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REVIEW

The psychosexual aspects of hypospadias repair: A review

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ABBREVIATIONS

MMPI, Minnesota Multi-
phasic Personality Inventory;
PPPS, Paediatric Penile Per-
ception Score

KEYWORDS

Hypospadias; Psychosexual;
Quality of life

Abstract Objective: To review the psychosexual effects on men after hypospadias repair.

Methods: We reviewed all English-language publications in the MEDLINE database from the US National Library of Medicine with the search terms 'hypospadias adult', 'psychosexual hypospadias', 'psychosocial hypospadias', and 'social hypospadias'. Each term returned 1036, 35, 19 and 68 results, respectively, which were reviewed.

Results: While improvements in surgical techniques have improved function, the abnormality and repair still causes a disruption in perceived quality of life for many men. After repair, many men suffer from a negative view of their genitals and some degree of sexual inhibition. However, they still maintain a satisfactory sex life.

Conclusions: Psychosexual effects of hypospadias repair they endure in adulthood, although affected men maintain satisfaction with their sexual life.

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Introduction

Hypospadias is one of the most common congenital abnormalities of the male infant. It is caused by incomplete fusion of the urethral folds during embryogenic formation of the penile urethra. This failure of tubularisation results in an abnormally positioned urethral opening on the ventral surface of the penis. Surgical repair moves the meatus closer to the normal anatomical position on the glans, with the goal of a more cosmetically

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normal appearance, normal urinary stream and straight erect penis.

The incidence of hypospadias has remained relatively constant over several decades, despite some recent controversy concerning the effects of 'endocrine disruptors' such as phthalates and biphenyl-A, on the incidence of hypospadias [1]. The incidence of hypospadias as obtained from the databases of the New York State Congenital Malformation registry, as well as the California Birth Defects Monitoring programme remains constant, at about six cases per 1000 live male births [2,3]. There has been a clear increase in the frequency of hypospadias in particular groups of individuals, and some risk factors have been identified, such as increased maternal age, fertility enhancement procedures (*in vitro* fertilisation) and vegetarian diets (phytoestrogens) [4–6].

Endocrine disruptors have been manufactured for > 50 years and are widely used in plastic bottles, vinyl floors, food wraps, cosmetics, medical products and toys. Much of the concern focuses upon the allegedly significant in utero exposure to these endocrine disruptors and subsequent effects on the developing foetus. There is no question that oestrogenic compounds can be potent modulators of biochemical and physiological function in high doses. However, the evidence that in utero or adult exposure to very low levels of environmental substances such as phthalates and biphenyl-A produces any clinically detectable effects in the human is limited [7].

Although the causes of hypospadias are important, it is the functional outcome after repair that is of the greatest significance. Most reports of outcomes after repair are short-term and many appropriately focus on the management of surgical complications. However, it has long been recognised that the assessment of a child with hypospadias needs to be continued into adulthood [8]. Despite adequate early surgical repair, hypospadias can have a durable effect through maturation and into adulthood, affecting sexual, voiding and reproductive functions. Understanding the long-term risks of hypospadias will aid in the long-term management of affected patients. In this review we focus on the psychosexual aspects of hypospadias repair.

Methods

On 29 July 2011, the MEDLINE database from the US National Library of Medicine was queried with the terms 'hypospadias adult', 'psychosexual hypospadias', 'psychosocial hypospadias', and 'social hypospadias.' Each term returned 1036, 35, 19, and 68 results, respectively. Abstracts were reviewed. Non-English language reports were excluded. Many articles appeared in multiple searches; 18 are reviewed and are discussed here.

Results

The psychosocial impact of hypospadias in adulthood

Sexual function after repair is affected functionally if the surgery is incomplete or incorrect, leaving the meatus in the wrong location, or if significant curvature remains [9]. This physical abnormality can cause real or perceived sexual dysfunction and impairment. In the earliest studies of sexual

adjustment in men after hypospadias repair, Berg et al. [10,11] reported that men are more shy and socially isolated, with lower self-esteem. Although the hypospadiac men had fewer sexual partners overall, they were still in stable sexual relationships with the same frequency as the control group. Most studies describe the sexual-partner relationship as either stable or short-term, but there are no direct comparisons between hypospadiac men in either relationship. This prevents any specific conclusions from being drawn about the nature of the sexual relationship and sexual satisfaction in this cohort.

Mureau et al. [12,13] extensively studied the psychological development after childhood hypospadias repair of both boys (116) and adults (73) by comparing them to age-matched control groups (96 and 88 males, respectively) treated for inguinal hernia. Several previously validated questionnaires, including the Junior Dutch Personality Questionnaire, the Social Anxiety Scale for Children, and the Youth Self Report were applied to all participants. These instruments examine anxiety, depression and social interaction skills. First sexual intercourse was at the same age, but hypospadiacs were more likely to have inhibition related to nudity and had a greater fear of sexual contact. Confirming this result, the mean age of first intercourse is similar for adolescents with and without hypospadias [14].

Aho et al. [15] reviewed sexual satisfaction in 43 of 61 patients, and found that those satisfied with the surgical outcome were also satisfied with their sexual life. The same group reported that there was no difference in sexual life between circumcised patients and hypospadiac men [16]. In a large population sample, all young Tuscan-Italian men entering National Service took the Minnesota Multiphasic Personality Inventory (MMPI) and some received further questions related to sexual function. In all, 42 hypospadiac men were compared to 500 controls, and significantly more of the former had difficulties in contacting women and fewer had completed intercourse, although they all rated sexual function as normal [17]. The severity of hypospadias and number of operations appear to have no bearing on psychosexual outcomes. Specifically psychosexual adjustment as measured by the MMPI did not vary by these factors [12].

Several aspects of cosmesis have been evaluated. Patients can be asked about overall body image, penis-specific appearance, how others interpret the penile appearance with regard to 'normal'. Satisfaction with penile appearance and size during both flaccid and erect states has also been examined. Of 61 patients operated on between 1963 and 1975, 43 returned questionnaires; 63% were satisfied with the outcome of the surgery. The satisfied patients were more likely to also be satisfied with the appearance of the penis [15]. Patient and surgeon satisfaction with appearance and penile length varied greatly in 35 boys [18]. After hypospadias repair, adults suffered from negative genital perception compared to matched controls, using an unvalidated questionnaire [19]. Hypospadiac adolescents were bothered more by perceived decreased penile length than any other physical factor [14].

The Paediatric Penile Perception Score (PPPS) is an instrument developed for the assessment and comparison of penile appearance. It was validated in boys aged 6–17 years for use with patients, parents and surgeons. In this case, the children had a better perception of penile appearance than their parents or surgeon did [20]. This validated instrument has

been used in adults. Rynja et al. [21] reported on 116 patients and 151 control men using the PPPS. Patients had significantly lower satisfaction with penile length than controls. A lower PPPS also correlated with lower International Index of Erectile Function-5 scores, indicating less sexual satisfaction.

Sexual intercourse is possible in the vast majority of patients following hypospadias surgery. Rarely, a surgical complication such as penile curvature will prevent vaginal penetration [22]. A group of 104 men, aged 24–42 years, matched to controls were evaluated with an unvalidated 15-item questionnaire. The questionnaire contained questions related to results of surgery, curvature, genital appearance, disadvantages secondary to surgery and satisfaction with sexual activity. The repaired men were significantly less satisfied with their genital appearance but were more satisfied with their sexual life [23]. Hoag et al. [24] sent a questionnaire to patients with an average age of 20 years; 28 of 100 men responded, and 89% reported being able to have sexual intercourse. Overall satisfaction with the surgery was 86%. Importantly, after hypospadias repair, even in severe types, men are able to father children at a similar rate to controls [10].

However, all of these studies included individuals who were operated on several years ago, when hypospadias techniques were not as sophisticated as they are at present, and often involved several operations over many years. The cosmetic outcome of these early repairs is arguably less appealing than for more current single-stage repairs. The number of operations alone can have a significant effect on psychosocial development, especially if the operations occur at an older age, making it more memorable for the child. A theme common to pre-adolescent surgery is that functional and psychosexual outcomes take many years to mature. Therefore, the quality-of-life evaluations will always lag behind the surgical techniques by one or two decades. The adult satisfaction rates will hopefully improve as the population who has undergone repairs with more modern techniques and at an earlier age, becomes adult and sexually active.

There are several areas for future research development. First, previous authors have not reported on the differences in outcomes for patients who had surgery at age one year, as is now common, compared to patients whose terminal surgery occurred when older. It is possible that the move towards earlier primary intervention might decrease the traumatic effects of surgery in these boys, and therefore reduce the long-term negative effects. It is clear that this cohort of children with a repair when one year old needs to be evaluated as they age, to determine if their outcomes are similar to children repaired when older.

Currently, there is no standard regimen for the psychological follow-up of these men or their partners. For children and adolescents, the Child Behaviour Checklist has been used, while in adults, the MMPI is often used to evaluate psychosocial questions. One possible regimen might involve examining the hypospadiac patient at puberty, to discuss cosmetic appearance and reassure regarding future sexual function. The patient might also be followed up to an age of 18 years for similar reasons. Administration of the MMPI at these visits could facilitate longitudinal research endeavours. The urologist can also make it clear to the patient that the patient and/or partner are welcome back to discuss the appearance or function at any time in the future.

Conclusions

There are really very few contemporary publications examining the long-term effect of hypospadias in patients operated on using 21st century techniques. Many patients are not followed into adulthood and the use of validated questionnaires is the exception. After evaluating psychosexual development following hypospadias repair, men suffer from a negative view of their genitals and from some degree of sexual inhibition. A long-term follow-up of these patients into adulthood remains a vital component of their treatment.

Conflict of Interest

The authors have no conflict of interest to declare.

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