

LASER THERAPY FOR THE URETHRAL SYNDROME

Aims of Study

In this randomised study we assessed the efficacy of laser surgery with side-firing and end-firing fibres in women with the urethral syndrome.

Methods

62 consecutive patients (mean age 42 years; range 21-75) were referred with a range of overlapping irritative symptoms: pollakiuria in 92%, micturitional burning in 89%, nicturia in 66%, suprapubic pain in 63%, stranguria in 39%, urgency in 64% and dysuria in 21%. No patient had a current urinary tract infection but 61% had a past history of one.

Pre-operative work-up included symptom assessment by a questionnaire; uroflowmetry; renal and bladder ultrasound scan; urine analysis with urethral, vaginal and cervical swabs; urodynamics with electromyography of the perineal floor and cystoscopy which, in all cases, detected whitish patches in the trigonal area, confirmed on biopsy to be squamous metaplasia. Patients underwent endoscopic treatment, with random assignment to either end- or side- firing laser fibres (Nd:YAG laser, setting at 30 Ws). End-firing: 33 patients (53%); Side-firing: 29 (47%). Treatment was performed in the Day Hospital with patients fully sedated, using a Storz 23 Ch cystoscopy. All areas of squamous metaplasia were treated with different joule energy levels in according to metaplasia extension: under 1,500 joules, between 1,500 and 3,000, between 3,000 to 4,500 and over 4,500 joules. Patients were catheterised for 4 to 24 hours and all were discharged within 4 hours of ending surgery.

Three months after surgery all patients underwent a clinical urological examination and cystoscopy followed by annual clinical assessment.

Surgery was considered successful when patients reported they were satisfied with outcome or symptoms were reduced by at least 75%.

The chi-square test was used to analyse results in the two groups and the trend at different levels of laser energy.

Results

Complications: slight macroscopic hematuria resolved within a few hours after surgery. In patients treated with side-firing irritative disturbances worsened in the 7-10 days after therapy but within 2 months symptoms markedly improved. Patients treated with end-firing improved rapidly but symptoms worsened within two months.

Mean follow-up was 41 months (3-82 months), with three drop-outs. End-firing: symptoms in 6 (19.3%) of the 31 (52.5%) patients improved but remained unchanged or worsened in 25 (80.7%). Side-firing: symptoms in 19 (67.8%) of the 28 (47.5%) patients were markedly improved but remained unchanged or even worsened in 9 (32.2%). Results were significantly better with side-firing ($p < 0.001$). A significant trend towards improvements emerged as the joule level rose. Patients who had a history of urinary infection tended to improve more ($P = ns$)

Follow-up: after 3 months cystoscopy and biopsy showed squamous metaplasia was no longer present in patients whose symptoms had improved. Whitish areas were still present in patients whose symptoms had remained unchanged or worsened.

Eleven patients repeated laser treatment within a mean of 7.5 months (range 2-33 months). Three were treated with side-firing and 8 with end-firing. Two of the three treated with side-firing laser improved together with two of those treated with end-firing. Three of the 11 patients underwent a third treatment within a mean of 5.3 months (range 3-7 months). One was treated with side-firing and two with end-firing. Only the patient treated with side-firing improved.

Conclusions

As the etiopathogenesis of the urethral syndrome is unknown, treatment is difficult and several approaches such as diathermocoagulation and cryotherapy have been attempted. We treated our patients with laser on the metaplastic areas on the bladder neck trigone because

laser is quick, easy to perform, relatively inexpensive and generally well accepted by patients. We used end-firing and side-firing fibres; the former vaporizes tissue while the latter produces necrotic coagulation, the physiological removal of which is followed by reconstitution of normal epithelium in 45-90 days, as confirmed by cystoscopy, biopsy and patients' satisfaction three months post-operatively. Patients who were treated with side-firing laser improved significantly more, with only three undergoing second laser sessions. Patients who received more joules because they had more extensive squamous metaplasia improved more, leading to the hypothesis that when metaplasia is less extensive it may not be involved in the etiopathogenesis of irritative symptoms.

Acknowledgement

Translation by Dr. GA Boyd.

References

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