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Title (type in
CAPITAL
LETTERS)**LONG-TERM RESULTS OF ENDOSCOPIC SUBURETERAL COLLAGEN INJECTION FOR PERSISTING URETERAL REFLUX DESPITE BALANCED VOIDING IN PATIENTS WITH NEUROGENIC LOWER URINARY TRACT DYSFUNCTION**

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Aims of study

Open anti-reflux surgery is an approved method to treat juvenile and adult vesico-ureteral reflux, but failed success in the treatment of the neurogenic reflex bladder. Therefore, increase of supraventricular resistance by submucosal injection of biocompatible materials appears more suited for these patients. Long-term results of the procedure are still lacking. This retrospective study reports the results of endoscopic subureteral collagen injection in neurogenic vesico-ureteral reflux caused by spinal cord injury after 35 months average follow-up.

Patients and methods

Between January 1990 and September 1998, 36 refluxing units were treated by endoscopic subureteral collagen injection in 33 patients (9 tetraplegics, 24 paraplegics). The age range was 10 to 65 years (mean 38). Only patients who had persisting reflux despite balanced voiding on several follow-up visits were selected. All six patients with bilateral and seventeen with unilateral reflux had low pressure reflux, the other ten patients unilateral high pressure reflux. Zytoplast[®] cross-linked collagen was injected from a 2 ml aliquot of injectable paste. Follow-up investigations were ultrasound (KUB) and video-urodynamics 3, 6, 12, 24, 36 and 48 months after surgery.

Results

After a single injection, 16 of 36 refluxing units were cured. The average amount of collagen used at the first injection was 1.3 ml (range 0.5-3.2 ml). Occasionally a transient dilatation of the upper tract was demonstrated on ultrasound shortly after treatment. Recurrence in the other 20 units (55%) was observed on average 14 months after injection (range 3-41). Another nine units were cured after a second injection. The remaining eleven patients underwent a third injection, that improved



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the condition in five of them without complete remittance. All ten high pressure refluxing units were cured, and 13 of the 23 low pressure refluxes (56%). No substantial side effects (urosepsis, hydro-nephrosis, anaphylactic reactions) were observed.

Conclusions

Endoscopic subureteral collagen injection can be regarded as a safe and effective treatment for vesico-ureteral reflux in patients with detrusor hyperreflexia. In this study, 25 of 36 units (69%) were cured completely after one or two injections, and five (14%) improved after a third injection. Endoscopic subureteral collagen did not lead to any major complications. With increasing experience, it may be expected that the results will improve further. Endoscopic subureteral collagen does not interfere with further treatment options. A final statement to the position of this treatment in the neurogenic patients with vesico-ureteral reflux has to wait for larger series with a longer follow-up (at least 5 years).