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**Title:** SUBMUCOSAL URETERAL INJECTION OF SILICON MICRO-IMPLANTS FOR CHILDREN WITH VESICoureTERAL REFLUX

### **Aims of study**

Endoscopic correction of vesicoureteral reflux is an attractive alternative compared to open ureteral reimplantation. We evaluated effectiveness and long-term results of silicone micro-implants (Macropastique<sup>®</sup>) injection for the treatment of vesicoureteral reflux in children. Silicon micro-implants have minimal risk of migration and high durability because of large and non-biodegradable particles compared to other implants, such as polytetrafluoroethylen(Teflon<sup>®</sup>) paste or collagen.

### **Methods**

Between May 1996 and January 2001, 48 refluxing ureters in 33 children(M:F=12:21) were treated by endoscopic injection of silicon micro-implants. The mean age at operation was 7.7 years (range 2.4 yrs to 13.7 yrs). Using a hand-held ratchet and piston system, the implants were injected submucosally on the base of ureteral opening. Follow-up voiding cystourethrography was done 3 months after injection. Mean postoperative follow-up period was 1 year and 6 months(range 2 months to 4 yrs and 6 months).

### **Results**

According to the International Reflux Study Classification, we found the following reflux grades preoperatively: grade I, 6 ureteral units; grade II, 18 units; grade III, 16 units; grade IV or V, 8 units. Among 48 ureters, 42 ureters were evaluated postoperatively with radiologic voiding cystourethrography or radionuclide voiding cystourethrography. Overall, reflux resolved in 81.0% of renal units(34/42). In 36 low grade refluxing ureters(grade I, II, III), 30(83.3%) ureters were cured, and in high grade of reflux(grades IV, V) 4 out of 6 (66.7%) ureters were cured. There was no significant difference in the success rate between the two groups. All children received single injection except one, who was cured after the second injection. Among six children in whom injection therapy failed, two children received transtrigonal ureteral reimplantation. The other four children, whose grade of reflux decreased or unilaterally resolved, were followed up with prophylactic antibiotics. Average surgical time for injection procedure was 36.3 minutes(15-115 minutes). Mean hospital stay was 2.0 days. There was no remarkable long-term complication.

### **Conclusions**

Submucosal ureteral injection of silicon micro-implants is a safe, quick and minimally invasive procedure for the treatment of children with vesicoureteral reflux. It has an acceptably high success rate regardless of refluxing grade.

### **References**

- J Urol 1993; 149:259,  
Prog Urol 1998; 8(6): 1001