


CENTER FOR RECONSTRUCTIVE URETHRAL SURGERY



GUIDO BARBAGLI, M.D.
Arezzo - Italy

e-mail: info@urethralcenter.it

Websites: www.uretra.it
www.urethralcenter.it



Pre-37th SIU

SEMI-LIVE Surgery

Workshop on Genitourethral Reconstruction

Venue: SANA Lisboa Hotel

OCTOBER 17-18, 2017



e-mail: info@urethralcenter.it

www.uretra.it

Websites: www.urethralcenter.it

Tissue Engineering for Urethroplasty:

Why?



I have
three good reasons for wholeheartedly
supporting
Tissue Engineering Urethroplasty:

1. Avoiding Any Complications in Oral Mucosa Harvesting
2. Patients Requiring Now Tissue Engineered Oral Mucosa
3. Patients with Lichen Sclerosus and Failed Hypospadias Repair



1

Avoiding Any Complications in Oral Mucosa Harvesting



**Comparison between 350 (2010),
553 (2014), and 734 (2017) patients
who underwent a questionnaire on
oral mucosa harvesting.**



2010

EUROPEAN UROLOGY 58 (2010) 33–41

available at www.sciencedirect.com
journal homepage: www.europeanurology.com



European Association of Urology



Platinum Priority – Reconstructive Urology

Editorial by Christopher Chapple on pp. 42–45 of this issue

Morbidity of Oral Mucosa Graft Harvesting from a Single Cheek

Guido Barbagli^a, Santiago Vallasciani^a, Giuseppe Romano^b, Fabio Fabbri^c, Giorgio Guazzoni^c, Massimo Lazzeri^{d,*}

^a The Centre for Reconstructive Urethral Surgery, Arezzo, Italy

^b Unità Operativa Urologia, Ospedale San Donato, Arezzo, Italy

^c Department of Urology, San Raffaele Turro University-Hospital, Milan, Italy

^d Department of Urology, Santa Chiara-Firenze, Florence, Italy

EUR UROL 2010; 58: 33-41.

350 patients



e-mail: info@urethralcenter.it

Websites: www.uretra.it
www.urethralcenter.it

2014

Prediction of Early and Late Complications after Oral Mucosal Graft Harvesting: Multivariable Analysis from a Cohort of 553 Consecutive Patients

Guido Barbagli, Nicola Fossati, Salvatore Sansalone, Alessandro Larcher, Giuseppe Romano, Vincenzo Dell'Acqua, Giorgio Guazzoni and Massimo Lazzeri*

From the Center for Reconstructive Urethral Surgery, Arezzo (GB, GR), Department of Urology, San Raffaele Turro Hospital, Milan (NF, AL, VDA, GG, ML), and Department of Experimental Medicine and Surgery, University of Tor Vergata, Rome (SS), Italy

Abbreviations and Acronyms

OM = oral mucosa

RCT = randomized prospective trial

Accepted for publication September 3, 2013.
Study received institutional review board approval.

* Correspondence: Department of Urology, San Raffaele Turro, Vita-Salute San Raffaele University, Via Stamira D'Ancona, 20, 20127 Milan, Italy (telephone: +39 02 2643 3357; FAX: +39 02 2643 3442; e-mail: lazzeri.maximus@gmail.com).

Purpose: We investigated the early and late complications after oral mucosal graft harvesting, and reported the independent predictors of outcome via multivariable analysis.

Materials and Methods: We performed a retrospective descriptive study of 553 patients from whom an oral mucosa graft was harvested for urethroplasty from single or bilateral cheeks. Patients who underwent oral mucosa harvesting from the lip, the tongue or from the cheek and lip at the same time were excluded from analysis. The oral graft was harvested in an ovoid shape with closure of the wound. Postoperative early and late complications were investigated using a self-administered, nonvalidated, semiquantitative questionnaire. There were 6 questions on early complications, and 13 questions investigated late complications and patient satisfaction.

Results: Descriptive statistics of categorical variables focused on frequencies and proportions. Univariable and multivariable analyses were used to predict early and late dissatisfaction of patients. Bleeding was reported in 3.4% of patients. Overall 53.2% of patients did not report any pain and 36.3% reported no swelling. Late complications analysis showed that 95.5% of patients declared that the surgical closure of the wound did not cause any difficulty in opening the mouth or problems with smiling (98.2%) and/or dry mouth (95.8%). Overall 98.2% of patients were satisfied with the procedure. Univariable and multivariable analyses revealed that bilateral graft harvesting was the only significant predictor of patient dissatisfaction (OR 2.85, $p = 0.01$ and OR 2.72, $p = 0.02$; respectively).

Conclusions: Harvesting the oral mucosa ovoid graft from a single cheek with closure of the wound is a safe procedure with high rates of patient satisfaction.

Key Words: mouth mucosa, cheek, urethra, postoperative complications, questionnaires

J UROL 2014; 191: 688-693

553 patients

e-mail: info@urethralcenter.it

Websites: www.uretra.it
www.urethralcenter.it



July 2017

**Data under elaboration for
publication.**

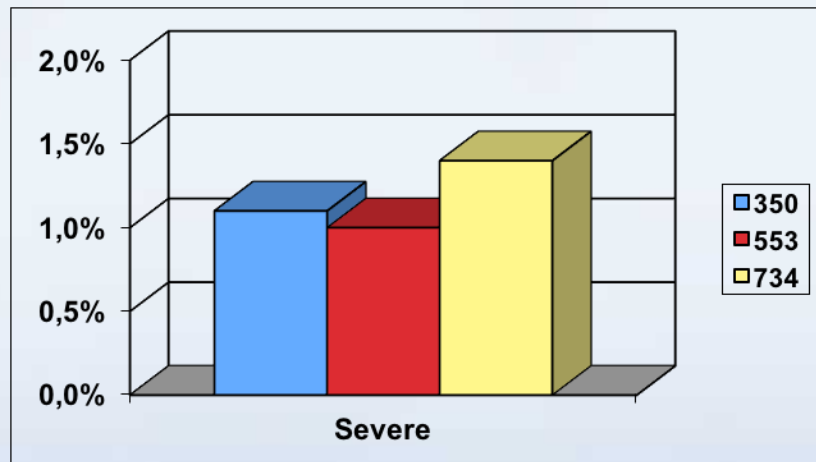
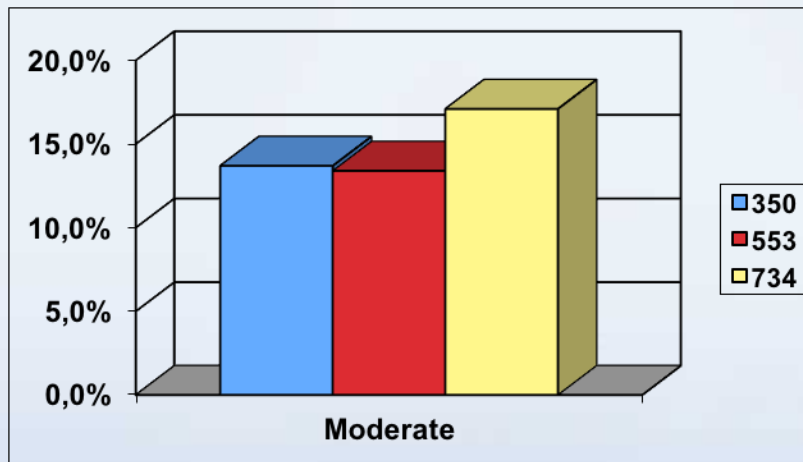
734 patients



Early post-operative complications

How would you score the oral pain you experienced during the 3 days following oral mucosa harvesting?

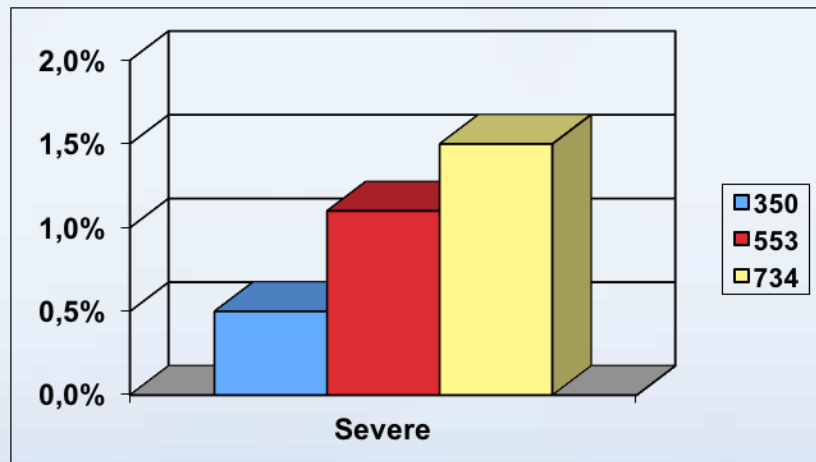
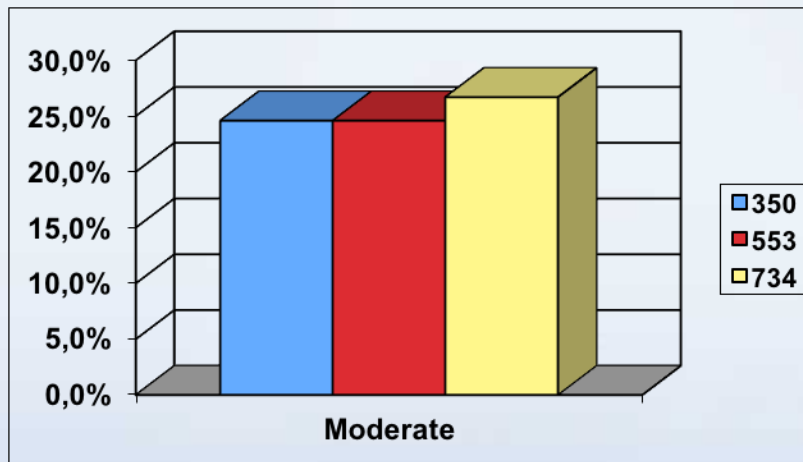
	350 patients		553 patients		734 patients	
No pain	172	49.2%	294	53.2%	335	45.6%
Slight	126	36%	179	32.4%	263	35.9%
Moderate	48	13.7%	74	13.4%	126	17.1%
Severe	4	1.1%	6	1.0%	10	1.4%



Early post-operative complications

How would you score the oral swelling you experienced during the 3 days following oral mucosa harvesting?

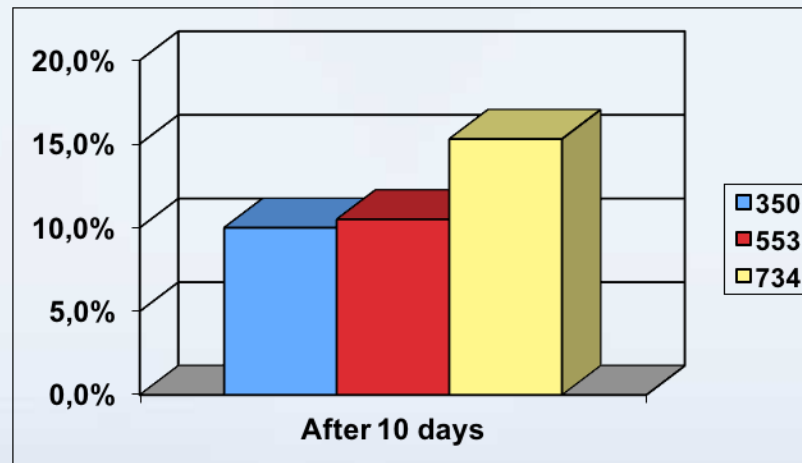
	350 patients		553 patients		734 patients	
No swelling	118	33.7%	201	36.3%	227	31%
Slight	144	41.2%	210	38%	300	40.8%
Moderate	86	24.6%	136	24.6%	196	26.7%
Severe	2	0.5%	6	1.1%	11	1.5%



Early post-operative complications

Following surgery, when did you resume a normal diet?

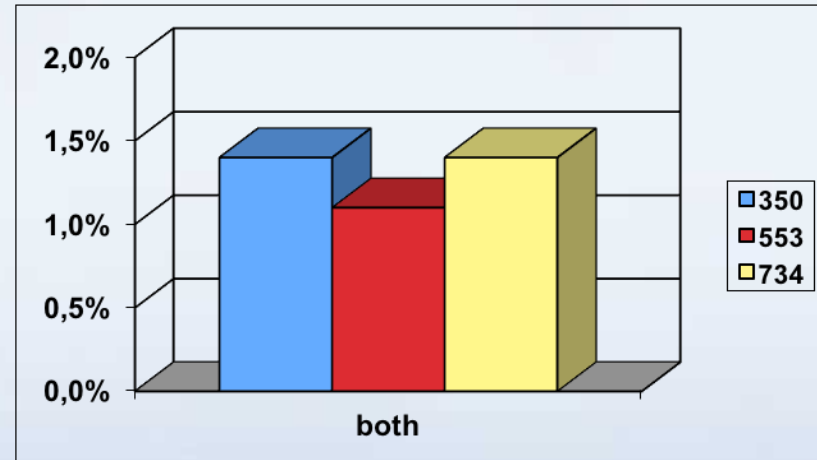
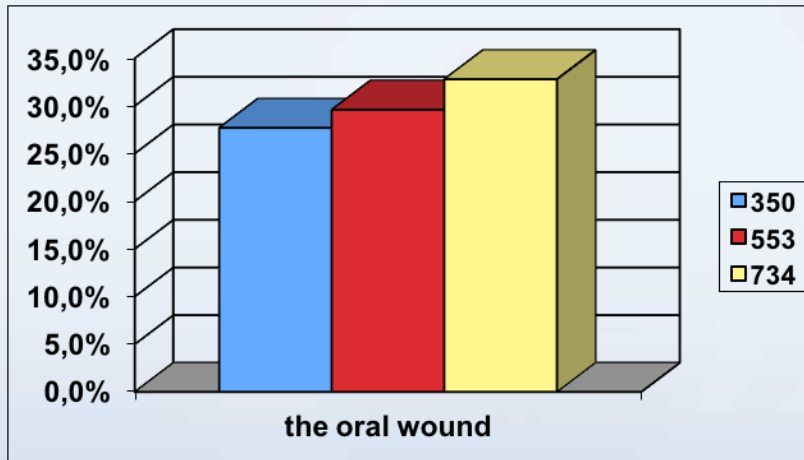
	350 patients		553 patients		734 patients	
After 3 days	205	58.6%	317	57.3%	373	50.7%
After 6 days	110	31.4%	178	32.2%	250	34%
After 10 days	35	10%	58	10.5%	111	15.3%



Early post-operative complications

What bothered you most during the early post-operative period?

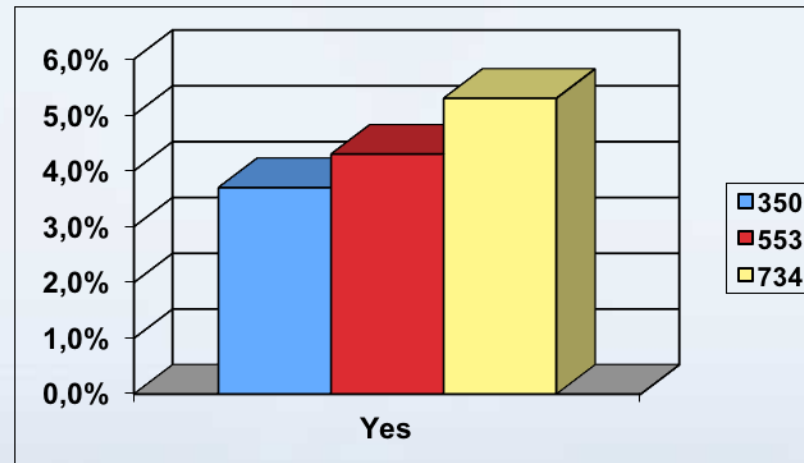
	350 patients		553 patients		734 patients	
The oral wound	97	27.7%	164	29.6%	241	32.8%
The perineal wound	184	52.6%	261	47.2%	353	48.2%
Both	5	1.4%	6	1.1%	10	1.4%
Neither	64	18.3%	122	22.1%	130	17.6%



Early post-operative complications

Did you take pain killers during the 3 days following oral mucosa harvesting?

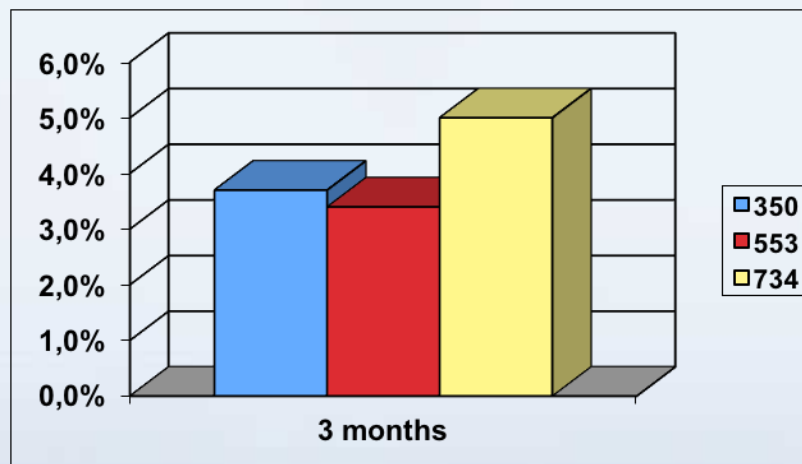
	350 patients		553 patients		734 patients	
Yes	13	3.7%	24	4.3%	39	5.3%
No	337	96.3%	529	95.7%	695	94.7%



Late post-operative complications

How many days did oral numbness last after the surgery?

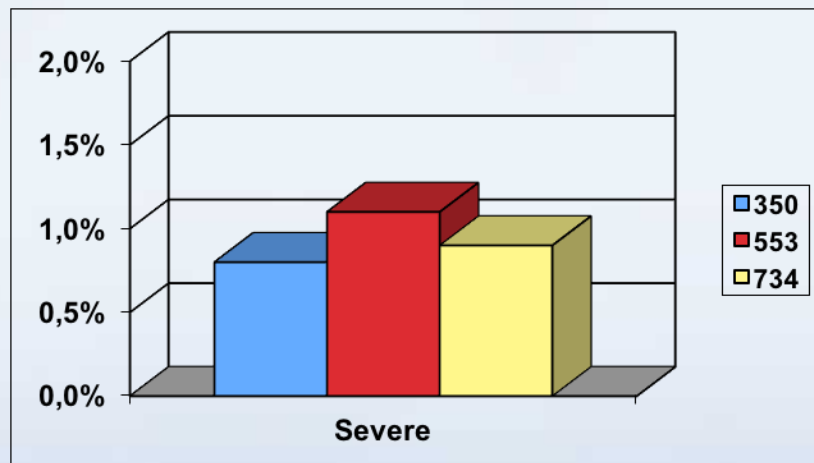
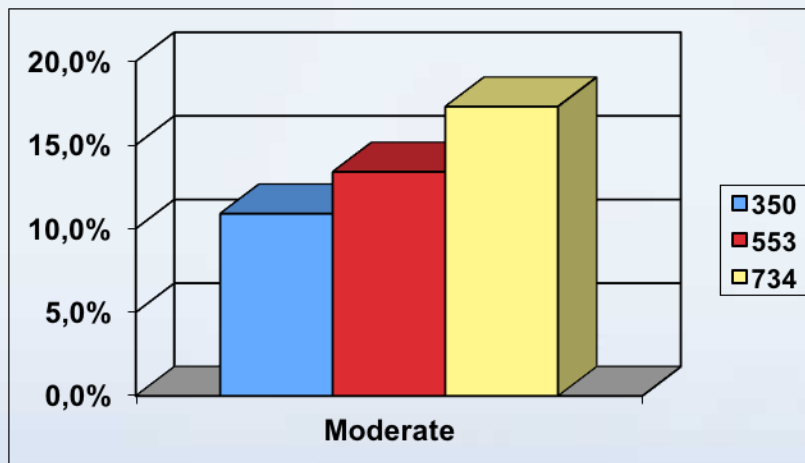
	350 patients		553 patients		734 patients	
1 week	257	73.4%	399	72.2%	473	64.4%
1 month	80	22.9%	135	24.4%	225	30.6%
3 months	13	3.7%	19	3.4%	36	5%



Late post-operative complications

How would you rate the numbness experienced due to the oral stitches?

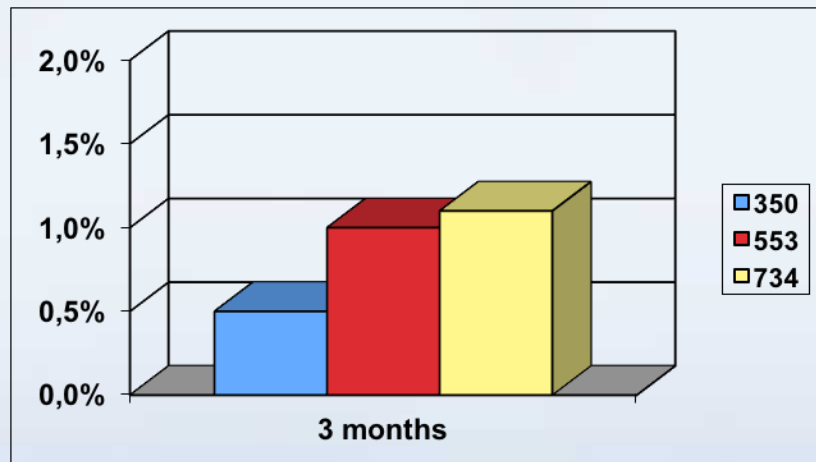
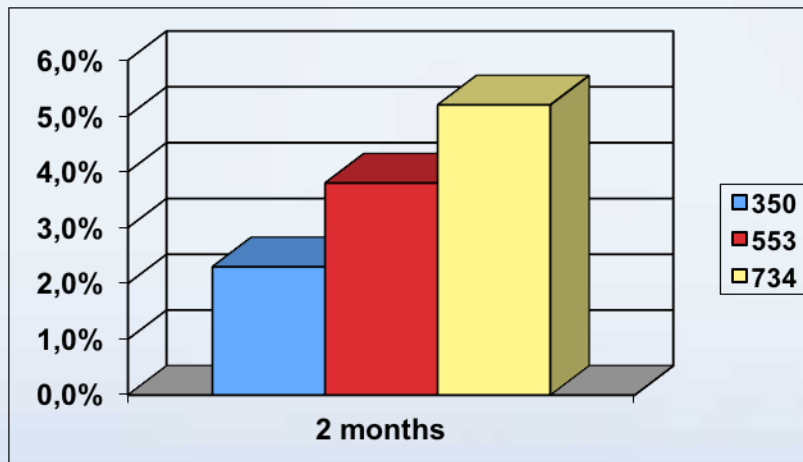
	350 patients		553 patients		734 patients	
No numbness	168	48%	253	45.7%	289	39.4%
Slight	141	40.3%	220	39.8%	311	42.4%
Moderate	38	10.9%	74	13.4%	127	17.3%
<u>S</u> evere	3	0.8%	6	1.1%	7	0.9%



Late post-operative complications

Following surgery, how many months did the oral numbness last due to the stitches?

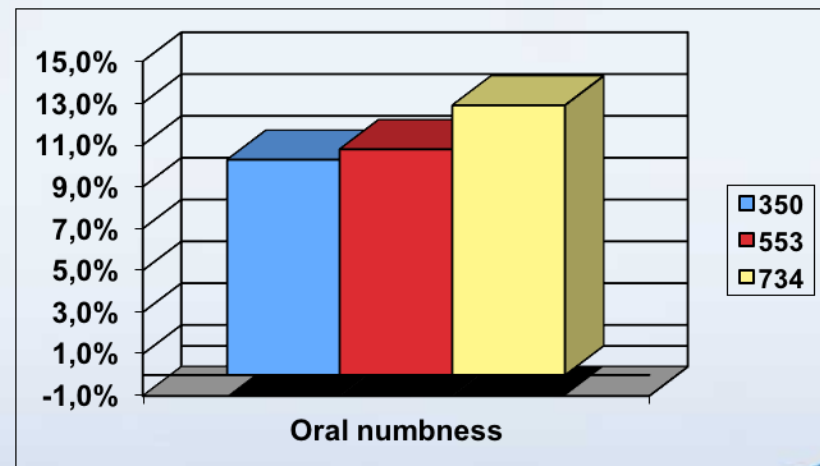
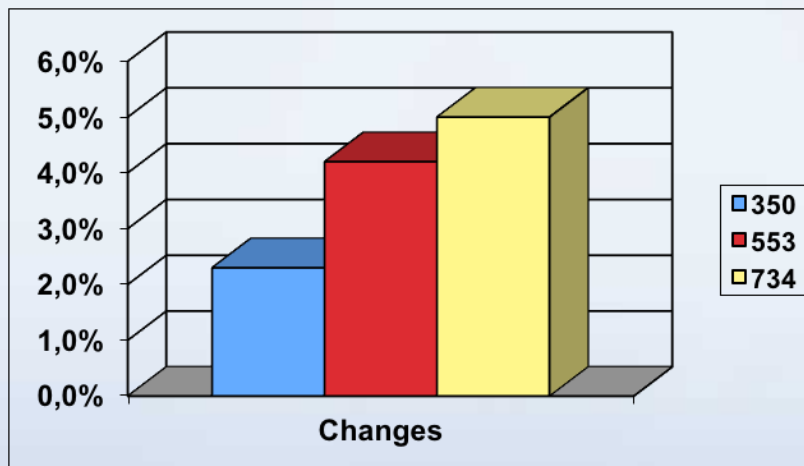
	350 patients		553 patients		734 patients	
none	168	48%	253	45.8%	284	38.7%
1 month	171	48.8%	273	49.4%	404	55%
2 months	8	2.3%	21	3.8%	38	5.2%
3 months	3	0.5%	6	1.0%	8	1.1%



Late post-operative complications

After some months following the surgery, do you have:

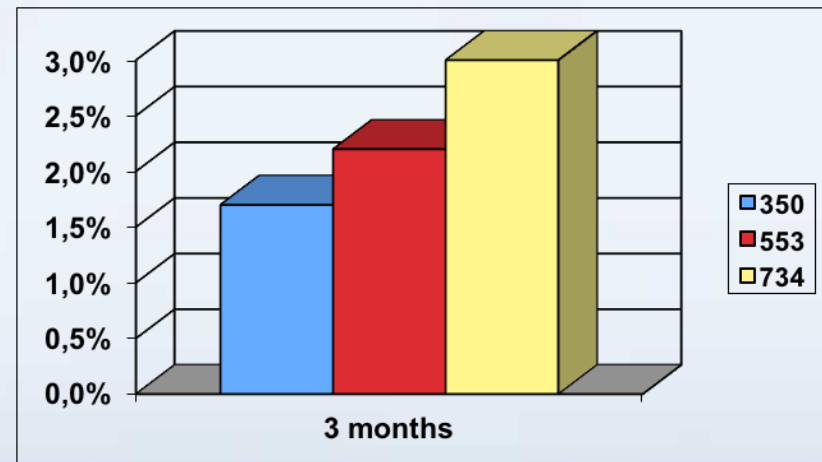
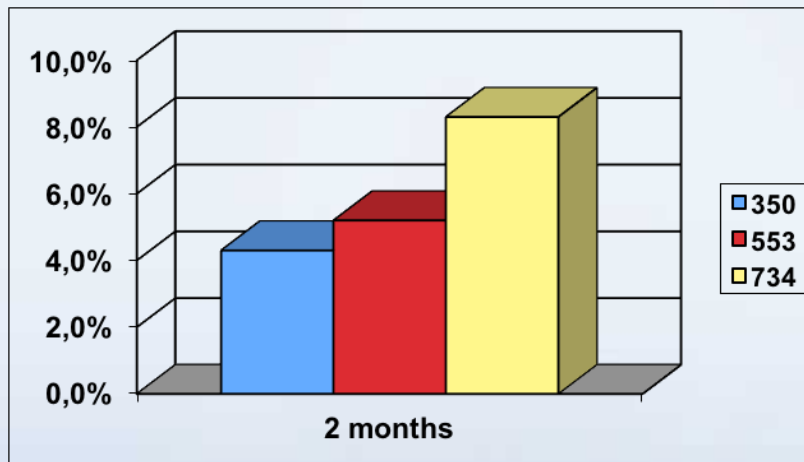
	350 patients		553 patients		734 patients	
Changes in oral sensitivity/sensory perception	8	2.3%	23	4.2%	37	5%
Oral numbness	36	10.3%	60	10.8%	95	12.9%
Mouth pain	0	0%	0	0%	2	0.3%
No problems	306	87.4%	470	85.0%	600	81.7%



Late post-operative complications

How much time passed before resuming a normal diet?

	350 patients		553 patients		734 patients	
Up to 1 month	329	94%	512	92.6%	651	88.7%
2 months	15	4.3%	29	5.2%	61	8.3%
3 months	6	1.7%	12	2.2%	22	3%

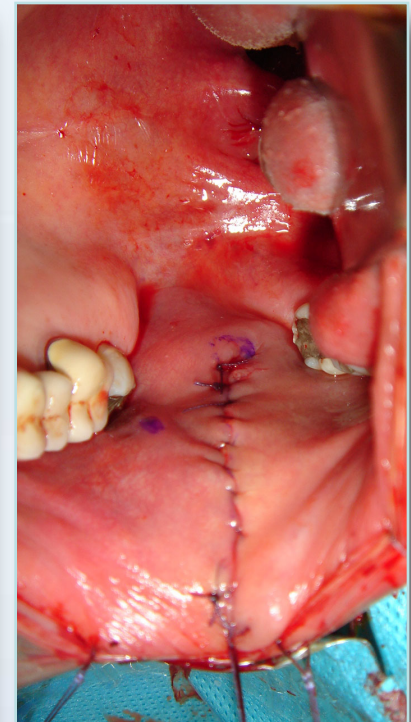
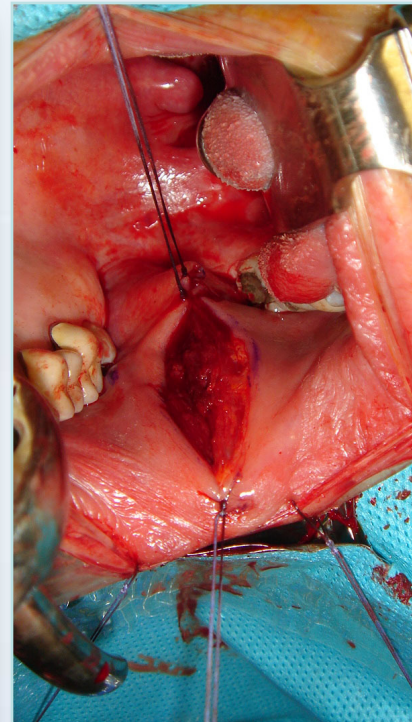
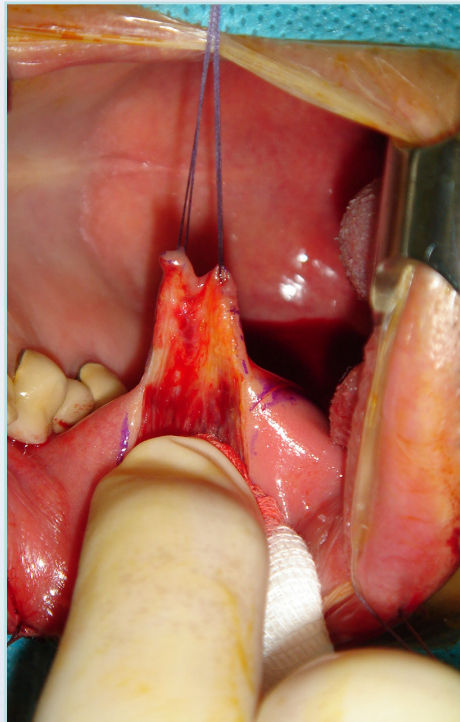
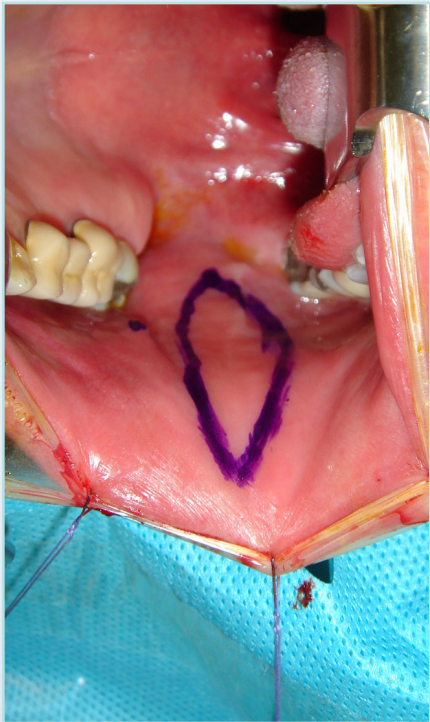


Our present data clearly showed that:

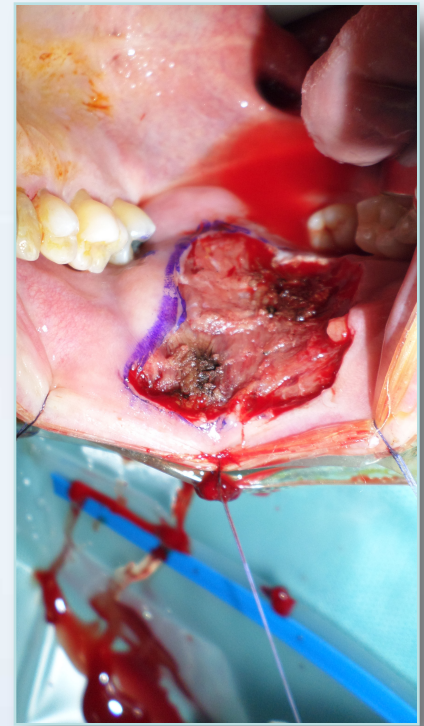
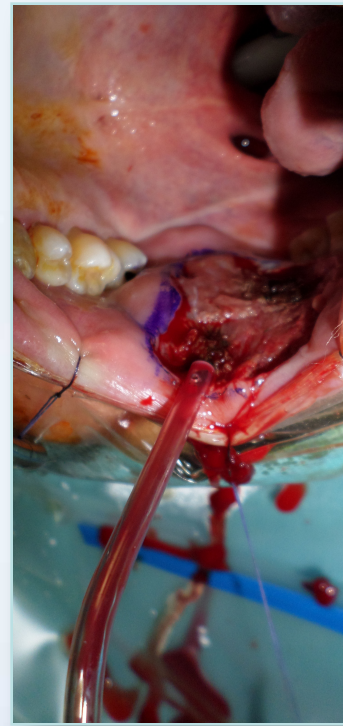
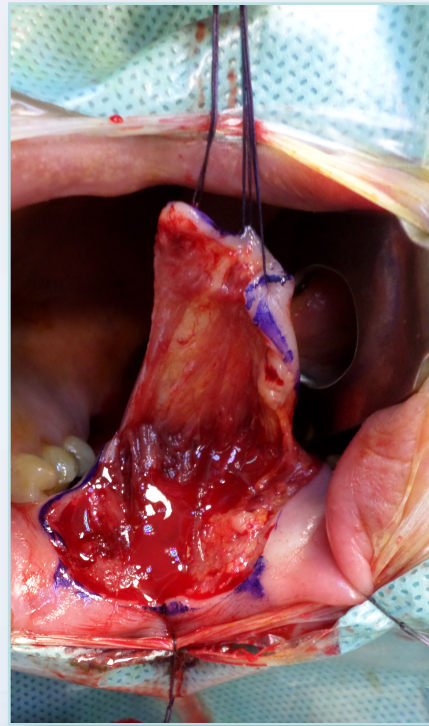
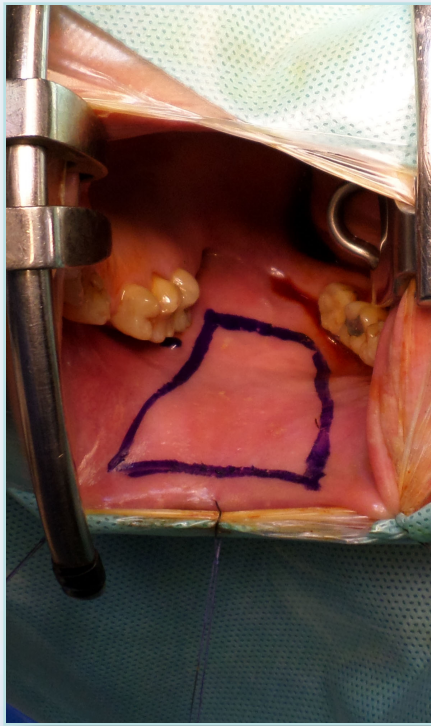
1. In our **high-volume** Center for Reconstructive Urethral Surgery, the incidence of early and late complications and sequelae after oral mucosa harvesting are low, using a standard procedure with closure of the harvesting site.
2. But, a recent survey showed that the incidence of these early and late complications and sequelae **are increasing** when we increase the number of patients from 350 to 734.
3. According to our results in a large series of patients we can speculate that in the hands of surgeons with **low-volume** urethroplasty for year the incidence of these complications are more higher than as reported in the literature.



The questionnaire refers to the ovoidal graft harvesting technique, with suture of the harvesting site, used for a “standard” one-stage repair of simple stricture.



Many patients, with complex stricture, may require a rectangular graft harvesting technique. On this technique is not possible to close the harvesting site and patient may complain bleeding, pain, discomfort for few days or weeks.



2

Patients Requiring **Now Tissue Engineered Oral Mucosa**



Patients requiring tissue-engineered oral mucosa:

Patients who refuse mouth graft harvesting

From April 2011 to June 2017 we performed in our Hospital, Centro Chirurgico Toscano, a Certified Joint Commission Hospital, 1776 different surgical procedures for male urethral stricture diseases.

Out of 1776 patients, 18 (1%) refused the harvesting of oral mucosa for different reasons.



Patients requiring tissue-engineered oral mucosa:

Patients with congenital small mouth

The mouth, as any individual human character, is not the same in all patients. Some patients, presents a small mouth, with small cheeks and it is not possible to harvest oral mucosa on these patients. Also the oro-tracheal intubation may results difficult.

This is a typical character of Chinese popolation. For this reason, the Chinese Urethral Surgeons prefers to harvest the mucosa from the tongue as we reported on this article:

Surgical Techniques in Urology

Anterior Urethra Reconstruction With Lateral Lingual Mucosa Harvesting Technique



Kaile Zhang, Shukui Zhou, Yumeng Zhang, Yuemin Xu, Sanbao Jin, Yinglong Sa, Jiong Zhang, Hong Xie, Massimo Lazzeri, Guido Barbagli, Rong Chen, and Qiang Fu

UROLOGY 2016; 90: 208-212



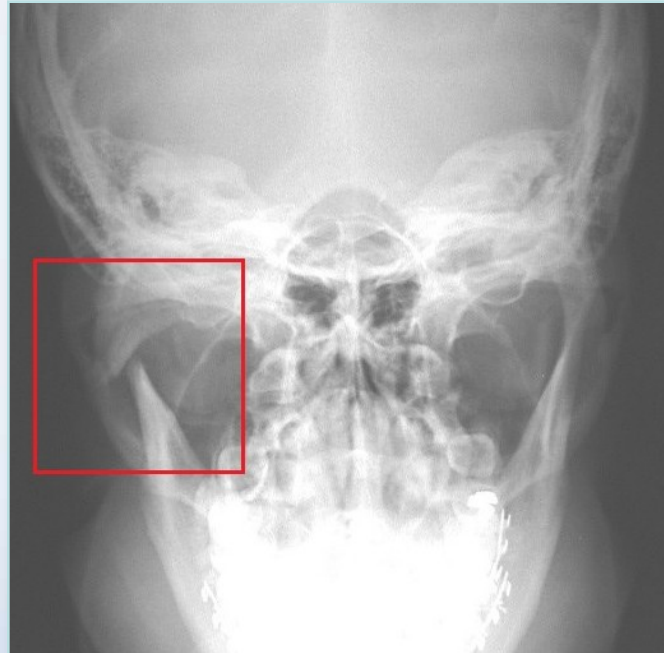
e-mail: info@urethralcenter.it

Websites: www.uretra.it
www.urethralcenter.it

Patients requiring tissue-engineered oral mucosa:

Patients with difficult mouth opening for previous trauma or surgery in the mandibular arch

Some patients, presents a history of prevoius trauma or surgery in the madibular arch that is rigid and not extensible. On these patients, also the oro-tracheal intubation may results difficult and it is not possible to open the mouth for the mucosa harvesting.



Patients requiring tissue-engineered oral mucosa:

Patients playing a wind instruments



Patients requiring tissue-engineered oral mucosa:

Patients requiring bilateral grafts harvesting

Some patients, with stricture longer than 6 cm, may require bilateral graft harvesting for pan-urethroplasty.

These patients, complain more post-operative complications and sequelae and in our report the univariable and multivariable analyses revealed that bilateral graft harvesting was the only significant predictor of patient dissatisfaction (OR 2.85, $p = 0.01$ and OR 2.72, $p = 0.02$; respectively).

Prediction of Early and Late Complications after Oral Mucosal Graft Harvesting: Multivariable Analysis from a Cohort of 553 Consecutive Patients

Guido Barbagli, Nicola Fossati, Salvatore Sansalone, Alessandro Larcher, Giuseppe Romano, Vincenzo Dell'Acqua, Giorgio Guazzoni and Massimo Lazzeri*

From the Center for Reconstructive Urethral Surgery, Arezzo (GB, GR), Department of Urology, San Raffaele Turro Hospital, Milan (NF, AL, VDA, GG, ML), and Department of Experimental Medicine and Surgery, University of Tor Vergata, Rome (SS), Italy

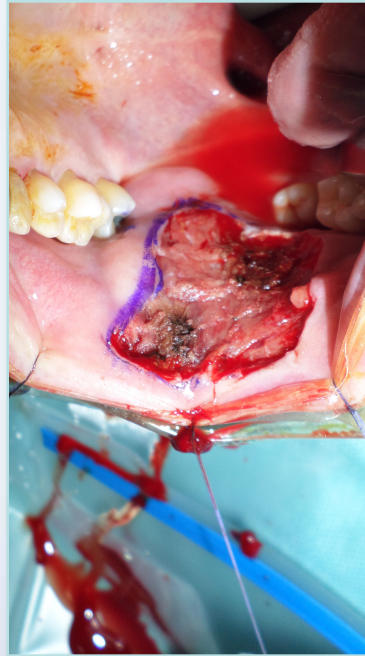
J UROL 2014; 191: 688-693



Patients requiring tissue-engineered oral mucosa:

Patients requiring big rectangular graft harvesting

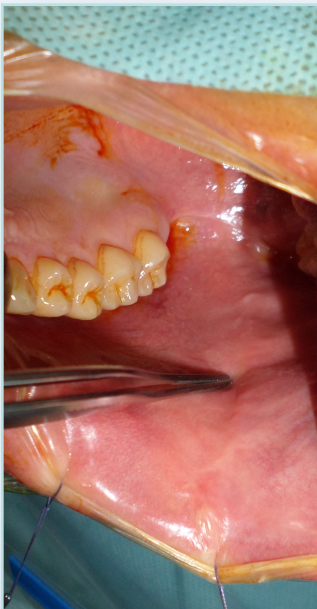
Many patients, with complex stricture, may require a rectangular graft harvesting technique. On this technique is not possible to close the harvesting site and patient may complain bleeding, pain, discomfort for few days or weeks.



Patients requiring tissue-engineered oral mucosa:

Patients who already undergone previous grafts harvesting from both cheeks

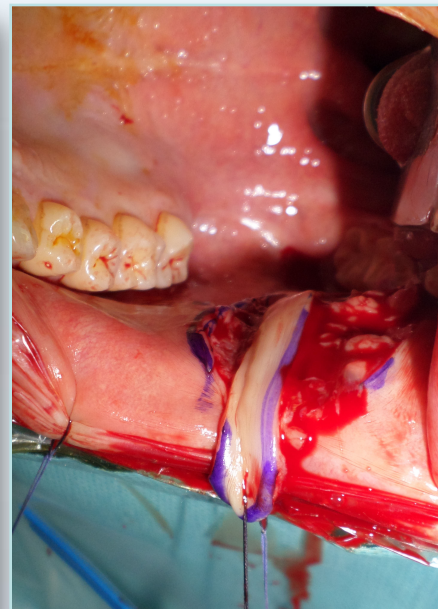
Many patients, with recurrent stricture after previous bilateral graft harvesting, may require a new urethroplasty using oral graft. On these patients, harvesting a new graft from the previous harvesting site is difficult and the new graft is small and fibrotic.



Scar



Graft is smaller than drawn



Difficult hemostasis



All these patients require us a sure and effective alternative to the standard oral mucosa harvesting. They are still waiting for the use of tissue engineered oral graft.

Moreover, in surgery, any less invasive procedure should be the standard choice for any patient.



Patients requiring tissue-engineered oral mucosa:

**From April 2011 to June 2017 we performed in our
Hospital, Centro Chirurgico
Toscano, a Certified Joint Commission Hospital, 1776
different surgical procedures
for male urethral stricture diseases.**

**Out of 1776 patients, on 73 (4.1%) was not possible to
harvest the native oral mucosa.**

**All these patients are in a waiting list for tissue-
engineered oral graft.**



3

Patients with Lichen Sclerosus and Failed Hypospadias Repair



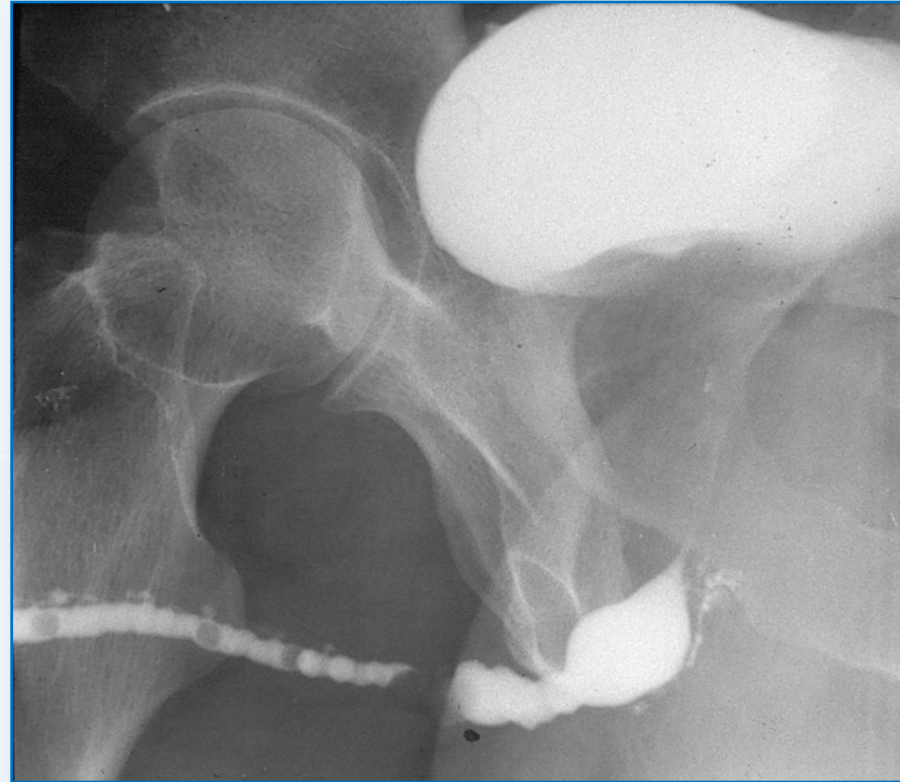
Advantage of tissue-engineered vs native oral mucosa



Is tissue engineered oral material fit for use in patient with complex hypospadias repair?



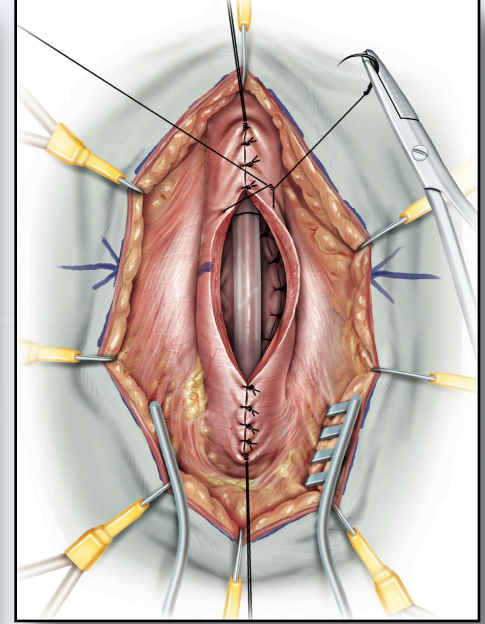
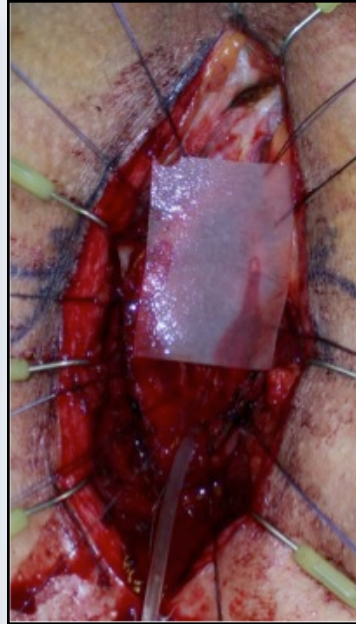
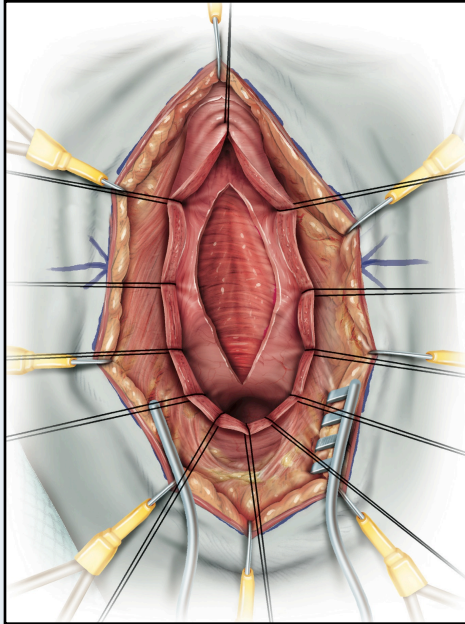
Advantage of tissue-engineered vs native oral mucosa

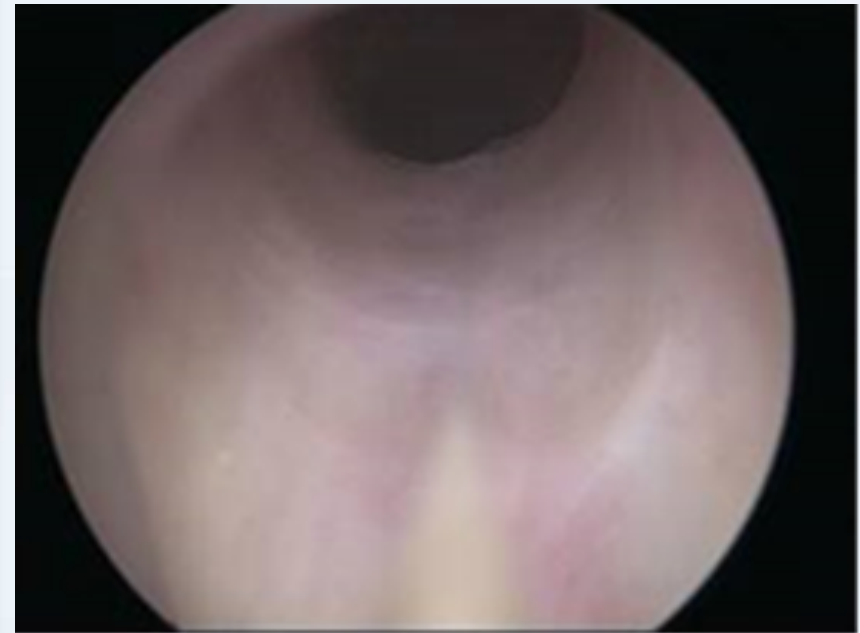
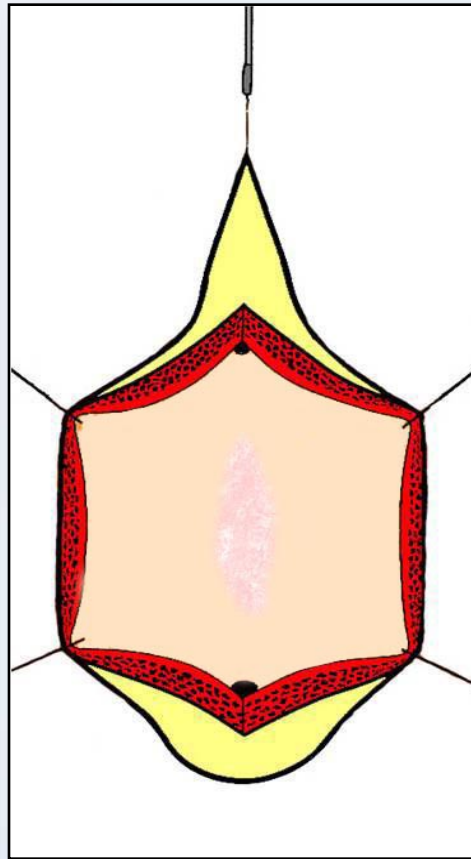
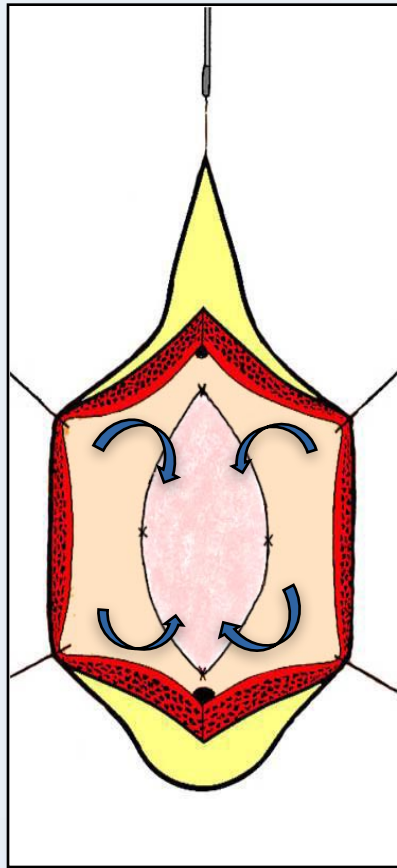


Is tissue engineered oral material fit for use in patient with immunological disorder like Lichen Sclerosus?



Dorsal Inlay Graft Urethroplasty





Dorsal Inlay Graft Urethroplasty: Clinical Experience

Between December 2010 and March 2013 ten patients with bulbar urethral strictures were treated by using a dorsal inlay tissue-engineered graft (MukoCell®) urethroplasty in Germany.

Median patients age was 51.5 years (range 28 - 75)

Stricture etiology was: idiopathic 5 (50%)
 catheter 3 (30%)
 instrumentation 2 (20%)

Median stricture length was 3.5 cm (range 1 - 13)

Median pre-operative Qmax was 3 ml/sec (range 2 - 10)

All patients had previous urethrotomy: median 3.5 (range 1-13)

Median follow-up was 64 months (range 50 – 77)

Median post-operative Qmax was 16 ml/sec (range 9-69)



Dorsal Inlay Graft Urethroplasty: Clinical Experience

RESULTS

**Out of 10 patients: 8 (80%) were classified as success
2 (20%) were classified as failure**

No local or general adverse events related to the use of MukoCell®) were registered.

The 2 failures occurred 11 and 32 months after the tissue-engineered urethroplasty and were successfully treated by a standard native oral mucosa urethroplasty.





**Thank you for your attention.
I greatly appreciate it!**