

## A 7-YEAR AUDIT OF DIATHERMY TO CYSTITIS CYSTICA OR FOLLICULAR CYSTITIS IN RELATION TO TREATMENT OUTCOME

### Hypothesis / aims of study

Urogynaecologists and urologists commonly perform cystoscopy with diathermy to cystitis cystica/follicular cystitis for recurrent bacterial cystitis (commonly referred to as urinary tract infection (UTI)). However, upon reviewing the literature, there is no proven efficacy for this practice. There is only one case report investigating bladder diathermy from 1977 of a small case series of 27 patients with urethral syndrome (frequency/urgency without proven bacterial cystitis), which showed that diathermy was more effective than cystoscopy alone (1).

Therefore the aim of this study was to perform an audit of all women undergoing diathermy to cystitis cystica or follicular cystitis over 7 years with a background of recurrent UTI to determine whether diathermy was associated with a decrease in the number of UTI in the following 12 months when compared to the preceding 12 months.

### Study design, materials and methods

This was a retrospective audit of patients undergoing diathermy to cystitis cystica or follicular cystitis over a 7 year period. Patients referred to a tertiary Urogynaecology department with recurrent bacterial cystitis, who also had incontinence, prolapse or post coital UTI, were analyzed (Patients with recurrent UTI alone are not seen in this department and are referred to a Urologist). Recurrent UTI was defined as 3 or more UTI in a 12-month period(2). Voiding dysfunction was defined as a max flow rate of <15mL/sec and/or <10<sup>th</sup> centile for a voided volume of 200mL with a residual >100mL. Patients who did not respond to simple treatment measures (correct fluid intake, high dose cranberry medication, topical oestriol cream, careful perineal hygiene, careful bladder emptying) then underwent cystoscopy, sometimes at the same time as concomitant prolapse or stress incontinence surgery. All cystoscopy operations performed over a 7-year period were reviewed. The patients who underwent diathermy to areas of cystitis cystica or follicular cystitis performed at the time of cystoscopy were then further analyzed. Patient demographics (such as age, menopause status, previous surgery, use of oestriol cream, use of antibiotics, cranberry, voiding dysfunction, findings at cystoscopy) were recorded.

The number of UTI in the 12 months preceding cystoscopy and diathermy was compared to the number of UTI in the 12 months following. Thus, the women were used as their own controls. All women were discharged home on a therapeutic course of antibiotics and long-term antibiotics were discussed at their 6-week postoperative visit based on visual and histopathologic findings, or if they had immediate recurrence of infection prior to 6 weeks.

Statistical analysis was performed using Microsoft SPSS. Data are given as median (IQR), comparison between data was by Mann-Whitney U test.

### Results

A total of 65 women with a history of recurrent UTI and other urogynaecological dysfunction underwent cystoscopy over the 7-year period; 21/65 either had normal findings, trabeculations only, or hyperaemic mucosa. Thus 44 women had findings of cystitis cystica and/or follicular cystitis at cystoscopy. Of these 44, 4 women did not have diathermy due to 1 being on aspirin, and the other 3 had areas too small to diathermy. Thus these women were excluded from further analysis, leaving a total of 40 women that had a positive cystoscopy and diathermy for analysis.

The median age was 66 (IQR: 59.25, 74.0), the majority of the women were postmenopausal, 37/40 (92%), a small proportion had a cystocoele 12/40 (30%), 16/40 (40%) had previously had prolapse surgery, 8 (20%) of which had vaginal mesh. Voiding dysfunction occurred in 19/40 (47.5%). Pure urge incontinence occurred in 12/40 (30%), and 17/40 (42.5%) had mixed incontinence. Vaginal oestriol was used in 31/40 (77.5%) pre-cystoscopy and 35/40 (87.5%) after cystoscopy. Prophylactic antibiotics were given to 25/40 (62.5%) women prior to cystoscopy for a median duration of 10 months (IQR: 5.5,14). A further 3 women (7.5%) were using postcoital antibiotics only. Follow up was less than 12 months in 8/40 (20%); one was referred to a Urologist elsewhere, one moved away, four remained UTI free over six months and were told to represent if they had further UTI, which they did not. Two failed to attend their follow up appointment, one of whom represented 7 years later.

In the 12 months preceding cystoscopy, overall there were a median of 4 confirmed UTI (IQR 3,6) per woman, [mean of 4.11 (95% CI 3.05, 5.17)]. After cystoscopy and diathermy the median number of UTI in the following 12 months was markedly reduced, 1 (IQR 0, 3) [mean of 1.82 UTI (95% CI 1.19, 2.45)]. See figure 1.

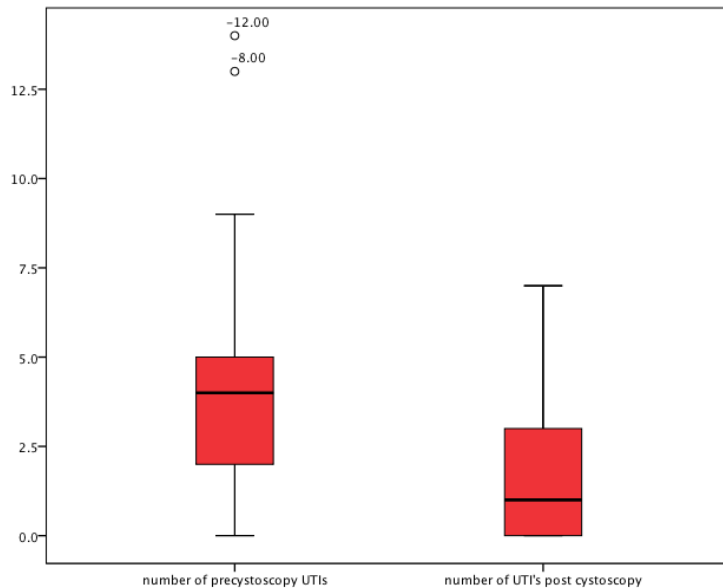


Figure 1: Overall UTI in the 12 months pre- and post-cystoscopy

When using the woman as her own control (paired data), there was also a significant reduction in the number of UTI post cystoscopy for each woman (reduction median -2 (IQR -4.0, - 1.0), mean -2.47 (95% CI -3.46, -1.45)). Long term prophylactic antibiotics post cystoscopy was given in 26/40 (65%), median duration 11 months (IQR 6,12); 2/40 remained on postcoital prophylaxis. Of the 12/40 who did not have antibiotics long term, there was a smaller reduction of UTI (Median reduction of -2 UTI (IQR -3, -1) compared to -3 (IQR -4,-1) for those that had prophylactic antibiotics).

#### Interpretation of results

In the 12 months following cystoscopy and diathermy for cystitis cystica/follicular cystitis, there was a reduction in the number of UTI, both for the total group and the paired data. While this is a small sample size of only 40 women, it was collected in a large unit over 7 years.

#### Concluding message

We were surprised that the efficacy of diathermy for follicular cystitis and cystitis cystica had never been previously audited. Prior to the advent of evidence based medicine, perhaps clinicians were satisfied that malignancy had been excluded, and felt that no further analysis was required. Now that the first phase of the audit has been completed, it has become apparent we need to assemble the full 7-years of pre-operative UTI data to determine the rates of UTI per annum. However, this audit also highlights the fact that a randomised control trial of the efficacy of diathermy has never been conducted.

#### References

1. Taylor JS. Diathermy to the Trigone and Urethra in the Mangement of the Female Urethral Syndrome. BUJ 1977; 49 (5):407-409
2. Reynard J, Brewster SF, Biers S. Oxford Handbook of Urology (2nd Edition), Oxford University Press 2009:176-178

#### Disclosures

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