - Atrophic tissues
 - Repair and excision of mesh complications
- Any repair / procedure which may benefit from graft protection and increased blood supply and to reduce recurrent scarring
 - eg urethrolysis and protection of the fragile urethra
 - repair and excision of urethral and bladder base mesh erosions^{5,6,7}.
 - Urethral diverticulectomy
 - Vesico and urethral fistula repair of the more complex cohort of cases⁸

Pre-existing stress urinary incontinence (SUI) may persist. The trans positioning of M.L.F.F.G is not itself a continence procedure. There is an increased incidence of SUI with vesico and urethral fistulae repair.⁹

The M.L.F.F.G. makes the appropriate tensioning of the continence device difficult because of the possibility of compromise to the graft itself. It is more appropriate to stage any SUI procedure to a later date for optimal outcomes. However, the alternative as described in¹⁰, of a urethral salvage procedure performed at the time for severe SUI in the presence of a very fragile urethra and the need for a difficult urethrolysis and direct repair of the proximal 2/3 of the urethra was successfully achieved by using a full thickness bridge of vaginal mucosa as an enhancement pedicle graft over the repaired and compromised urethra. This bridge graft is more robust than the M.L.F.F.G. enabling a Tissue Fixation System (TFS) tape prosthesis to be used as a treatment of SUI to accurately enhance the pubo urethral ligament resulting in an outstanding success and long-term continence cure for this patient.

The M.L.F.F.G. procedure has minimal complications and morbidity. Complications are uncommon but well documented and include:¹¹

- Haematoma and bleeding
- Infection
- Lymphedema of the vulval donor site
- Pain / hypersensitivity
- Hyposensitivity
- Cosmetic unacceptance
- Altered sexual function

It is important to obtain consent and notify the patient of all the risks and complications.

Positives for M.L.F.F.G.

Small additional surgical time (+20 minutes) in experienced hands

Can improve outcomes in complex and difficult cases

My South African experience would endorse this approach. My understanding from my discussions with Hamlin's Ethiopian experience was that their need for a primary once only opportunity of success was the utilisation of a M.L.F.F.G. with their repair of a V.V.F. hence the M.L.F.F.G. rates were much higher than at Baragwanath (90%) with the "luxury" of a staged closure repair. The rates of M.L.F.F.G. were much lower (approx. 10%) at Baragwanath, however the statistic may have changed since the 1970's.

I cannot confirm these statistics as I have been unable to find any journal article data to verify these paradigms. I have however discovered a paper by Browning of a series of 440 obstetrical VVF repairs which showed M.L.F.F.G. had little benefit on outcomes. He found higher SUI rates and a higher incidence of complications.¹² Browning's data may require further clarification and any comparisons of first world / emerging third world experiences will need to be compared.

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