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Training Course on
“Techniques in Reconstructive Urology”

Mansoura - Egypt

January 23 – 29, 2010
The use of oral mucosa for anterior urethroplasty
A ONE-STAGE OPERATION FOR HYPOSPADIAS

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WITH A FOREWORD BY
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Oral mucosa

16 cm x 2.5 cm

4 cm
Oral mucosa

cheek

lip

tongue
Lip

Negative aesthetic consequences

 Unsatisfactory post-operative patient acceptance
Two surgical teams work simultaneously
Two sets of surgical instruments

Oral mucosa

Urethroplasty

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Appropriate mouth retractor with its own light
Only one assistant is needed to harvest the oral graft
Advantages of the double team

- Decrease in surgical time of ~ one hour
- Decrease in contamination in surgery
- Provides training opportunity for the young assistant interested in learning urethral surgery

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Harvesting oral mucosal graft from the cheek

Surgical steps
The patient is intubated through the nose, allowing the mouth to be completely free
Lidocaine HCL 1% with epinephrine (1:100,000)
Harvesting oral mucosal graft from the cheek

**Advantages**

- Available in all patients
- Two grafts, thick, long and large
- Donor site scar is concealed

**Disadvantages**

- The procedure may require nasal intubation or special retractor
Morbidity of oral mucosa graft harvesting from a single cheek

Barbagli G. et al, Eur Urol 2010; in press
Early complications in 350 patients

**bleeding:** 4.3%

**pain:** none 49.2%, slight 36%, moderate 13.7%, severe 1.1%

**swelling:** none 33.7%, slight 41.2%, moderate 24.6%, severe 0.5%

**use of anti-inflammatory drugs for oral pain:** 3.7%

Barbagli G. et al, Eur Urol 2010; in press
Early complications in 350 patients

58.6% patients were able to resume a normal diet within 3 days

31.4% patients were able to resume a normal diet within 6 days

10% patients were able to resume a normal diet within 10 days

Barbagli G. et al, Eur Urol 2010; in press
Late complications in 350 patients

- **infection:** 1.7%

- **perioral numbness:**
  - for one week: 73.4%
  - for one month: 22.9%
  - for three months: 3.7%

- **discomfort related to the tightness of suture closure:**
  - none: 48%
  - slight: 40.3%
  - moderate: 10.9%
  - severe: 0.8%

- **discomfort due to mouth scar:**
  - none: 82.8%
  - slight: 14.6%
  - moderate: 2.6%
  - severe: 0%

Barbagli G. et al, Eur Urol 2010; in press
Late complications in 350 patients

**difficulty with mouth opening:** none 98.3%, slight 1.4%, moderate 0.3%, severe 0%

**difficulty smiling:** none 99.7%, slight 0.3%, moderate 0%, severe 0%

**dry mouth:** none 97%, slight 2.6%, moderate 0.4%, severe 0%

Barbagli G. et al, Eur Urol 2010; in press
Patient satisfaction

“Would you undergo oral mucosa graft harvesting using this technique again?”

Yes: 98% of patients

No: 2% of patients

Barbagli G. et al, Eur Urol 2010; in press
Ovoid shape

Rectangular shape
Ovoid shape  Rectangular shape
Ovoid shape

Rectangular shape
Evaluation of the results

If you don’t look for complications following surgery, you won’t find complications!
Harvesting oral mucosal graft from the tongue

Surgical steps
Wharton’s duct
Lingual nerve
Double grafts harvesting
Harvesting mucosal graft from the tongue

Advantages

• Two grafts available in all patients
• Donor site scar is concealed
• The procedure is simple and quick and does not require nasal intubation or special retractor

Disadvantages

• The grafts are thin
- The **tongue** represents the best alternative to the cheek

- Few reports in the literature
The use of oral mucosa in urethral surgery

Why?

• Its biological and histological characteristics

• Due to its elasticity, it is adaptable for any kind of urethroplasty (one-stage or two-stage) (onlay or inlay)

• In the literature (years 1966-2006), 1,267 articles on the use of oral mucosa for urethral reconstruction have been reported
The use of oral mucosa in urethral surgery

Why?

The patient does not want to be considered an experimental animal.
Penile urethra

Basically, the surgical technique for the repair of penile urethral strictures is selected according to stricture etiology.
Etiology of penile urethral strictures

- Failed hypospadias repair
- Lichen sclerosus
- Trauma
- Instrumentation
- Catheter
- Infection
- Other cause
In penile urethral strictures due to:

- Trauma
- Instrumentation
- Catheter
- Infection
- Other cause

The penis is normal: one-stage repair
One-stage penile urethroplasty using Asopa’s technique

Asopa H.S. et al, Urology 2010; 58: 657-659

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Asopa’s technique

Penile urethral stricture involving external urinary meatus or in the middle tract of the shaft
Asopa’s technique
Asopa’s technique
Asopa’s technique
One-stage penile graft urethroplasty using Asopa’s technique

Results

<table>
<thead>
<tr>
<th>patients</th>
<th>type of repair</th>
<th>success</th>
</tr>
</thead>
<tbody>
<tr>
<td>22</td>
<td>oral graft</td>
<td>81.8%</td>
</tr>
<tr>
<td>23</td>
<td>skin graft</td>
<td>78.3%</td>
</tr>
</tbody>
</table>

Barbagli G. et al, BJU Int 2008; 102: 853-860
In penile urethral strictures due to:

Failed hypospadias repair

Lichen sclerosus

The penis is abnormal: two-stage repair
Two-stage urethroplasty using oral mucosal graft
First stage
Complications following the first stage of urethroplasty

10-39% of patients showed scarring of the initial graft, requiring new grafting procedures

Second stage
Second stage
Complications following the second stage of urethroplasty

30% of patients showed complications following the second stage of urethroplasty, requiring surgical revision


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Penile urethroplasty: conclusions

- Two-stage penile urethroplasty using oral graft is not a simple procedure and requires great expertise to avoid a lot of traps.

- Moreover, this two-stage procedure, also in the hands of the skilled surgeon, showed a high complication rate, either following the first stage or the second stage.
Bulbar urethra

Basically, the surgical technique for the repair of bulbar urethral strictures is selected according to the stricture length.
One-stage bulbar urethroplasty using oral mucosal graft

2 – 4 cm: augmented anastomotic repair

> 4 cm: substitution urethroplasty
Preparation of the patient

Simple lithotomy position
Preparation of the patient

Allen stirrups
Preparation of the patient

Sequential inflatable compression sleeves
2 - 4 cm bulbar urethral stricture

Augmented anastomotic repair
The urethra is transected at the stricture level
The distal and proximal urethral ends are mobilized from the corpora cavernosa.
The distal and proximal urethral ends are fully spatulated along the dorsal surface.
Two ml of fibrin glue are injected over the urethra.
The buccal mucosal graft is applied over the fibrin glue
The distal and proximal urethral edges are sutured to the apices of the graft.
The distal urethra is pulled down and the proximal urethra is pulled up to cover the graft.
The distal and proximal urethral edges are sutured together along the midline as an end-to-end anastomosis.
Two ml of fibrin glue are injected over the urethra to prevent urinary leakage.
> 4 cm bulbar urethral stricture

Substitution urethroplasty
Substitution urethroplasty

ventral
dorsal
Ventral onlay graft urethroplasty
Dorsal onlay graft urethroplasty
Conclusions

- Reconstructive surgery for urethral strictures is continually evolving and the superiority of one approach over another is not yet clearly defined.

- The reconstructive urethral surgeon must be fully able in the use of different surgical techniques to deal with any condition of the urethra at the time of surgery.