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Modified-Mathieu's Technique: A Variation of the Classic Procedure for Hypospadias Surgical Repair

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Summary

Distal penile curvature associated with anterior hypospadias can be corrected by urethral plate mobilization.

The authors present 11 cases, in which this procedure was performed modifying the classic *Mathieu's* technique in the surgical treatment of coronal and distal shaft hypospadias associated with chordee.

Performing this modified-*Mathieu's* technique, excellent results, both functional and cosmetic, are obtained without any complication.

Key words: Hypospadias surgery – Urethral plate – *Mathieu's* technique

Résumé

Le redressement de la verge dans les hypospades antérieurs peut être obtenu par mobilisation de la gouttière uréthrale.

Onze patients ont été opérés selon cette technique: il s'agit d'une modification de l'uréthroplastie selon *Mathieu*.

Les résultats obtenus, esthétiques et fonctionnels, ont été excellents et aucune complication n'a été notée.

Mots-clés: Chirurgie de l'hypospade – Plaque uréthrale – Technique de *Mathieu*

Schlüsselwörter: Hypospadie – Urethralplatte – Schaftkrümmung – *Mathieu*-Technik

Introduction

Mathieu's urethroplasty can be considered, at the present, the best technique for correcting coronal and distal shaft hypospadias, when it is not associated with penile curvature (3).

Very good functional and cosmetic results are easily achieved by this surgical procedure, keeping complications at very low levels.

In 1977, *Devine* and *Horton* (2) demonstrated that penile curvature was caused by the ventral chord and not by the urethral plate. For this reason, ventral chord excision straightens the glans, thus dividing or removing of the urethral plate is not necessary.

In 1994, *Duckett*, *Mollard*, *Perovic* (1, 4, 6) managed penile curvature associated with hypospadias by onlay island flap technique, in which the urethral plate is mobilized and the ventral chord removed.

In this paper, a modified *Mathieu's* technique is presented: we propose the mobilization of urethral plate to correct distal penile curvature when it is associated with an anterior hypospadias.

Resumen

El enderezamiento de la curvatura distal del pene en los hipospadias distales puede ser logrado mediante movilización de la placa uretral. Los autores presentan 11 pacientes en quienes se realizó este procedimiento modificando la técnica clásica de *Mathieu* para tratamiento del hipospadias distal y coronal asociado con cuerda ventral. Con esta operación se obtienen resultados excelentes tanto funcionales como cosméticos sin complicaciones.

Palabras clave: Hipospadias – Placa uretral – Técnica de *Mathieu*

Materials and methods

In the last five years we have treated 132 children, presenting coronal or distal shaft hypospadias, using *Mathieu's* urethroplasty.

Since 1994, 88 patients with anterior hypospadias underwent *Mathieu's* urethroplasty. We found a distal or glans curvature associated with anterior hypospadias in 12.5% of cases (11 over 88 children). These children, according to *Devin* and *Horton*, were managed with a variation of classic *Mathieu's* technique: the mobilization of the urethral plate and the removing of the ventral chord performed together with urethroplasty.

The operation starts with the artificial erection test, to evaluate the straightening of shaft and glans and, subsequently, their curvature, if it is observed.

Zusammenfassung

Eine distale Penisverkrümmung mit Hypospadie kann durch eine Mobilisierung der gesamten Urethralplatte korrigiert werden.

In der vorliegenden Arbeit werden 11 Fälle vorgestellt mit einer Modifikation der klassischen *Mathieu*-Technik.

Komplikationen wurden nicht beobachtet, die Modifikation der *Mathieu*-Technik wird eingehend diskutiert.

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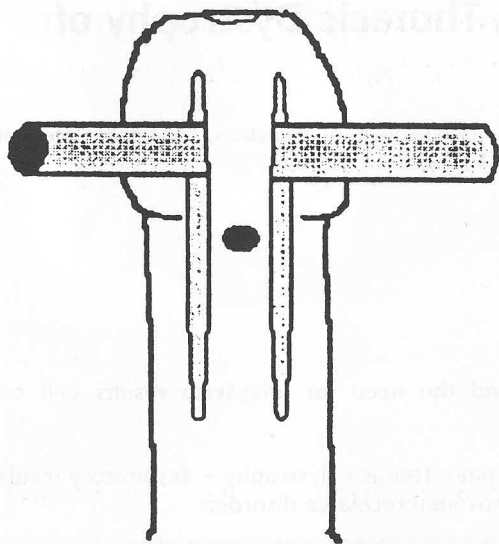


Fig. 1 Mobilization of the urethral plate.

The injection of normal saline with a 25-gauge butterfly needle, placed into the glans, will fill up the entire organ, after securely placing an elastic band at the base of the penis. This will identify any restraining fibrous band(s).

Two skin incisions are performed on each side of the urethra, and mobilization of the urethral plate is carried out, opening the plane just underneath the urethral meatus and proceeding towards the glans. Then the posterior plane is dissected and fibrous tissue, upon the corpora cavernosa, is removed (Fig. 1).

This excision straightens the penis when it is associated with extensive removing of tethering fibrous tissue in anterior segment of balanic groove and distal part of shaft.

The artificial erection test is repeated, to evaluate the result of the procedure; the subsequent steps of the technique are the same as in the classic *Mathieu's* procedure (Fig. 2).

Finally, a preputioplasty is performed.

An 8-Fr. transurethral drain is required for two days.

Results

After at least a twelve-months' follow-up, no complications were observed (dehiscences, fistulae, meatal stenoses).

Discussion

Mathieu's urethroplasty is at the present our best choice in the surgical treatment of coronal and distal shaft hypospadias, but when this urethral defect is associated with penile curvature, a good result can be difficult to realize using this procedure.

For this reason, according to some authors' reports, in which distal penile curvature was treated by mobilization of urethral plate, we started to perform the same procedure also in the classic *Mathieu's* urethroplasty. In this last technique, a very thin pedicle flap is used for urethroplasty and, therefore, the mobilization of urethral plate could cause a vascular impairment. This event, nevertheless, was not observed in our series.

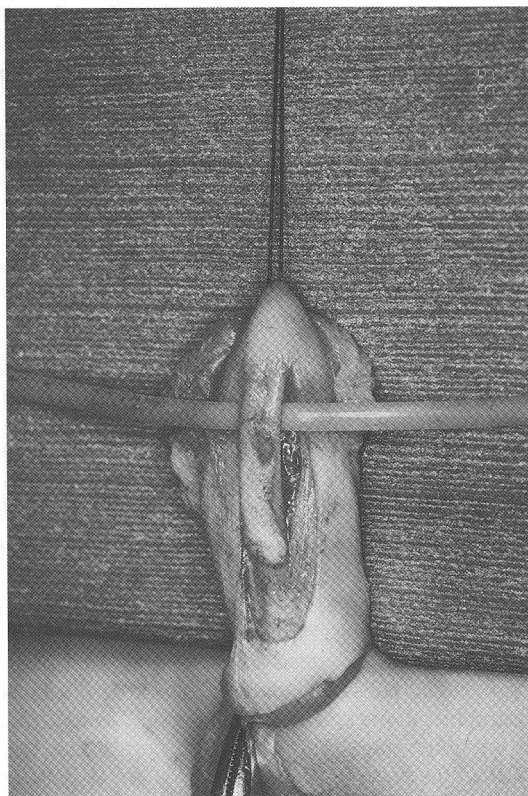


Fig. 2 Clinical appearance after mobilization of the urethral plate.

Performing modified-*Mathieu's* technique, excellent results have been achieved, both functional and cosmetic, with no complications.

Since we started to carry out this modification, no different technique has been required for treatment of coronal and distal shaft hypospadias associated with distal penile curvature.

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