complications related to posterior hypospadias Repair

Professor Abdulrahman Sulaiman*, Thayer M. A. Abo*sh**, Ahmad Mothar Hamodat**

*Retired Department of surgery, College of Medicine University of Mosul, **Al-Khansa’a Teaching Hospital, Mosul, Iraq

Correspondence: abdulrahmanasu@uomosul.edu.iq

Received: 14th Nov. 2020; Accepted: 29th Dece. 2020.

ABSTRACT

Background: Proximal hypospadias repair carries high complications rates. Stage repair is the standard practice for management but sometimes we may try to do it as a single stage although it is not easy to perform for posterior hypospadias and here appears the need for staged surgery. In this study we assess the out coms and complications of the most commonly used techniques in Mosul pediatric surgery center at alkhansa teaching hospital.

Objective: To assess the results of management of posterior hypospadias by Tubularized incised plate as single stage and staged repair and to knew the most important complications associated with these two procedures.

Methods: this is prospective study for forty patients who were admitted to Mosul pediatric surgery center at alkhansa teaching hospital from October 2011 till October 2013, their age ranged from 9 month to 15 years, five of them were operated before with complete failure, 31 patient operated by single stage Tubularized Incised Plate technique and the other 9 by two stage technique and they were followed for 6-18 months.

Results: The total complications rate was (52%) as follow: (7) cases (17.5%) develop meatal stenosis, (4) patients (10%) develop retrusive meatus, No one develops stricture, (10) cases (25%) develop fistula and none of them develop diverticulum, the total complication rate for Single stage TIP technique was (48.3%) the total complication rate of complications for staged surgery was (66.6%).

Conclusion: we found that there is no much difference regarding the operative complications rate and the selection of the procedure depend on the individual case, surgeon experience and hospital facilities.

KeyWords: posterior hypospadias, proximal hypospadias, TIP, single stage repair, two stages repair.

المضاعفات المصاحبة لإصلاح المبال التحتاني (النوع الخلفي)

الاستاذ عبد الرحمن عبد العزيز الشهوانى ،* ، ثائش محمذامينعبىش **، أحمد مظفشحمىدات**

*متقاعذ فَشٍمُه، جامعٍة ال‌موسول ، **مستشفيى الخنساء التعليمية، الموصل، العراق

الطشق المستعملة والمضاعفات المصاحبة لهذه الطشق.

الخلاصة: أصلاح المبال التحتاني (النوع الخلفي) يحتوي الكثير من المضاعفات. أجزاء الإصلاح بمرحلة واحدة هو المفضل. لكن إحيانا يتعرض لقد تحتاج إلى تفتيت لل鬣ان. في هذه الدراسة فائض نتائج وافهم المضاعفات المصاحبة لعلاج هذا النوع من المبال التحتاني في مركز جراحة الأطفال بالموصل.

المياه من هذه الدراسة تقييم النتائج لعلاج المبال التحتاني بمرحلة واحدة باستخدام طريقة سندوكاس ومرحلة وصفيين ومعرفة أهم ميضاعفات المصاحبة لهذه الطشق.


النتائج كانت نسبة المضاعفات بشكل عام 42% موزعة كما يلي: 7 حالات 17% حصل لهم تصب في فتحة البول و10 حالات 25% حصل لهم ناسور من خلال جرع العمليات. ولم يحصل أي حالة 10% حصل لهم رجوع الفتحة للخلف و10 حالات 25% حصل لهم ناسور من خلال جرع العمليات. ولم يحصل أي حالة...
INTRODUCTION
proximal hypospadias represents a major challenge to pediatric surgeons, it carries high complications rate, many procedures and techniques were used to deal with this anomaly.1 Some of these techniques is one stage,2 and other procedures are multistage repair, each of these procedures has its own advantages and disadvantages 3. The complications rates are considerably high in comparison to the distal type hypospadias 4. Redo surgery is indicated in some of these complications 5. In this review (study) we assess the outcome and complications of the most commonly used technique in our pediatric surgery center at Alkhansa’a teaching hospital in Mosul.

PATIENTS AND METHOD
This is a prospective study over two years, from October 2011 till October 2013, This study was carried out to report the outcome and complications after repair of proximal hypospadias, The study included forty patients with proximal hypospadias They were admitted to Mosul pediatric surgery center at Al-khansa’a teaching hospital with their age ranged from nine months to fifteen years, classic TIP (Tubularized incised plate) repair done For thirty one patient(26) case with dartos flap and vascularized posterior subcutaneous tissue(Dartos tunica) and (5) cases with tunica vaginalis barrier flap. and two stage repair was done for the remaining nine patient Patients are followed up for six to eighteen months at least with estimation of the total complication percentage, complications related to specific procedure (single or staged procedure).

Exclusion criteria include: Anterior and middle types, cases operated by other procedure than we used.

Surgery performed under general anesthesia with tourniquet using catheter from 6 to 10f according to the age of the child, either by single stage TIP technique (snonograss) or two stage repair.

RESULTS
Patients’ age at the time of surgery ranged from 9 months to 15 years, 32 of them were operated before school age and 8 of them were school age (20%).

Of our 40 cases the type of hypospadias was (21) with proximal penile shaft, (17) with penoscrotal, (1) with scrotal and (1) with perineal type as shown in Table (1)

<table>
<thead>
<tr>
<th>Type</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proximal penile shaft</td>
<td>21</td>
<td>52.5</td>
</tr>
<tr>
<td>Penoscrotal</td>
<td>17</td>
<td>42.5</td>
</tr>
<tr>
<td>Scrotal</td>
<td>1</td>
<td>2.5</td>
</tr>
<tr>
<td>Perineal</td>
<td>1</td>
<td>2.5</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td>100</td>
</tr>
</tbody>
</table>

Of those 40 cases 13 was circumcised either outside hospital or by previous operation in cases of redo cases and 27 of cases were not circumcised, the complications rate nearly similar in both groups.

In our study 16 case had simple torsion (less than 30 degree), two patients with significant torsion (more than 90 degree) and 22 without torsion
Chordee was present in 23 patients (57.5%) and only two (5%) of them need dorsal plication.
The type of operation was chosen according to the presence of urethral plate especially after correction of chordee, so two types of operation were selected as in the following (Table 2)

a) TIP urethroplasty (31) case.

b) Two stage operation (9) cases. (the first stage correction of chordee and replacement of the urethral palate with skin graft or flap and the second stage is classical TIP technique

<table>
<thead>
<tr>
<th>Type of operation</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>TIP</td>
<td>31</td>
<td>77.5</td>
</tr>
<tr>
<td>Two stage operation</td>
<td>9</td>
<td>22.5</td>
</tr>
<tr>
<td>total</td>
<td>40</td>
<td>100</td>
</tr>
</tbody>
</table>

According to our hospital protocol to ensure better medical care, the average hospital stay for single stage repair was (7) days while in those with two stage most of them admitted for at least 10 days.

Total complications after six months of follow up were (52%) as follow: (7) case (17.5%) develops meatal stenosis that's needs urethral dilatation under general anesthesia, (4) patient (10%) develops retreusive meatus (2) of them simple and did not need intervention while the other (2) needs surgery (MAGPI) after 6 months, No one develops stricture, (10) case (25%) develops fistula four of them closed with conservative measures and after dilatation under general anesthesia to ensure distal patency and no one develop cordee.

while (6) of them required operation for closure of fistula six months later, no diverticulum was recorded in our study during our follow up period which may be not enough for such complication to appear, as shown in (Table 3).

<table>
<thead>
<tr>
<th>Type of complication</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stenosis</td>
<td>7</td>
<td>17.5</td>
</tr>
<tr>
<td>Retruseive meatus</td>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td>Stricture</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Fistula</td>
<td>10</td>
<td>25</td>
</tr>
<tr>
<td>Diverticulum</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Chordeae</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>21</td>
<td>52.5</td>
</tr>
</tbody>
</table>

DISCUSSION

Surgical repair of hypospadias has remained one of the most tasking problems for reconstructive surgeons, urologists and pediatric surgeons because of high complication rate.

The fact that there are about 250 different operations to manage this tricky problem indicating that there is no single operation which is favorable by all surgeons of the world because no single technique provides uniformly good results.

One stage repair is naturally favored as it decreases operative trauma, allows use of virgin, unscarred skin, decreases number of hospitalization and thus in turn is economical, but some surgeons remain unhappy with limitations and drawbacks of one stage repair and continue to practice two stage repairs.
Two-stage repair for proximal hypospadias continue to be used despite allegations by some that they represent a "step backwards." A review of the recent literatures suggested that two stage repairs achieve excellent cosmetic and functional results.

Our patients had varying degrees of proximal hypospadias. (21) with proximal penile shaft, (17) with penoscrotal, (1) with scrotal and (1) with perineal type as in table (1). These figures go with the results of many other series including Sauvage and Borer.

Chordee was present in 23 patients (57.5%). Sixteen (40%) are mild and 5 (12.5%) are moderate and 2 (5%) with sever chordee, Most cases of penile curvature are corrected by degloving of the penile skin and only two of them needs dorsal plication for correction of chordee and this is similar to what was found by Sulaiman who had eight cases (6.4%) with chordee all of them corrected by degloving of the penile skin and only one needs dorsal plication. also, similar results were found by Hatem and Singh who found that 5.7% of their patients required tunica albuginea plication for correction of chordee. and this is similar to what we found.

Most of our cases were operated by single stage TIP urethroplasty thirty-one (77.5%) case. Of those, (26) cases we used lateral based flap and vascularized posterior subcutaneous tissue and in five cases we used tunica vaginalis barrier flap after correction of chordee without transection of the native urethral plate. While the other nine cases (22.5%) were operated by two stages procedure as shown in table (2). Khalid had found similar results in his study who had 25 cases, thirteen (52%) of them underwent one stage TIP repair, while two-stage repair was done in 12 patients (48%)

Badawy and Fahmy report that the complication rate for the single-stage repair of proximal penile hypospadias is varying from 8–61.5%. This wide variation depends on the surgeon’s skill, workload and experience. In multistage repair they found that the incidence of complications rate was 15–70%. In our study the total complication rate was 52% regardless the surgery weather single or staged surgery.

Snodgrass and Lorenzo reviewed the records of 33 consecutive patients with a mid-shaft to penoscrotal hypospadias undergoing single stage TIP repair. In their study the total number of long-term complications was noted in 11 patient (33%) the most common problem was fistula which occurs in seven boys (21%).our results is slightly higher than that of Snodgrass and Lorenzo and this may be due to that our cases all are of proximal type while in their study they include mid-shaft type. Among their cases one developed meatal stenosis and need meatotomy while all of our cases improved after dilatation, and they didn’t have retrusive meatus while we have one case indicate that we leave bigger meatus than what they did.

Aboulhassan et al. had found in their study in single stage TIP group that they had a total incidence of complications 21%. Meatal stenosis and fistula were the most frequent complications (8% each) and only one case of complete disruption, when we compare with this study we have slightly higher complication rate than what they had.

Snodgrass et al. in study that involved 36 children, 13 with proximal penile hypospadias, 11 with penoscrotal, nine with scrotal and three with perineal hypospadias, they used a single stage TIP repair in 26 and two stages in 10 children. The authors reported a 13% complication rate, in the form of one case of urethral stricture and one glanular dehiscence, with an overall success rate of 87%. The follow up was 12 months in 24 children. They showed an improvement in the results with accumulating experience in posterior hypospadias, by using a double-layer closure of the urethral plate and by using the tunica vaginalis as the second layer. This report is similar to what we had found in our five cases when we used a tunica vaginalis as second layer.

Suijiantararat and Chaiyaprasithi report complication rate for proximal hypospadias for single stage and it was (37.5%), it seems lower than our complications rate.

Sulaiman had 60% overall complication rate in single stage TIP, in previous study done in our center for hypospadias involving all types of hypospadias and most of them of anterior variant, we can see an improvement by decreasing complications rate from 60% to (48.3%).

AlEkrahy et.al. in their study which involve 20 patient they found that the total number of acute complications was six cases (30%).urethrocutaneous fistula was the commonest complication, three cases, (15%) one of the cases has been improved and completely relieved by frequent urethral dilatation and the total number of chronic complications was six patients (30%) and the commonest complication was meatal stenosis (15%), three cases, one of them needed meatotomy. These results are slightly lower than ours in total complications but we have fewer cases with meatal stenosis. Possibly because we leave wide meatuses.

Nine cases were operated by two stage and the total rate of complications was (66.6%) of those cases: two cases (22.2%) of them develops meatal stenosis that responds to urethral calibration, (1)
cases (11.1%) develops retrusive meatus that required nothing, no stricture was reported, (3) cases (33.3%) develops fistula all of them required surgery after six months for closure and no diverticulum identified during our follow up period which may be not enough for such complication to appear, as shown in table (4).

Saafan 17 in study that involve 33 case with proximal hypospadias all of them were operated by 2 stage procedure had found that total complications rate was 27.3 %, fistula (24.2 %) and stenosis (3%) and no retrusive meatus or diverticulum . His results are lower than ours, and this may be due to that we did 2 stage procedure for small number (only 9 boys). The incidence of fistula formation is reported to be from 3 % to 50 % and it is higher in proximal hypospadias 26, which support our results.

Gershbaum et al. 27 operate 11 children with proximal hypospadias by two stage and a follow-up of 6–18 months. There were complications in only two children (18%) one with fistula and the other developed urethral diverticulum while in our study with tow stage repair the fistula was 33.3% and no diverticulum.

Arshad 28 reported the largest series, including 100 children, in whom Byar’s preputial flaps were used. Eighteen children had complications (18%), in form of a fistula.

Cheng et al. 29 transected the urethral plate proximally, Preserving the distal portion, and used Byar’s flaps to bridge the gap to the native urethra. The authors operated on 14 children and he followed them for 6–36 months. Two children (14.2%) had complications, one with a fistula and diverticulum, and the other one with a diverticulum.

Aseem et al. operated on 10 children, with a mean follow-up of 41.5 months, and seven patients (70%) had complications, all with a fistula, three with meatal stenosis and one with a urethral diverticulum 30.

Badawy and Fahmy 20 concluded in their study that: It is clear in these studies that the complication rate is very variable from 14% to 70%. Complications are not major if they are in the form of a fistula, meatal stenosis and diverticulum, and thus no major complications (e.g. complete dehiscence) were reported in these studies. This support the results which we had found in our 9 cases that operated by 2 stage procedure, our total complications rate was (66.6%) which is nearly similar to Aseem et al. 30.

CONCLUSION

we found that there is no much difference regarding the operative complications rate and the selection of the procedure depend on the individual case, surgeon experience and hospital facilities. Most of the published papers has low number of cases which may not reflect the exact incidence of complications.

REFERENCES

complications related to posterior...

Professor Abdulrahman Sulaiman


