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International Conference on Reconstructive Urethral Surgery
Department of Urology – Shanghai 6th Hospital

Shanghai, China
February 6 - 8, 2009

SHANGHAI

February 6 – 8, 2009
Prof. Qiang FU

Center for Reconstructive Urethral Surgery
Professor FU

day……

Center for Reconstructive Urethral Surgery
Professor FU

......and night
Anterior urethroplasty using oral mucosal graft: surgical techniques and results in a Specialized Referral Center
Oral mucosal grafts

22 cm x 2.5 cm
Oral mucosa harvest

Surgical tricks and tips

cheek
lip
tongue
Two surgical teams work simultaneously
Two sets of surgical instruments

Oral mucosa

Urethroplasty
Appropriate mouth retractor

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
Harvesting oral mucosal graft from the cheek
The patient is intubated through the nose, allowing the mouth to be completely free.
Center for Reconstructive Urethral Surgery
Harvesting oral mucosal graft from the cheek

**Advantages**

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

**Disadvantages**

- Harvesting procedure may require nasal intubation or special retractor
Evaluation of early and late complications and patient satisfaction in 300 patients who underwent oral graft harvesting from a single cheek using a standard technique in a Referral Centre experience

Barbagli G. et al., AUA 2009 Meeting, Chicago, USA
Early complications

bleeding: 3.6%

pain: score 0 (35.2%), score 1 (46.8%), score 2 (16.9%), score 3 (1.6%)

swelling: score 0 (16.8%), score 1 (49.2%), score 2 (33.2%) and score 3 (0.8%)

use of anti-inflammatory drugs: 5.2%
Early complications

52% of patients were able to resume a normal diet within 3 days

36% of patients were able to resume a normal diet within 6 days

12% of patients were able to resume a normal diet within 10 days
Late complications

infection: 1.6%

perioral numbness: for one week (68%), for one month (27.6%), for three months (4.4%)

discomfort related to the tightness of suture closure:
  score 0 (41.2%), score 1 (44.4%),
  score 2 (13.2%), score 3 (1.2%)

discomfort due to mouth scar: score 0 (81.6%),
  score 1 (14.8%), score 2 (3.6%)
Late complications

difficulty with mouth opening: score 0 (98%), score 1 (1.6%)
difficulty to smile: score 0 (99%), score 2 (1%)
changes in face physiognomy: score 0 (99%)
Patient satisfaction

“Would you do this type of operation again?”

Yes: 98.4% of patients

No: 1.6% of patients
Harvesting oral mucosal graft from the lip
Harvesting oral mucosal graft from the lip

**Advantages**

- Available in all patients
- Harvesting procedure is simple and quick and does not require nasal intubation or special retractor

**Disadvantages**

- One graft, thin and narrow
- Donor site scar is not concealed
Harvesting oral mucosal graft from the tongue
Harvesting mucosal graft from the tongue

**Advantages**

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

**Disadvantages**

- The grafts are thin
- No numerous reports in the literature
Oral graft: conclusions

The cheek still represents the best harvesting site in the mouth

Excellent postoperative patient satisfaction

Numerous articles reported in the literature
Oral graft: conclusions

Harvesting the oral mucosal graft from the lip should be abandoned

Negative aesthetic consequences

Unsatisfactory postoperative patient acceptance
Oral graft: conclusions

The tongue could represent a good harvesting site as an alternative to the cheek

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

Why?

• Its biological and histological characteristics

• Its elasticity, it is adaptable for any kind of urethroplasty (onlay-inlay) (one-stage - two-stage)

• In the literature (years 1966-2006), 1,267 articles on the use of oral mucosa for urethral reconstruction have been reported
Morbidity associated with oral mucosal harvest for urological reconstruction: an overview

Complications occurring at the buccal donor site: 9 (4%)

Scarring and contracture

The use of oral mucosa in urethral surgery

Why?

Patients don’t like to be considered an experimental animal
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’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
Asopa’s technique
Asopa’s technique
## One-stage penile graft urethroplasty

### 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
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

Penile urethral stricture in patient with failed hypospadias repair or lichen sclerosus
First stage
Complications following the first stage of urethroplasty

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

Barbagli et al., Eur Urol, 2006
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

Barbagli et al., Eur Urol, 2006
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.
Basically, the surgical technique for the repair of bulbar urethral strictures is selected according to the stricture length.
One-stage bulbar urethroplasty using oral graft

2 – 4 cm: augmented anastomotic repair

> 4 cm: substitution urethroplasty
Preparation of the patient

Simple lithotomy position
Preparation of the patient

Allen stirrups with sequential inflatable compression sleeves
2 - 4 cm bulbar urethral stricture

Augmented anastomotic repair
Methylene blue is injected into the urethra.
The distal extent of the stenosis is identified by inserting a 16-French catheter with a soft round tip.
The distal extent of the stenosis is identified and outlined.
The urethra is dissected from the corpora cavernosa
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.
Results on 24 patients who underwent augmented anastomotic repair using dorsal oral mucosal graft

Mean follow-up 48 months (25 – 78 months)

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<table>
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<tbody>
<tr>
<td>success</td>
<td>19 (79.2%)</td>
</tr>
<tr>
<td>failure</td>
<td>5 (20.8%)</td>
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</tbody>
</table>

www.urethralcenter.it
> 4 cm bulbar urethral stricture

Substitution urethroplasty
Substitution urethroplasty

ventral

dorsal
Ventral onlay graft urethroplasty
Results on 143 patients who underwent ventral oral mucosal onlay graft urethroplasty

Mean follow-up 38 months (12-103 months)

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<tr>
<td>Success</td>
<td>126 (88.1%)</td>
</tr>
<tr>
<td>Failure</td>
<td>17 (11.9%)</td>
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</table>

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Dorsal onlay graft urethroplasty
Center for Reconstructive Urethral Surgery
Results on 19 patients who underwent dorsal oral mucosal onlay graft urethroplasty

Mean follow-up 52 months (12 – 117 months)

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<tbody>
<tr>
<td>success</td>
<td>14 (73.7%)</td>
</tr>
<tr>
<td>failure</td>
<td>5 (26.3%)</td>
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www.urethralcenter.it
One-sided Anterior Urethroplasty: A New Dorsal Onlay Graft Technique

S. B. Kulkarni and G. Barbagli
Center for Reconstructive Urethral Surgery
Results on 24 patients who underwent one-sided anterior urethroplasty

Mean follow-up 22 months (12 – 55 months)

- **success**: 22 (91.6%)
- **failure**: 2 (8.4%)

BJU Int, 2009, in press
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.
Scientific Session at the 2009 American Urological Association (AUA) Annual Convention

Chicago, Illinois, USA

April 25-30, 2009
Topics to be presented and discussed

Failed Hypospadias Repair Presenting in Adults: A New Outbreak?

Point-Counterpoint. Bulbar Urethroplasty: Transect or Not Transect the Urethra?

Does Penile Length Affect Surgical Steps and Outcome of Posterior Urethroplasty?
Next month, this lecture will be fully available on our website

Thank you!