

Wednesday 25 June 15.30–16.30

Urethral Reconstruction

Chairmen: Ian Eardley and R. Pickard

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Traumatic posterior urethral stricture – a randomized study of core-through urethrotomy and anastomotic urethroplasty

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INTRODUCTION

Post-traumatic urethral stricture is a difficult management problem and the optimum treatment remains to be confirmed. We compared anastomotic urethroplasty and core-through internal urethrotomy for feasibility, efficacy and complications.

PATIENTS AND METHODS

Fifty patients with posterior urethral trauma, treated initially with suprapubic

catheterization, had an opposing urethrogram taken 3–6 months after trauma. Patients with a ≤ 2 cm bulbo-membranous urethral defect were randomized to core-through internal urethrotomy (group A) or anastomotic urethroplasty (group B), with 25 patients in each arm. The patients were followed for 2 years.

RESULTS

In group A, core-through urethrotomy was successful in 16 (64%) patients, 13 at the first

attempt and three at the second, and unsuccessful in nine (36%). Two patients had sepsis and one had a rectal injury; both recovered with conservative management. Of the 16 patients, nine required repeat urethrotomy within 3 months. At 6 months, 13 patients had one or more urethrotomies and all were practising clean intermittent self-catheterization (CISC). At 1 year, two patients needed open urethroplasty. At 2 years 14 patients remained on CISC while two required further urethrotomy. In group B, all 25 patients had anastomotic urethroplasty; six (24%) needed further

optical urethrotomy within 6 months and at 2 years three (12%) remained on CISC. At 2 years, 19 (76%) patients were voiding satisfactorily with no further intervention.

CONCLUSION

Anastomotic urethroplasty produces better success rates, while complication and

secondary procedure rates are lower than with core-through urethrotomy for traumatic posterior urethral strictures.

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Urological complications after pelvic fracture may be commoner than realized

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INTRODUCTION

The massive force dissipated in pelvic fracture causes considerable soft-tissue damage, and urological damage frequently complicates this injury. We noted that some patients present with urological complications some time after injury, and postulated that other patients may have undiagnosed urological damage after pelvic fracture.

PATIENTS AND METHODS

We sent a questionnaire to assess urological symptoms based on the ICSmale questionnaire and the International Index of Erectile Function to 40 patients who had been treated for major pelvic fractures in a trauma

unit. Patients were asked to provide answers for an average 4-week period both before and after their injury.

RESULTS

In all, 53% of patients responded and of those not known to have a urological injury, 72% and 63% admitted to new urinary symptoms and variable erectile dysfunction, respectively, after injury. The commonest new urinary symptoms were nocturia (50%), frequency (36%) and flow-related symptoms (50%). Of patients known to have urological injury, all and 80% admitted to new urinary symptoms and erectile dysfunction, respectively.

CONCLUSION

These results indicate that some patients not considered to have urological damage after pelvic fracture subsequently develop urinary symptoms and sexual dysfunction. This may indicate underlying injuries, including urethral strictures or neurovascular damage, and further investigation is required to evaluate the damage underlying these symptoms. Although not life-threatening, complications such as impotence and debilitating urinary symptoms are a major source of long-term morbidity after pelvic fracture. It is important identify such patients as appropriate treatment will improve their quality of life.

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Does urethrotomy jeopardize the outcome of urethroplasty?

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INTRODUCTION

It is well established that a history of previous open urethral surgery has an adverse effect on the results of urethroplasty. Whether or not urethrotomy has an adverse effect is unclear.

PATIENTS AND METHODS

We reviewed the re-stricture rate of 24 simple bulbar anastomotic urethroplasties and of

48 dorsal patch substitution urethroplasties with buccal mucosa (Barbagli procedure), performed between 1997 and 2002. Half (12/24) of the patients having bulbar anastomosis and 75% (36/48) of those having a Barbagli procedure had preoperative urethrotomies, with a mean (range) of 0.96 (0–3) and 5.06 (1–40) procedures, respectively, before urethroplasty, and were followed for a mean (range) of 31 (12–79) and 26 (4–66) months, respectively. The cause in the bulbar anastomotic and the Barbagli

group was idiopathic in 46% and 56%, infectious in 4% and 10%, iatrogenic in none and 18%, congenital in 8% and 6%, and trauma in 42% and 10%, respectively.

RESULTS

Of patients having a simple bulbar anastomotic urethroplasty, 21% (five) developed a re-stricture, all of whom had previous urethrotomies. Thus, of the patients who had previous urethrotomy, five of 12

developed a re-stricture after open urethroplasty. In contrast, only two (4%) in the Barbagli group developed a re-stricture and only two of 36 (6%) patients having had preoperative endoscopic surgery developed a re-stricture.

CONCLUSIONS

Urethrotomy seems to jeopardise the outcome of a bulbar stricture suitable for simple anastomotic repair, whereas the outcome of bulbar strictures amenable to substitution

repair seems to be unaffected. We conclude that patients who have had previous urethrotomies are unsuitable for anastomotic bulbar urethroplasty and should be treated by primary dorsal patch substitution repair.

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Tissue-engineered oral mucosa for substitution urethroplasty

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INTRODUCTION

Substitution urethroplasty has been limited by the amount and type of suitable tissue available for grafting. In recent years buccal mucosa has rapidly become the favoured tissue. Whilst easily harvested there may be donor-site morbidity and for lengthy substitutions a paucity of tissue. This presentation details the first report of tissue-engineered oral mucosa on a sterilised dermal carrier suitable for clinical use in substitution urethroplasty.

METHODS

Enzymatically treated oral mucosa biopsies were used to obtain keratinocytes and fibroblasts, which were expanded separately

up to passage 4 using serum-containing media. Cells were then applied to acellular sterilized de-epidermized human dermis (DED) and kept at an air-liquid interface or submerged for 2 weeks. After this, the tissue was stained with haematoxylin and eosin to assess similarities between the cultured model and normal oral mucosa. The tissue was also compared with reconstructed skin.

RESULTS

Reconstructed oral mucosa stained satisfactorily with 3-[4,5-dimethylthiazol-2-yl]-2,5-diphenyl-tetrazolium bromide (MTT) indicating the presence of live cells in this model. Histologically, models cultured at an air-liquid interface were better than those cultured in submerged conditions, and

morphologically similar to normal oral mucosa, with a multilayered well-attached epithelium with no stratification or cornification. Oral keratinocytes showed significant horizontal migration compared with cutaneous keratinocytes.

CONCLUSIONS

We have successfully developed tissue-engineered oral mucosa that consists of a well-defined epidermis on a sterilised dermal carrier containing oral fibroblasts. This oral model differs markedly from cutaneous reconstructed skin. We propose to further develop this model in serum-free conditions, to reduce risk to the patient before clinical use.

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An audit of oral complications after buccal/lip mucosal harvest for urethroplasty

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INTRODUCTION

There are scanty reports of oral complications after buccal/lip mucosal harvest for urethroplasty; of those reported, oral complications seem minor and self-limiting. However, we report a significant number of patients with long-term oral complications.

PATIENTS AND METHODS

All patients who underwent buccal/lip mucosal harvest for urethroplasty between 1 April 1996 and 30 September 2002 were interviewed by telephone using a standard proforma. Of 37 potential patients only 31 were contactable.

RESULTS

Most patients had buccal mucosal harvested (91%). Soon after surgery (< 48 h), 75% had no or minimal oral pain, and most were able to eat and drink; 76% and 57% of patients complained of oral tightness and numbness immediately after surgery. At discharge

(6 days after surgery), 91% of patients had no or minimal oral pain and all were able to eat and drink; 53% and 37% had oral tightness and numbness at discharge. At the time of interview, 3%, 34% and 16% of patients had persistent oral pain, tightness and numbness, respectively. The mean duration of follow-up

for the persistent oral pain, tightness and numbness were 2, 19.2 and 13.6 months respectively. For the question of whether they would have the oral graft harvesting again if needed, 78% responded 'yes', 6% 'no' and 16% had mixed feelings.

CONCLUSIONS

Buccal/lip mucosal harvesting is a good operation as most patients were satisfied, but it is not without problems, and therefore the patients should be adequately informed.

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Buccal mucosal substitution urethroplasty: a single-centre experience with 61 cases

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INTRODUCTION

We report our initial experience with buccal mucosal substitution urethroplasty in patients with urethral stricture disease.

PATIENTS AND METHODS

Sixty-one patients with a urethral stricture (bulbar in 15, penile in 24, pan-urethral in 22; mean age 47 years) underwent buccal mucosal substitution urethroplasty between January 1998 and October 2002 at our institute. A dorsal onlay was used in 42, ventral onlay in seven cases and 12 underwent a two-stage procedure. All

patients were discharged 3–5 days after surgery and had a contrast-medium study after 3 weeks, before removing the catheters. The follow-up comprised calibration and a measurement of uroflow at 6-monthly intervals. A contrast-medium study was used in the follow up as and when indicated. Failure was defined as the recurrence of obstructive symptoms and/or failure to calibrate with a 16 F Foley catheter.

RESULTS

The mean follow-up was 31 months; the success rate in the bulbar, penile and

panurethral groups was 87%, 92% and 86%, respectively. Ventral onlaying was associated with a slightly higher rate of complications in the form of postvoid dribbling, although the two groups were not truly comparable

CONCLUSIONS

Buccal mucosa seems to be an ideal substitute in urethral reconstruction for urethral stricture disease. The initial results are gratifying but a longer follow-up is needed before considering it as the ideal substitute.