Hypospadias Repair:
The Past and the Present – Also the Future?

R. Hohenfellner

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The lifespan of a pediatric urologist is too short to learn from late complications the errors of his therapeutic strategy and operative techniques performed on patients in early childhood.

6.1 Introduction

The following chapter is based on the experience of hypospadias repair performed in a single institution with a resident training program for pediatric urology over a period of more than 30 years. In 1989, we retrospectively analyzed the overall rate of relevant early and late complications in children with reconstructed urethras using different methods and found it as high as 35%.

This led to the question of whether the material used – nearly exclusively skin, mainly as pedicle flaps – was really the best one. In order to answer this question and although skin was used worldwide for urethral reconstruction, we started exploring beyond the limits of urology, hoping to learn from other disciplines.

What we immediately learned by consulting an experienced maxilla face surgeon (Dr. Bräutigam), was that buccal mucosa grafts were used frequently in cases of tear duct reconstruction. Furthermore, we learned about the importance of high histological homology in free tissue transfer and the basic principle that the original tissue to be replaced dictates the harvesting site. Searching for further relevant parameters, we found in laboratory investigations that the high concentration of immunoglobulin (lg-A) in the buccal mucosa – responsible for the bacterial defense mechanism – was nearly the same in the urethra, but not in the prepuce, widely used as the material of choice. The same was true for different cytokeratins found in immunohistochemistry investigations later on [10]. All this looked promising, although the only case of urethral reconstruction performed with buccal mucosa was published 50 years ago by Humby [13]. We started with the free tissue transfer by the use of buccal mucosa grafts in April 1990 and up to now – after more than 12 years – it is still the material of choice in urethral reconstruction, for hypospadias and epispadias as well as for urethral strictures.

Published first in 1992 [2], the number of articles concerning the new technique has increased every year up to 135 counted in 1996, demonstrating the worldwide interest in the new material. Within the same period of time, the enthusiasm for bladder mucosa grafts used as tubes or onlays waned due to the high number of complications and eventually disappeared from the current literature, although it was originally mentioned as «the material of choice in order to substitute urethral defects[14].»

From our analysis of pitfalls in hypospadias repair, we also learned that closure of the glans wedges in order to place the meatus on the tip of the glans runs the risk of obstruction, diverticulum formation, and breakdown of the reconstructed urethra later on. Therefore, a slit-like meatus and a reconstructed frenulum became the compromise of choice, also avoiding repeated unsuccessful dilatations with metallic bougies.

6.2 Incidence and Indication

With an incidence of 1 in 300 male newborns, hypospadias is the most frequent anomaly of the male genitalia, comparable with maxillary and lip anomalies in boys. In around 70% of cases, the penis is strait, the micturition remains undisturbed, and only the meatus is not located on the tip of the glans penis (Fig. 6.1).

However, covered by the hood of the prepuce, the anomaly remains almost invisible in the standing or sitting position. Therefore at the first consultation the parents must be informed of the difference between esthetic surgery and functional reconstruction – indicated in the more severe forms of hypospadias – and also of the complications and the risk of repeated operations.

In order to underline the importance of the differential indication, the location of the meatus was investigated in 500 adult patients admitted for transurethral resection of the prostate [7] and was found in only 55% (Fig. 6.2) on the tip of the glans. A hypospadias was found in 65 (13%) of the otherwise undisturbed patients. It was also never mentioned by their wives – in the majority already multiple grandmothers – and the question concerning the psychological impact of this frequent anomaly became even more debatable (Fig. 6.3).

Therefore our recommendation is to postpone the esthetic correction until the teenager or young adult can decide for himself. Following this strategy, the number of children admitted for esthetic correction decreased.