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TRANSURETHRAL RESECTION OF ULCERATIVE TISSUE FOR ULCER TYPE INTERSTITIAL CYSTITIS

Hypothesis / aims of study
To examine the therapeutic efficacy of transurethral resection of ulcerative tissue for ulcer type interstitial cystitis (IC) and to compare it with hydrodistension only for non-ulcer type IC.
Study design, materials and methods
IC patients who underwent hydrodistension with or without transurethral resection of ulcers were retrospectively reviewed. The diagnosis of IC was based upon the Japanese guideline for IC[1)], which comprises 1) lower urinary tract symptoms such as bladder hypersensitivity, urinary frequency, bladder discomfort and bladder pain; 2) bladder pathology such as Hunner's ulcer and mucosal bleeding after over-distension; 3) exclusions of confusable diseases such as infection, malignancy and calculi of the urinary tract. Also the patients were compatible with the National Institute of Diabetes and Digestive Kidney Diseases (NIDDK) criteria[2)]. They completed O'Leary and Sant's Symptom Index (OSSI) and O'Leary and Sant's Problem Index (OSPI), voiding diary, and the visual analogue scale for pain from 0 to 10 (VAS). During cystoscopy under spinal anesthesia, the bladder was fully inspected at a low filling volume for abnormal lesions including Hunner's ulcer and scars. Those without ulcers (non-ulcer type IC) received hydrodistension with normal saline solution at a pressure of 80cm H2O until the full distension was attained. Those with Hunner's ulcer (ulcer type IC) underwent hydrodistension followed by transurethral resection and/or fulguration of ulcerative tissue. Bleeding from the biopsy sites and ulcers were electrically coagulated. Therapeutic outcomes were evaluated by OSSI and OSPI scores, voiding diary, and VAS at 3 months post-treatment, and compared between ulcer type IC and non-ulcer type IC.

Results
A total of 38 patients (25 with ulcers and 13 without ulcers) were analyzed (Table 1). The average age of patients with ulcer type IC was significantly higher than non-ulcer type IC (65.3 years vs. 59.2). OSSI, OSPI and daily urinary frequency tended to be worse for ulcer type IC but it was not statistically significant except for the average voided volume of diary records. The distended bladder volume during hydrodistension under anesthesia was lower for ulcer type IC. The treatment outcomes were summarized in the Table 2. Post-surgerically OSPI, VAS and the average voided volume significantly improved in ulcer type IC, while only the average voided volume significantly changed in non-ulcer type IC. VAS dramatically decreased in ulcer type IC. Symptoms improved so much in ulcer type IC that the post-surgical values demonstrated no significant difference between 2 types of IC, and OSSI and OSPI showed even better values for in ulcer type IC. Complications due to resection and/or fulguration were bladder wall rupture (n = 1) and pyelonephritis (n=3). No adverse events were observed for hydrodistension only.

Interpretation of results
Transurethral resection of ulcers appears to be one of the most promising therapeutic options for patients with ulcer type IC, providing more benefit than hydrodistension only for non-ulcer type IC. The efficacy mechanism of resection is not fully understood, although resection of ulcers may eliminate the local factors accumulated in the ulcerative tissue. Clinically one should be careful for not overlooking ulcers, because ulcer resection can achieve dramatic symptom improvement, especially pain relief. The limitation of the study would be small sample size, retrospective nature of analysis, no control arm, and no assessment for histology or biomarkers. Further study is required to confirm the effectiveness of ulcer resection.

Concluding message
Transurethral resection of ulcerative tissue is one of the most beneficial options for patients with ulcer type IC.

Table 1: Patient backgrounds

	Ulcer type IC	Non-ulcer type IC	p-value
Number of patients (F/M)	25 (22/3)	13 (12/1)	
Age at diagnosis	65.3 [36-80]*	59.2 [25-78]	0.04
Age at onset	58.7 [34-76]	45.3 [20-77]	0.16
OSSI	15.0 [6-20]	12.0 [6-12]	0.60
OSPI	13.0 [3-16]	11.0 [2-16]	0.16
VAS	8.0 [5-10]	5.0 [2-8]	0.20
Urinary frequency / day	22.8 [10-44]	20.3 [6-45]	0.20
Average voided volume (ml)	83.2 [35-220]	101.5 [30-300]	0.02
Hydrodistended volume (ml)	441 [100-900]	673 [400-850]	0.24

*Average [range]
OSSI: O'Leary and Sant's Symptom Index, OSPI: O'Leary and Sant's Problem Index,
VAS: Visual Analogue Scale for pain (0-10)

Table 2: Treatment outcomes

	Ulcer type IC		Non-ulcer type IC		p-value**
	Post value	p-value (vs. pre)	Post value	p-value (vs. pre)	
OSSI	8.9 [2-18]*	0.16	9.9 [2-15]	0.61	0.28
OSPI	6.7 [0-15]	0.03	7.8 [0-13]	0.57	0.54
VAS	3.6 [0-9]	<0.005	2.7 [1-5]	0.80	0.06
Urinary frequency	14.4 [10-23]	0.09	13.6 [10-20]	0.97	0.97
Average voided volume (ml)	140 [50-300]	<0.005	179 [70-300]	<0.005	0.60

*Average [range]
** ulcer type IC vs. non-ulcer type IC
OSSI: O'Leary and Sant's Symptom Index, OSPI: O'Leary and Sant's Problem Index,
VAS: Visual Analogue Scale for pain (0-10)

References

1. Int J Urol. 16: 4-16, 2009

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What were the subjects in the study?	**HUMAN**
Was this study approved by an ethics committee?	**Yes**
Specify Name of Ethics Committee	**Tokyo University Ethics Committee**
Was the Declaration of Helsinki followed?	**Yes**
Was informed consent obtained from the patients?	**Yes**