

Gender reassignment surgery for male primary transsexuals

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Abstract This article describes certain innovations and aspects of surgical technique together with some surgical assessments of results in a series of 58 operations for gender reassignment undertaken by the author over the past 24 years.

The salient new features described are: (i) to prevent the early and late vaginal contractures that commonly follow previously accepted methods of neo-vagina construction, the technique of dissecting a new vaginal canal has been improved, and an improved skin graft (double-layered) is added to the peno-scroto-perineal flaps used to line the vaginal canal — these split-skin grafts, superimposed upon a meshed thick dermal graft, do not contract nearly as much as solitary split-skin grafts; (ii) the vagina is suspended laterally by the testicular cords, threaded above the superior pubic rami; and (iii) repeated intermittent use of a vaginal vibrator is substituted for an indwelling vaginal mould, resulting in better compliance and a more pliable vagina.

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The role of gender reassignment surgery in the treatment of primary transsexualism remains controversial, but the tide of international opinion has been in its favour in recent years. Surgical reports are few and incomplete compared with the host of psychological and psychiatric publications on this topic. Many surgical reports gloss over postoperative complications and surgical shortcomings and make no mention of their prevention.

From the results of operations done by the author and by other surgeons in South Africa, it appears that postoperative complications are not uncommon and that results are often disappointing. A frank analysis is obviously desirable, especially if this leads to avoidance of surgical complications and improved results. With these objectives in view the author describes his experience in 58 operations for gender reassignment performed over the past 24 years.

Selection of cases

The psychological and psychiatric selection of patients, preparation and support were undertaken by a select few in Durban who had extensive experience in this field.

The author examined potential candidates early in the selection process, before prescription of hormonal treatment to shrink the prostate, augment the breasts

and diminish hair growth, to assess their physical suitability and advise them with regard to the amount of postoperative pain and discomfort they could expect, and the vital role they themselves would have to play in maintaining a good functional vagina.

Surgical technique

A few patients were satisfied with the breast growth achieved solely with hormone treatment, but most (93%, 54 patients) had subsequent or antecedent breast augmentation and a very few (7%, 4 patients) had additional cosmetic facial surgery.

Dissection of the vaginal canal

Descriptions of this procedure¹⁻⁴ are inadequate, and consequently a few practical points and innovations that the author has found of value are worth presenting.

The surgeon dons an additional glove on the left hand before making a 4 cm transverse incision at the base of the penis, which is extended down on either side towards the ischial tuberosities. The skin is then dissected backwards to hinge about 2 cm above the anus.

The assistant elevates the proximal urethra and prostate with a bladder sound, and blunt dissection beneath the transverse perineal muscle and the bulb of the urethra proceeds easily on either side of the central tendon of the perineum towards the anterior rectal wall above the anal sphincter. The central tendon of the perineum is transected next, and when the fingers press upward they meet firm resistance from the pubo-urethralis muscle, which can be quite thick.

At this juncture the surgeon inserts two fingers of the left hand through the anus. The anterior rectal wall can thereby be pulled down to a remarkable extent, and the surgeon is given a far greater feeling of security than would otherwise be achieved — even one finger in the rectum is not so effective. He next transects the pubo-urethral muscle and burrows upwards behind the prostate and seminal vesicles in front of the Denonvilliers fascia until the pouch of Douglas is reached.

The surgeon then removes the outer glove from the left hand and proceeds to stretch up the vagina digitally with two fingers of each hand, thereby easily developing a large cavity above the level of the levatores ani beneath the peritoneum of the pouch of Douglas, which billows loosely above.

The proximity of the puborectal muscles to one another — especially if they are well developed with a narrow sub-pubic angle — may tempt the surgeon into incising them in order to produce widening. Ensuing haemorrhage, however, tends to be brisk and haemostasis difficult; consequently it is wise to leave this dilatation to be achieved by subsequent vaginal packing, and later the vaginal vibrator.

When meticulous haemostasis has been achieved the vagina is packed with a large gauze pack (soaked in Por 8 solution), which is removed when the inlay graft has been prepared.

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Bilateral orchidectomy, amputation and filleting of the penis, and construction of a new urethra

This is a standard surgical exercise which does not require elaboration apart from emphasising that it is essential to guard against the risk of subsequent urethral meatal stenosis. Surprisingly, other descriptions of gender reassignment surgery for transsexualism omit reference to this important point.

The complication is avoided by leaving the spatulated (or even unspatulated) urethral stump protruding as a nipple at least a centimetre above the level of the fish-mouth-shaped orifice excised in the skin.

The author does not amputate the spermatic cords high up, as in other techniques, but threads them subcutaneously, penetrating well above the superior pubic rami, so that they can subsequently be sewn to the sides of the new inlay graft in the vagina to help prevent contracture.

Inlay grafts into the vaginal canal

Various methods have been tried, such as: (i) a tube of inverted penile skin, which results in a totally inadequate vaginal canal; (ii) peno-scrotal-perineal flaps, with or without a split-skin graft; (iii) an isolated colonic loop; and (iv) peno-scrotal-perineal flaps with a double-layered meshed skin graft.

Peno-scrotal-perineal flaps with or without a split-skin graft

This technique is employed by Rathnam⁴ in Singapore, whose personal experience far exceeds that of other surgeons in this field (more than 300 cases). He states that his patients keep a vaginal mould *in situ* for 6 months, and makes no mention of having to revise the operation or of the complication of subsequent vaginal contracture.⁴

The author used this technique without skin grafting in his first 5 cases, but the resultant vaginas ended up short and small and revision surgery with split-skin grafting was required in 3 cases. Because the penile skin is hinged suprapubically, half its length or more is usually lost by extending over the pubic symphysis and triangular ligament, and the amount of tissue remaining, added to the perineal and scrotal skin, was found to be totally inadequate to line the large vaginal cavity which had been developed.

In the ensuing 35 cases the author took a large split-skin graft from the thigh, but although the addition permitted adequate epithelialisation of the large vaginal cavity, many patients developed stenosis in later years. In 2 cases this occurred while the author was in Swaziland for 3 years, and plastic surgeons attempted to treat it by construction of perineal rotation flaps. Unfortunately these failed, leaving gross perineal disfigurement, and 1 patient came to regret ever having embarked upon gender reassignment surgery.

Of the remaining 9 patients with vaginal stenosis, 1 developed contracture a full 20 years after the original operation (due to disuse). In her case the author thinned and meshed skin obtained from a lipectomy to line the deepened vagina, and the result is still satisfactory 2 years later.

In some cases development of stenosis long after an operation which initially seemed successful was due to failure on the part of the patient to maintain regular dilatation. A vagina constructed with a split-skin graft requires *regular dilatation indefinitely*, and if this is not done naturally by sexual intercourse artificial dilatation must be maintained to avoid disuse atrophy.

Late contracture of the new vagina has obviously been the experience of other surgeons in South Africa, because the author has re-operated on many of these patients over the years to correct stenosis.

Isolated colonic loop

The author used an isolated colonic loop to line the vaginal canal in the ensuing 8 cases. The loop was prepared by a general surgeon operating synchronously in the first 5 of these and subsequently personally by the author. In 1 case revision surgery was required because the distal end of the colonic loop sloughed owing to inadequate blood supply, and in another complete eversion of the loop 3 years later necessitated operation. The results in the remainder were outstanding. However, the entire operative procedure lasted almost 5 hours and the author came to the conclusion that the additional risks and expense were not justified if a safer operation could be devised to give comparable results.

Peno-scrotal flaps with a split-skin graft superimposed on a meshed thick dermal graft

This technique was employed in the last 10 cases, the graft being prepared at the suggestion of Dr W. de Villiers (a plastic surgeon), who took an extensive thick dermal graft under a hinged split-skin graft from one buttock. This split-skin graft was then sewn back on the raw area and another split-skin graft was sewn on to the dermal graft to create a 'sandwich'. When sewn to the peno-scrotal perineal skin flaps this produced good coverage of the large vaginal cavity prepared and reduced the risk of subsequent contracture most remarkably. Indeed, none of the 10 patients has required revision surgery and all have maintained good vaginal capacity over a number of years.

Postoperative care

The vaginal pack and stitches are removed on the 7th postoperative day together with the catheter and the vagina is repacked firmly. The patient is able to return home on the 10th day and the vaginal pack is renewed firmly weekly (or a mould inserted) by the surgeon for 4 weeks before the patient starts to use a vaginal vibrator for 10 minutes 3 times a day.

The author has found repeated intermittent use of a vaginal vibrator far superior to the customary method of leaving a vaginal mould in place for 6 months — mainly because it immensely improves patient compliance. Moreover, it breaks down collagen and promotes an improved blood supply, which produces a more pliable vagina.

Discussion

Since Benjamin's⁵ 1966 follow-up study of 62 transsexual males, of whom 85% were found to have a satisfactory outcome after sex reassignment surgery, these results have been reflected in many other studies.⁶⁻⁸ During the next decade similar findings were reported after more critical analyses by Hastings and others,⁹⁻¹⁴ and Ball, for instance, reported 'good personal and social results following ruthless selection and postoperative follow-up' in Australia (J. Ball — personal communication, 1990). Finally, in 1989 two authoritative editorials by Snaith¹⁵ and Jobuzi,¹⁶ and yet another in the *Lancet*¹⁷ 2 years later, have recommended surgery for primary transsexualism after meticulous prolonged selection and preparation with good postoperative psychological support.

Gender identity clinics proved their worth in many civilised countries (with the exception of South Africa); the experience of the clinicians involved, accuracy of diagnosis, strict and unhurried selection, prolonged pre-operative adjustment and continued postoperative support have largely been responsible for the good results. Research to date has concentrated mainly on assessment of the adequacy of the patient's social, psychological and employment adjustment postoperatively. No study has focused on the adequacy of surgery in terms of achieving normal sexual function or of postoperative vaginal capacity. Initially patients exhibit a strong urge to try out their new vagina, but later this wanes and some patients come to accept a remarkably short vagina with surprising equanimity, their sex act being partly intracanal.

It is suggested that the failure of surgeons to analyse their results objectively should not prompt us to imagine that they are as good as we are led to believe. For instance, the long-term result of many operations done in this country using Rathnam's technique is a stenosed vagina in varying degree, although the external appearance is usually good.

Frequently the patients themselves are partly responsible for the failure of the operation owing to not having worn a vaginal mould for the ideal 6 months. Furthermore, patients often fail to realise that regular dilatation of the vagina must be maintained thereafter to prevent disuse atrophy. The author's substitution of an intermittently used vaginal vibrator for a continuously worn vaginal mould has greatly improved patient compliance and thus long-term results. Combined with the use of a double-layered skin graft, it would appear to avoid the risk of late stenosis in the neo-vagina.

Conclusion

1. The author's technique of using a bladder sound instead of a Foley catheter and inserting two fingers into the rectum to pull down the anterior rectal wall simplifies safe dissection of the new vaginal canal.
2. Meticulous care in preparing a protruding new urethra prevents subsequent meatal stenosis.
3. Painstaking haemostasis throughout is essential.
4. Substitution of frequent use of a vaginal vibrator for the previously accepted technique of an indwelling stent for 6 months (which patients seldom accept) leads to better patient compliance and a healthier, more pliable vaginal epithelium, and reduces the long-term risks of vaginal shortening and narrowing.

5. While a colonic inlay graft produces an excellent vaginal canal, the additional risks involved in the operation are unjustified.

6. Substituting a double-layered graft (split-skin graft upon a meshed thick dermal graft) reduces the risk of stenosis of the neo-vagina, and subsequent revision surgery should not be necessary. None the less, the patient should continue to use a vaginal vibrator whenever she is not indulging in regular intercourse.

7. Long-term assessment of the results of construction of a new vagina should no longer be based upon the mere opinion of the surgeon involved but rather upon actual measurement of the length and width of the vagina 2 years after surgery — preferably done by an independent observer.

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REFERENCES

1. Jones HW, Schirmer KA, Hoopes JE. Sex conversion operation for males with transsexualism. *Am J Obstet Gynecol* 1968; **100**: 101-109.
2. Foerster DW, Reynolds CL. Construction of naturally appearing female genitalia in the male transsexual. *Plast Reconstr Surg* 1979; **64**: 306-312.
3. Pandya NJ, Stuteville OH. A one-stage technique for constructing female external genitalia in male transsexuals. *Br J Plast Surg* 1973; **26**: 277-282.
4. Rathnam SS, Lim SM. *Progress in Obstetrics and Gynaecology*. Vol 2. London: Churchill Livingstone, 1982.
5. Benjamin H. *The Transsexual Phenomenon*. New York: Julien Press, 1966.
6. Money J, Forsh J, Wolff G. Sex re-assignment male to female. *Arch Sex Behav* 1973; **12**: 245-250.
7. Pauly LB, Edgerton MP. The gender identity movement — a growing surgical-psychiatric liaison. *Arch Sex Behav*. 1986; **15**: 315-329.
8. Golosow N, Weitzman EL. Psychosexual and organ repression in male transsexuals. *J Nerv Ment Dis* 1969; **49**: 328.
9. Randell J Pre-operative and post-operative status of male and female transsexuals. In: Green R, Money J, eds. *Transsexualism and Sex Re-assignment*. Baltimore, Md: John Hopkins University Press, 355-381.
10. Hastings D, Blum J. Transsexual research project at University of Minnesota Medical School. *Lancet* 1967; **287**: 262-264.
11. Lamb D, Fish N. A rehabilitation programme for gender dysphoria syndrome by surgical sex change. *Plast Reconstr Surg* 1974; **53**: 388-401.
12. Hore B. Male transsexualism in England: 16 cases with surgical intervention. *Arch Sex Behav* 1975; **4**: 81-88.
13. Mckee EA. Transsexualism in two male triplets. *Am J Psychiatry* 1976; **133**: 334-337.
14. Lothstein LM. Sex reassignment surgery: historical, bioethical and theoretical issues. *Am J Psychiatry* 1982; **139**: 417-426.
15. Snaith P. Sex re-assignment surgery (Editorial). *BMJ* 1989; **295**: 454.
16. Jobuzi J. Sex re-assignment surgery (Editorial). *Brit J Hosp Med* 1989; **41**: 18-19.
17. Transsexualism (Editorial). *Lancet* 1991; **338**: 603-604.