

# Sexuality after hypospadias repair

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## Introduction

Hundreds of surgical procedures have been described for the repair of hypospadias, and much has been written about their relative merits as judged by their short-term functionality and incidence of early problems such as strictures and fistulae. However, surprisingly scant attention has been paid to the long-term results of hypospadias repair and what influence there may be on the patients' subsequent social and sexual behaviour. Over the last 30 years there have only been about 30 significant publications addressing these issues and many of the studies are of limited value because they included few patients and were uncontrolled. Furthermore, many of the results pertain to surgical techniques and methods of management which are no longer relevant to contemporary practice.

Why are hypospadias surgeons reluctant to follow up their patients, when in comparable areas such as facial cleft surgery, following patients through to maturity is regarded as 'de rigueur'? Many of the repairs in current usage do not produce a truly normal looking penis and surgeons may feel that they can do little to improve on what they have already achieved. Given that young children are far more accepting of residual deformity than teenagers, it seems tempting for the surgeon to 'quit whilst he/she is still winning'. Understandably, the surgeon may feel uneasy about tackling concerns relating to sexuality and social behaviour in the older patient, areas that he/she might prefer to leave to other specialists. Discussing these sensitive issues can be a source of mutual discomfort and embarrassment for patients and some surgeons alike. Indeed, some argue that long-term follow-up could even be harmful, as it might instil psychological problems and concerns by repeatedly reminding the patients of their genital abnormality. The hypospadias literature can be viewed selectively and comfort derived from the publication in 1980 by Hinderer *et al.* [1] who stated confidently that the long-term outcome of a hypospadias repair can be predicted after only 2 years of follow-up. This view is reinforced by Johanson and Avellan [2] who at about the same time reported very favourably on the long-term results of their Denis Browne repairs. Such reviews suggest that

short-term patient satisfaction extrapolates to comparable long-term outcome and that therefore much valuable clinical time can be saved by discharging patients early. Alas, these optimistic findings are not mirrored elsewhere in the literature. This paper reviews the data relating to the long-term social and sexual aspects of hypospadias.

## Findings

Almost all the literature about the long-term outcome in hypospadias relates to patients who have undergone outdated buried skin strip 'ventralizing' repairs which leave an obviously abnormal penis. It is therefore not surprising that a significant level of functional, social and psychosexual disturbance has been reported in both paediatric and adult follow-up studies. There is as yet very little long-term outcome information available on the more recent 'terminalizing' methods that bring the meatus onto the apex of the glans, because these only gained widespread acceptance during the 1980s. Our adult follow-up review published in 1989 [3] and the more recent major study by Mureau *et al.* [4] include some comparative data on the outcome of 'terminalizing' as well as 'ventralizing' repairs.

## Are psychosexual and social adjustment normal?

There are about a dozen reports that have focused primarily on the social and sexual consequences of hypospadias repair. Although some control data were included in many of these studies [4–13] often they were not directly comparable results, and furthermore, there were relatively few patients in most cases. However, viewed collectively, these studies indicate an increased level of emotional disturbance after hypospadias surgery. Blotcky and Grossman [7] found evidence of emotional disturbance in a third of a group of 15 patients who had undergone an assortment of genital operations. Berg and Berg [9], and Sandberg *et al.* [12] found that both children and adults with hypospadias were less secure in their maleness, showing a preference for more feminine roles and cross-gender behaviour. However, these findings do not translate into problems with sexual

orientation. No publication has identified any increased incidence of overt homosexuality. In our study [3], six of 213 patients admitted to having a homosexual lifestyle and they all claimed that their hypospadias was an incidental rather than related factor. There is ample evidence that hypospadiacs are more inhibited in forming sexual relationships, because they fear or anticipate ridicule or rejection because of their penile deformity; 40% of our young adults felt that hypospadias had hindered their personal relationships. The frustrations were nevertheless mostly suppressed, with only a small minority expressing themselves in the form of aggressive, criminal or sexually deviant behaviour. The series of publications by Berg *et al.* indicated that hypospadiacs showed lower social competence and tended to have less qualified professions. However, the recent much larger study by Mureau *et al.* [4] found no statistically significant differences in socio-economic status between hypospadias patients and comparison subjects. They found that hypospadias patients were more likely to try and hide their genitalia when using public lavatories or having to undress in public, as was also evident in our study [3].

### Does the timing of surgery matter?

It is widely accepted that children do not cope well with hospitalization between the ages of 18 months and 3 years, and those physicians with practical experience of paediatric surgery will have discovered that this is a period best avoided. Traditionally therefore, hypospadias repair has been undertaken around early school age, and many surgeons still prefer to wait until the patient is older than 3 years. The potential advantages of this are that the child should be fully continent and will not have his operation site macerated by wet nappies. From the age of 3 years onwards, he should have some understanding of what is happening to him and so be better able to co-operate with the treatment, and of course the older child is less challenging from the anaesthetic viewpoint. However, in the early 1980s, two publications from North America [14,15] argued the case for trying to complete hypospadias treatment before the age of 18 months, on the grounds that it would be psychologically less damaging if surgery was finished before the onset of gender awareness. With advances in anaesthesia, instrumentation and suture materials, this has become a realistic option, and is therefore now the policy adopted by most paediatric surgeons. Whether the insecurities or indeed the 'castration complex' described by Berg and Berg [11] can be avoided simply by operating earlier in life is debatable. It is more likely that these behavioural differences in hypospadias patients reflect the poor quality of reconstruction that

used to be achieved, and an ugly, poorly functioning repair is not necessarily going to fare better for having been inflicted during the first year of life. Of course, numerous and protracted hospitalizations (often for weeks at a time) would also have been damaging. Old styles of ward management were very stressful, not only physically but also psychologically, because of the long periods of parental separation. It should come as no surprise that these patients bore psychological as well as physical scars. The quality of hypospadias reconstruction, as perceived by the patient, is a most important factor in long-term social and sexual adjustment. Whether the surgery is carried out in a single procedure or as a staged repair, whether in the first year of life or later in the third or fourth year, are probably factors of no real significance [3]. We found in our review that adults rarely had any recollection of hospitalizations occurring before the age of 4 or 5 years. We therefore continue to operate by preference on patients in their third year of life. Likewise, we continue to use two-stage repairs, because we feel that in many cases these will produce a more normal penis than a one-stage repair. The modern management of hypospadias is a much less stressful than it used to be. There is less physical trauma, with fewer complications, and better postoperative function and cosmesis. Hospitalizations are fewer and shorter, and parental presence and involvement is very actively encouraged. Teachers, play leaders, videos and games help to keep the children occupied, so far from being a psychologically damaging ordeal, many of our 3-year-olds positively anticipate coming back into hospital for their second-stage operation. We anticipate that they will grow up to have fewer psychological problems and negative feelings than their predecessors. We are encouraged that the comprehensive and carefully controlled follow-up study by Mureau *et al.* [4] states that on statistical analysis 'no significant correlation was noted between psychosexual adjustment and the number of operations or the age at which treatment was complete'.

### Are sexual maturation and debut affected?

There is no evidence that hypospadias or hypospadias surgery will delay physical maturation. Available data on milestones such as the onset of puberty, onset and frequency of masturbation suggest that these are normal. In our study [3] 80% of young adults without regular partners were masturbating at least twice a week, and  $\approx 30\%$  of them at least daily. There appears to be no diminution of sexual drive, but its expression may be frustrated, and there are indications that the onset of sexual debut may be compromised. However, the results are conflicting, with studies from the mid-1970s by Avellan [16] and Kenawi [17], and more recently by

Mureau *et al.* [4] finding no evidence of delay in sexual adjustment. Other investigators have been less optimistic; in 1970, Farkas and Hynie [18] reported frequent problems with adult sexual function as a consequence of physical inadequacies resulting from the repair of hypospadias. Of 96 patients, 25 had intercourse rarely and a further 31 abstained through feelings of inadequacy and inferiority. Subsequent studies by Berg *et al.* in 1981 [5] and ours in 1989 [3] likewise found evidence of delayed adult sexual functioning because of concerns about genital inadequacy. In our study, 88% of the sexually experienced patients had achieved their debut by the age of 21 years. The mean age for sexual debut was slightly delayed at 17.3 years, but this varied markedly depending on the individuals' genital perception. Those who felt the penis looked normal coped well, with a mean age at debut of 15.6 years, whilst at the other end of the spectrum, in those who felt that their penises still looked deformed, the sexual debut was delayed until a mean of 19 years. Similarly, those with an early debut were more confident and had more sexual partners than the 'late starters' with poor self-esteem.

### How important is appearance?

Publications describing operative techniques invariably maintain that the cosmetic results are at the very least acceptable, but more usually good or excellent. Where clinical photographs are included, they usually show demonstrably abnormal penises. By what standards therefore are these authors judging excellence? A young child is not qualified to make aesthetic judgements when the social and sexual aspects of penile function are not yet of any interest or relevance to him. Patient acceptance is not a valid criterion of excellence in paediatric practice, as we can and do get away with shoddy aesthetic results simply by discharging patients early. A 'good cosmetic result' might be deemed as one that is equivalent with what is being achieved with other contemporary methods and reflects current surgical fashions rather than what patients really think. A quarter of a century ago, the prevailing hypospadias 'gurus' swore by the results of the old buried skin strip 'ventralizing' repairs. They saw no need for a terminal meatus and thought that their cosmetic results were perfectly acceptable. This merely indicates that they had nothing better to offer at the time, added to which was a naive early-discharge policy which conveniently allowed them to sweep the problems 'under the carpet'. Adult follow-up studies such as that by Sommerlad [19] and several other publications already mentioned, clearly showed otherwise. In our study [3], 72% of young adults felt that achieving normal appearance was as important a goal as achieving normal function. Indeed, 44% of

patients in the study requested further revisional surgery. Of these, two-thirds were specifically concerned about the unsatisfactory appearance of their repairs. Mureau *et al.* [4] found that 80% of hypospadias patients were self-conscious about various aspects of penile appearance, and 24% sufficiently so to inhibit them in seeking sexual contacts. The teenagers showed the highest level of dissatisfaction, with almost half of them wanting improvement of the functional or cosmetic result. It is clear from both these studies that patients are extremely reluctant to seek help spontaneously for their penile problems, even though they may be experiencing significant functional as well as social and sexual anxieties. Because of embarrassment, ignorance or resignation, they do not volunteer their concerns unless directly questioned. Long-term follow-up may be resource-consuming and inconvenient, but remains essential if we are to assess our performance honestly. The popularization of single-stage 'terminalizing' repairs in the 1980s was an advance in improving functional outcome, but not necessarily cosmesis. It remains to be seen when long-term data appear in the new millennium whether the next generation of young adults will be happy with the terminally positioned but abnormal-looking puckered orifice that often results from these procedures. Mureau *et al.* [4] have fired a warning shot, indicating with specific reference to these one-stage repairs that there is a poor correlation between the patient's and surgeon's appraisal of the results; patients are less impressed with the results than their surgeons. We cannot therefore be complacent about the standards that we currently accept. Enlightened surgeons are now striving to achieve a meatus that is not only correctly positioned but also has a normal slit-like appearance, even if for some this means forgoing the convenience of a one-stage repair [20,21].

### Is sexual function impaired?

This of course depends on the standard of reconstruction that is achieved. Before the introduction of intraoperative saline erection tests, uncorrected chordee was a common feature; 18% of our young adults had  $> 30^\circ$  of residual curvature on erection at follow-up [3]. More than half of these were sufficiently concerned by their curvature to request surgical correction. Of those wanting the chordee corrected, just over half felt that it was a major physical handicap, whilst the others simply found it very embarrassing. Other causes of sexual difficulty were individually few; psychological impotence, skin shortage, phimosis, tender scars, soft glans and meatal discomfort being cited. With increasingly sophisticated standards of surgery, problems such as these should become uncommon. One problem that is more difficult to overcome is

poor ejaculation quality; 33% of our patients only produced a dribble and in 4% nothing was expelled unless it was manually expressed after orgasm. This is a common feature in repaired proximal hypospadias, where there is a long lax skin tube with no supporting corpus spongiosum. The 'dead space' problem may be further compounded by a poorly developed bulbospongiosus muscle and the presence of a congenital utricle. The buried skin strip repairs are particularly prone to produce a cavernous, irregular calibre neo-urethra; however, 'megalo-urethra' is also a recognized complication of one-stage tubed skin flap repairs (such as the Duckett).

Penile size is a widely documented concern and more than a third of our patients admitted to feeling inadequately endowed, particularly if they had more proximal degrees of hypospadias [3]. This is not unexpected, as our study showed a very clear correlation between the severity of hypospadias and penile length, as assessed on flaccid, stretched and erect measurements. These findings might be anticipated, given that developmentally hypospadias represents an incomplete masculinization of the penis. Although penis size is a major cause for social and sexual anxiety, a short erect length causes surprisingly few functional difficulties once patients have overcome their initial inhibitions and started having intercourse. We found that patients were able to have satisfactory intercourse with erections of as little as 9 cm long.

Finally, fertility after hypospadias repair has been assessed; very little information is available, although in our study we persuaded 169 of 213 patients to undergo basic fertility testing. Half of these patients had sperm counts of <50 million/mL and a quarter were <20 million/mL. Within this latter group, well over half had potential reasons for their oligospermia, e.g. a history of undescended testicles, varicoceles, torsion, trauma or chromosomal abnormalities. In the remainder there was no obvious reason for a low sperm count. Given that the parameters of what constitutes normality may vary among laboratories, and that this was not a scientifically designed study with matched controls, the significance of these data is uncertain. Further controlled studies are required to confirm whether fertility is compromised by hypospadias or hypospadias repairs.

## Discussion

Publications on the long-term outcome of hypospadias repair are not uniform in their conclusions. They range in content from purely anecdotal reporting through to carefully structured and statistically controlled scientific studies. Differences in the spectrum of age and investigation protocol, plus varying standards of surgery and types of repair, make direct comparisons difficult. There

are very optimistic appraisals [2], but these might reflect some personal bias if clinicians are reviewing their patients and are already committed to a method of management. Most independent studies seem to agree that there is a significant degree of social and sexual morbidity after hypospadias surgery, probably reflecting patient dissatisfaction with the standard of repair. In particular, we have underestimated the importance of good cosmesis, which seems to be of greater priority to the patient than to the surgeon. It is therefore quite probable that the current armamentarium of one-stage repairs may still cause dissatisfaction for the next generation of teenage hypospadiacs, because of inherent difficulties in creating a natural-looking meatus. The trend amongst paediatric urologists to avoid staged surgery and to avoid dividing the urethral plate, means more acceptance of minor chordee and an increasing use of the Nesbit tunica-shortening procedure for the correction of more severe curvatures. We make assumptions, but we do not know as yet whether Nesbit corrections in childhood will be maintained with the subsequent rapid adolescent growth phase; follow-up data are required. Perceptions of aesthetics can be influenced by religious and cultural attitudes to circumcision, and the presence or absence of a foreskin may of itself attract peer comments or teasing. In some societies therefore, attempts are now made to preserve a foreskin when repairing hypospadias. This may improve short-term satisfaction rates, but we do not know whether these reconstructed foreskins will function satisfactorily once the patient becomes sexually active. Our experience has been unfavourable [20,21], but proper follow-up studies are required from those units where the foreskin is routinely preserved. It is known from older studies that multiple operations extending into late childhood or adolescence increase the likelihood of psychosexual anxieties. However, it is not known whether there is any demonstrable long-term difference between a modern hypospadias repair if it is undertaken in the first year or in the third year of life. There is still much information to be gleaned from good long-term reviews and there is ample evidence that we need to maintain active follow-up on our patients until they have reached sexual maturity.

## References

- 1 Hinderer UT, Duran FR, Caravaca MP. Hypospadias repair. In: Goldwyn RM, ed. *Long Term Results in Plastic and Reconstructive Surgery*. Vol 1, 1st edn. Boston: Little, Brown and Co. 1980.
- 2 Johanson B, Avellan L. Operated hypospadias. In: Goldwyn RM, ed. *Long Term Results in Plastic and Reconstructive Surgery*. Vol 1, 1st edn. Boston: Little, Brown and Co. 1980.

- 3 Bracka A. A long-term view of hypospadias. *Br J Plast Surg* 1989; **42**: 251–5
- 4 Mureau MA, Slijper FM, Nijman RJ, van der Meulen JC, Verhulst FC, Slob AK. Psychosexual adjustment of children and adolescents after different types of hypospadias surgery: a norm-related study. *J Urol* 1995; **154**: 1902
- 5 Berg R, Svensson J, Astrom G. Social and sexual adjustment of men operated for hypospadias during childhood: a controlled study. *J Urol* 1981; **125**: 313–7
- 6 Robertson M, Walker D. Psychological factors in hypospadias repair. *J Urol* 1975; **113**: 698–700
- 7 Blotcky MJ, Grossman I. Psychological implications of childhood genitourinary surgery. *J Am Acad Child Psych* 1978; **17**: 488–97
- 8 Berg R, Berg G, Svensson J. Penile malformation and mental health. A controlled psychiatric study of men operated for hypospadias in childhood. *Acta Psych Scand* 1982; **66**: 398–416
- 9 Berg R, Berg G. Penile malformation, gender identity and sexual orientation. *Acta Psych Scand* 1983; **68**: 154–66
- 10 Berg R, Berg G, Edman G *et al.* Androgens and personality in normal men and men operated for hypospadias in childhood. *Acta Psych Scand* 1983; **68**: 167–77
- 11 Berg G, Berg R. Castration complex. Evidence from men operated for hypospadias. *Acta Psych Scand* 1983; **68**: 143–53
- 12 Sandberg DE, Meyer-Bahlburg HFL, Aranof GS *et al.* Boys with hypospadias: a survey of behavioural difficulties. *J Paed Psychol* 1989; **14**: 491–514
- 13 Purschke C, Standke M. Psychological characteristics of boys with hypospadias. *Paediatrie Grenzgebiete* 1993; **31**: 175–85
- 14 Manley CB. Elective genital surgery at one year of age. Psychological and surgical considerations. *Surg Clin North Am* 1982; **62**: 941–53
- 15 Schultz JR, Klykylo WM, Wacksman J. Timing of elective hypospadias repair in children. *Paediatrics* 1983; **71**: 342–51
- 16 Avellan L. The development of puberty, the sexual debut and sexual function of hypospadiacs. *Scand J Plast Reconst Surg* 1976; **10**: 29–44
- 17 Kenawi MM. Sexual function of hypospadiacs. *Br J Plast Surg* 1976; **47**: 883–90
- 18 Farkas L, Hynie J. After effects of hypospadias repair in childhood. *Postgrad Med* 1970; **47**: 103–5
- 19 Sommerlad BC. A long-term follow-up of hypospadias patients. *Br J Plast Surg* 1975; **28**: 324–30
- 20 Bracka A. Hypospadias repair: the two-stage alternative. *Br J Urol* 1995; **76**: 31–41
- 21 Bracka A. A versatile two-stage hypospadias repair. *Br J Plas Surg* 1995; **48**: 345–35

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