Urethral Advancement and Glanuloplasty UAGP vs. MAGPI for Distal Hypospadias Repair

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Distal hypospadias is a commonly encountered anomaly. Since its innovation by Duckett the MAGPI procedure has become almost the standard operation for the correction of minor cases. Recently case selection has been advised to avoid possible complications and limitations. Between April 1986 and April 1995, 153 boys were treated for distal hypospadias. In 51 patients (coronal 31, subcoronal 20) a modified technique of urethral advancement and glanuloplasty (UAGP) has been used. The main indications of UAGP were the presence of glanular chordee (7), failed MAGPI (3), circumcised children with distal hypospadias (7), immobile fibrotic urethral meatus (5), and as an alternative to MAGPI (29). The overall complication rate was 4% compared to 3.8% with the MAGPI procedure which has been used in the treatment of 102 patients (glanular 50, coronal 47, and subcoronal 5). We feel this technique can be used effectively in patients with coronal and subcoronal hypospadias, particularly in the presence of distal chordee, fibrotic immobile urethral meatus or MAGPI limitations. Also UAGP could be a useful alternative to MAGPI where tension-free urethral advancement and glanular wrapping can be achieved.

Introduction

The reported incidence of hypospadias is approximately 1:125 live male births of which distal hypospadias is the most common variety accounting for 70% of all cases [1, 2]. Glanular, coronal and subcoronal hypospadias constitute specific subgroups for which many corrective techniques are available, but none is universally recommended [3]. Duckett [2] described a new procedure known as MAGPI (meatal advancement and glanuloplasty incorporation). Since then the procedure has been widely accepted and generally applied in the repair of distal hypospadias. Though the technique offered improved cosmetic and functional results without the need for formal urethroplasty, complications and limitations of the procedure have been reported. The most common complication is the development of meatal regression; other complications include meatal stenosis and fistula formation [4, 5]. In the presence of complications or limitations of the procedure many alternative techniques are available. The majority were based on neourethra formation which is usually associated with a higher morbidity rate and perhaps less satisfactory cosmetic results [6, 7]. We incorporated the Koff [8] urethral mobilization with glanular wrapping as an alternative to MAGPI and to successfully overcome its limitations.
Patients and method

Between April 1986 and April 1995 a total of 153 boys were treated for distal hypospadias (Table 1); 102 of them were managed with the MAGPI procedure (Group A), the remaining 51 were treated by urethral advancement and glanuloplasty (UAGP) (Group B). In Group A, eighty-seven patients (85%) were managed as day cases. Seventeen patients required urethral catheter splint postoperatively, overall average stay in the hospital was 1.2 days.

Table 1

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Types</th>
<th>Age</th>
<th>Hospital stay</th>
<th>Follow-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group A (102) (MAGPI)</td>
<td>G</td>
<td>C</td>
<td>SC</td>
<td>3 months–5 years</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(M=1.4 years)</td>
<td>(M=1.6)</td>
</tr>
<tr>
<td>Group B (51) (UAGP)</td>
<td>0</td>
<td>31</td>
<td>20</td>
<td>8 months–9 years</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(M=2.3 years)</td>
<td>(M=2.4)</td>
</tr>
</tbody>
</table>

G = glanular; C = coronal; SC = subcoronal; M = mean

In Group B, all patients required urethral catheter splint postoperatively. Seven patients had evidence of glanular chordee, seven patients were already circumcised, five patients showed immobile urethral meatus, in three patients the MAGPI repair failed and in twenty-nine patients the procedure was elected to be an alternative to MAGPI. The average hospital stay was 2.4 days.

Technique

A small size infant feeding tube (FG 6 or 8) is introduced through the external urethral meatus. A 1/4 inch penrose drain is used as a tourniquet around the root of the penis. The glans is held with a 4/0 silk stay suture.

Xylocaine 1% with T:200,000 epinephrine are injected in the subcoronal area and glanular region for haemostasis. Almost all repair was done with the help of an optical loop with a magnifying power of 2.5 times. Routine MAGPI procedure was performed as described by Duckett [2]. In addition, we perform a dorsal urethral meatal split to avoid future meatal stenosis. In our new technique, an elliptical incision (2–3 mm) is made around the urethral meatus and extended circumferentially 3–5 mm proximal to the coronal sulcus (Fig. 1). The proximal penile skin is mobilized carefully and the skin chordee, if any, is released.

Meticulous mobilization of the urethral meatus and the urethra with its pre-urethral spongy tissue is carried out for 1–2 cm proximally [8] and the distal fibrous chordee is excised (Fig. 2). A longitudinal incision is made in the middle