Anterior hypospadias

Is repair necessary with urination in a sitting or squatting position?

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ABSTRACT

Objective: To determine the chronic complication rate of anterior hypospadias repair and to explore whether the practice of placing the neomeatus at the tip of the penis should be applicable to all cases in our community where urination is in a sitting/squatting position.

Methods: Over a 10-year period commencing 1st September 1987, 312 patients had hypospadias repair of whom 72% had anterior hypospadias. The meatus was advanced to the tip of the penis in all repairs. The location of the meatus was also determined in 281 non-complaining men with a straight penis and normal sexual and reproductive functions. Following prior information that anterior hypospadias was not associated with sexual and reproductive dysfunction, 51 patients were given a choice between repair or no repair.

Results: Urethrocutaneous fistula occurred in 5% of patients, urethral stricture in 3% and meatal retraction in 3%, with 92% of patients having no complications. Forty six percent of non-complaining men had the meatus in locations other than the tip of the penis. Of 51 patients with the benefit of informed consent, 73% opted for no repair.

Conclusion: Our results of anterior hypospadias repair compare favourably with those of other centers. Placement of the meatus at the tip of the penis for anterior hypospadias should not be applicable to all patients in this community where urination is in a sitting/squatting position. Before such repairs, an informed consent is warranted by making the patients and their parents aware of the non-association of sexual and reproductive disorders with these anomalies.

Keywords: Anterior hypospadias, repair, urination in sitting/squatting position, normal locations of external meatus.

Saudi Medical Journal 2000; Vol. 21 (4): 364-367

Great interest is focused on the treatment outcome of anterior hypospadias partly because it is the most common form of hypospadias[1,2] and partly because it is generally associated with relatively minor defects.[1,3] Currently the commonly held goal of all hypospadias repair is to construct a straight penis with the meatus as close as possible to the normal site to allow a forward-directed stream and normal coitus.[1] It is the current trend to strive to place the meatus at the tip of the penis in all hypospadias, including anterior hypospadias generally considered a milder form of hypospadias.[1] Some authors have questioned the rationale of constructing a meatus at the tip of the penis for all forms of hypospadias and whether repair is at all necessary for some anterior hypospadias.[3] The repair techniques most in use for anterior hypospadias are meatal advancement and glanuloplasty (MAGPI), Mathieu's parameatal-based flap technique and an onlay island flap procedure.[1] The currently preferred

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Received 5th September 1999. Accepted for publication in final form 25th January 2000.

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optimum age of 6 to 18 months for elective hypospadias repair addresses the important issues of maternal-child separation syndrome, male gender role development and sudden infant death syndrome (SIDS) and allows for the use of microsurgical techniques.[4-6] A low complication rate of 1 to 10% has been reported in major centers for primary one-stage procedures,[1,6,7] with urethrocutaneous fistula as the most common complication. The goal of the present study is to determine the chronic complication rate of one-stage repair for anterior hypospadias in our community and whether construction of the meatus at the tip of the penis is necessary in all cases of anterior hypospadias in this community where urination is in a sitting/squatting position. We were unable to find in the literature any previous report on cultural, social and religious influences on the management of anterior hypospadias and whether there is a need to include such factors in the decision making process.

Methods. Hypospadias repair was performed in 312 patients of age 8 months to 22 years (mean 22 months) admitted to our hospital over a 10 year period from September 1987 to August 1997. Two hundred and twenty five (72%) patients had anterior hypospadias, using the Barcat classification,[8] all of whom had one-stage procedures. Anterior hypospadias repair was by the MAGPI, Mathieu, or an onlay island-flap procedure depending on the site of the meatus, the configuration of the glans, the results of urethral calibration, assessment of urethral mobility, and artificial erection test where penile curvature was present.[9] Magnification with optical loops was used solely for repairs before the age of 18 months. All repairs were by meatal advancement to the tip of the penis. Within the year starting from 1 September 1996, we determined the location of the external meatus in 281 men with a straight penis, of age 25 to 68 years (mean 41 years), whose mode of urination was in a sitting or squatting position and whose reasons for seeing the urologist were not related to the lower urinary tract. They all reported normal urination and sexual intercourse and had all fathered children. Meatal location, with respect to the glans, was classified into the tip of penis, distal third (including the tip of penis), mid-third and proximal third as carried out by Fichtner and colleagues[3] and also coronal, anterior penile and any more proximal site. The patients were also examined clinically for penile curvature. The urinary stream was inspected for deflection. Within the same period, 51 consecutive patients with anterior hypospadias, a straight penis with no meatal stenosis, and whose urination was in a sitting or squatting position, were given a choice between repair or no repair following prior information that their anomaly was not associated with sexual and reproductive disorders. The urinary stream was inspected for deflection. Patients with penile curvature, meatal stenosis or both were advised and accepted repair and were not included in this group. The principal concerns of all patients for seeing the doctor were also obtained.

Table 1 - Chronic complications in 225 patients.

Chronic complications	N (%)
Fistula	11 (5)
Stricture	7 (3)
Meatal retraction	4 (3)
None	207 (92)

Results. Anterior hypospadias was the most common presentation accounting for 72% of cases. Most repairs (45%) for anterior hypospadias were carried out at age 2 to 5 years, reflecting the late presentation of patients early in the study. Urethrocutaneous fistula was the most common complication of the primary operation (Table 1). Ninety two percent of patients had no complications. Only in 54% of non-complaining men was the meatus at the tip of the penis (Table 2). Sixteen percent of patients had meatal location proximal to the distal one-third of the glans. There was clinical confirmation that all the patients had a straight penis. Nine patients had a deflected stream although they reported normal urination.

Given the choice, 73% of patients with anterior hypospadias opted for no repair on prior information that such anomalies were not associated with sexual and reproductive dysfunction (Table 3). A major

Table 2 - Men without cosmetic or functional complaints of the penis.

Site of meatus	N	(%)	Patients with urine deflection
Tip of penis	153	(54)	0
Distal 1/3 glans (including tip of penis)	235	(84)	0
Mid 1/3 glans	34	(12)	6
Proximal 1/3 glans	10	(4)	3
Corona	2	(1)	0
Anterior penile	0	(0)	0
Elsewhere	0	(0)	0
TOTAL	**281**	**(100)**	**9**

Table 3 - Choice of patients informed of no association with sexual and reproductive dysfunction.

	Repair N	(%)	No Repair N	(%)
Mid 1/3 glans	2	(4)	24	(47)
Proximal 1/3 glans	3	(6)	11	(22)
Corona	3	(6)	2	(4)
Anterior penile	6	(12)	0	(0)
TOTAL	**14**	**(28)**	**37**	**(73)**

concern to all patients in this group was whether their hypospadias was associated with sexual and reproductive dysfunction. Similarly, all patients with either penile curvature or a thin or a weak urinary stream were very anxious. Only 27% of all patients saw meatal location proximal to the tip of the penis as a cosmetic concern. A hooded prepuce was of no concern since circumcision is the rule in this community. Furthermore, 10 of 37 patients who chose no repair had ventral deflection of the urinary stream. However, all 6 patients with anterior penile hypospadias opted for repair.

Discussion. Most surgeons subscribe to the objective for anterior hypospadias repair of constructing a straight penis with the meatus as close as possible to the normal site to allow a forward-directed stream and normal coitus, the current trend being to place the meatus at the tip of the penis in all cases.[1] Over the years we have also subscribed to this goal. This concept, however, has been questioned. Thus, Fichtner and colleagues,[3] basing their criteria for normal men on non-complaining men with a straight penis, a forward-directed urinary stream and normal sexual and reproductive functions, found that only 55% of them had the meatus in the distal one third of the glans. As a result, they questioned the rationale of meatal advancement to the tip of the penis in all cases of anterior hypospadias. Using similar criteria but without making a forward-directed stream a condition, we have found in our community, where urination is in a sitting/squatting position, that only 54% of such patients had the meatus at the tip of the penis and that the meatus was proximal to the distal one-third of the glans in 16% of cases. A number of these patients had a deflected urinary stream. These studies would suggest that an appreciable proportion of people with anterior hypospadias have no cosmetic and functional complaints. Although the definition of hypospadias is, on anatomical considerations, based on the tip of the penis as the normal location of the external meatus, the findings in these studies questions, on acceptable cosmetic and functional considerations, the rationale of meatal advancement to the tip of the penis in all cases of anterior hypospadias irrespective of cultural, social and religious practices. Thus, meatal location proximal to the distal third of the glans was not a cosmetic concern to some men in both studies, provided the penis had no curvature. Furthermore, our study shows that some men are not concerned about an associated ventral deflection of the urinary stream since this is no disadvantage with urination in a sitting/squatting position.

In an analysis of different techniques, Mills and co-workers[10] found a significantly higher complication rate of fistula formation and meatal stenosis in meatal placement at the tip of the glans than in subglanular placement, prompting the remark: 'at what price perfection!'. Although our chronic complication rate for anterior hypospadias is within the 1 to 10% reported by various centers,[1,6,7] it is generally recognized that such relatively low rates are not uniformly transferable to peripheral hospitals. The patient's perspective towards repair in our community shows some marked differences with the commonly stated goals.[1] All the patients had as a major concern whether an association existed with sexual and reproductive dysfunction. Penile curvature and meatal stenosis, when present, were also major concerns. Ventral deflection, the site of the meatus or cosmetic considerations were secondary concerns, the majority of patients not seeing these factors as warranting repair. The present study, as well as those of Fichtner and colleagues,[3] shows that normal non-complaining men with anterior hypospadias have normal sexual and reproductive functions, an observation in consonance with the earlier experiences with the two-stage procedures of Denis Browne[11] and Byars[12] in which the meatus was left subglanular. On allaying the fears of sexual and reproductive dysfunction, 73% of our patients opted for no repair, including 53% of those with ventral deflection of the stream. However, all the patients with penile curvature or meatal stenosis or both were advised and accepted operative correction. It seems, therefore, that since urination in a sitting/squatting position is the rule in this community, some downward deflection of the stream is not such a major concern as with voiding in a standing position and may well confer an advantage. Cosmesis was not a major concern to most patients in this community partly because, traditionally and religiously, the genitalia are strictly private and not available for display, thereby leaving little motivation for the attainment of glanular cosmetic excellence. However, these patients seem to make a clear distinction between a meatus in the

glans or the corona and one in the distal penile area for which they seek repair. Culp and McRoberts[13] asserted that 'It is the inalienable right of every boy to be a pointer instead of a sitter by the time he starts school and to write his name legibly in the snow." It may well be equally valid to state, from our studies, that it is the inalienable right of boys in communities such as ours to be sitters or squatters instead of pointers and to keep their privates private.

In conclusion, our relatively low chronic complication rate of 8% for anterior hypospadias and 6% for glanular and coronal hypospadias are comparable with reports in the literature. The commonly held goal of constructing the meatus at the tip of the penis for all cases of anterior hypospadias should not be of universal application particularly in communities as ours where urination is in a sitting or squatting position. Despite the fact that such repairs have a low chronic complication rate, the patients and parents should be informed that these milder forms of hypospadias occur in some non-complaining men and are not associated with sexual and reproductive disorders. There seems to be a need to recognize the impact of cultural, social and religious influences in the decision making process of anterior hypospadias management. The patients, and parents as the best judge of what is cosmetically and functionally acceptable in their community, should make an informed choice.

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