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**ENDOSCOPIC SUBURETERAL COLLAGEN INJECTION FOR PERSISTING VESICO-URETERAL REFLUX DESPITE BALANCED VOIDING IN PATIENTS WITH DETRUSOR HYPERREFLEXIA**

Aims of Study: Open anti-reflux surgery appears less effective in patients with detrusor hyperreflexia. Submucosal injection of biocompatibles might be a suitable alternative. This retrospective study reports the results of endoscopic subureteral collagen injection after an average follow-up of 36 months (range 1-123 months).

Patients and methods: Between 1990 and 2000, 38 spinal cord injury patients (9 tetraplegics, 29 paraplegics) aged 10-78 years (mean 39 years) had persisting grade III-IV reflux despite balanced voiding. Eleven patients had bilateral and 24 unilateral low pressure reflux, three patients unilateral high pressure reflux. The 49 refluxing units were treated by endoscopic subureteral collagen injection with Zytoplast® cross-linked collagen injected from a 2 ml aliquot. Follow-up investigations were ultrasound (KUB), urodynamics and voiding cystography at 3, 6, 12, 24 and 36 months after surgery.

Results: The mean amount of collagen per injection was 1.3 ml (0.5-5 ml). Fifteen units were cured after a single injection. Recurrence in the remaining 34 units occurred 3-41 months later (mean 14 months). Nine units were cured after a second injection, and two units after a third injection. Eight units improved after 1 to 3 injections without complete remission. All 3 high pressure refluxing units were cured, and 24 from 46 low pressure refluxes. Twelve low pressure units did not improve after one (9 units) or two (3 units) injections. No substantial side effects (urosepsis, hydronephrosis, anaphylactic reactions) were observed.

Conclusion: Endoscopic subureteral collagen injection can be regarded as an effective and safe treatment for vesico-ureteral reflux in patients with detrusor hyperreflexia. Twenty-six of 49 units were completely cured after one or two injections, eight units improved after 1-3 injections. No major complications were observed. The procedure does not preclude further treatment options. In all cases for which endoscopic subureteral collagen injection was unsuccessful, urodynamics revealed deteriorating bladder function towards low compliance situation on long term. Therefore, sufficient management of detrusor hyperreflexia monitored by repeated urodynamics is mandatory to maintain the success of endoscopic subureteral collagen injection on long term.