

Electrosurgical Management of Hunner Ulcers in a Referral Center's Interstitial Cystitis Population



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OBJECTIVE	To characterize electrocautery (EC) as a valid treatment option in interstitial cystitis (IC) patients with Hunner ulcers (HUs).
METHODS	From 1997 to 2013, a single urologist's IC population was retrospectively reviewed to identify HU patients as well as their demographics, operative characteristics, and response to a 2-page questionnaire evaluating parameters of their experience with EC. Descriptive statistics, Pearson chi-square test, Student <i>t</i> test, and Pearson coefficient were used.
RESULTS	Two hundred fourteen EC procedures were performed in 76 patients (87% women; mean age, 66 ± 1.67 years). Fifty-one patients (69%) who underwent multiple EC had mean initial bladder capacity of 438.62 ± 27.90 mL and final bladder capacity of 422.40 ± 30.10 mL. Mean number of EC procedures was 2.98 ± 0.25 (range, 1-11). Mean time between sessions was 14.52 ± 1.34 months (range, 1-121 months). Fifty-two patients (68%) completed our questionnaire, with 13.54 ± 1.28 years of symptoms and 10.66 ± 0.96 years since diagnosis. Ranking IC treatments, 37 patients (84%) reported EC most beneficial. On a 0-10 (none to worst possible) scale before and after EC, frequency improved from 9.04 ± 1.30 to 3.65 ± 2.75 ($P < .001$), urgency from 8.40 ± 2.38 to 3.28 ± 2.71 ($P < .001$), and pain from 8.62 ± 2.36 to 2.68 ± 2.55 ($P < .001$). Overall, 89.6% of patients noted some degree of symptom improvement after EC; 56.3% of patients had marked improvement. A total of 98% of patients would undergo EC again.
CONCLUSION	EC of HU is an effective and safe procedure with high patient satisfaction that does not diminish bladder capacity. UROLOGY 85: 74–78, 2015. © 2015 Elsevier Inc.

Interstitial cystitis (IC)—bladder pain syndrome (BPS) is a chronic condition with symptoms including urinary frequency, urgency, and pelvic pain. It is commonly divided into ulcerative and non-ulcerative forms based on the presence of distinct friable lesions (Fig. 1) of the urothelium described by Hunner in the early 1900s.^{1,2} Approximately 5%-20% of IC patients are estimated to experience from Hunner ulcers (HUs).^{3,4}

Over time, some ulcerative IC patients develop end-stage symptoms refractory to all current conservative measures. These patients may only find relief after cystectomy with urinary tract diversion or reconstruction.⁵ We previously have reported our experience of 10 ulcerative IC patients undergoing cystectomy with

symptom improvement leading to high levels of satisfaction.⁶ Nonetheless, medical and conservative measures to manage symptoms and perhaps thwart progression of the disease process to that point are warranted. The recent American Urological Association (AUA) IC-BPS guidelines recommend local treatment of HU with corticosteroid injection or fulguration with laser or electrocautery (EC).⁷ Although fulguration with EC remains a valid treatment option, long-term studies have been limited. As a tertiary referral center that treats a substantial number of patients with ulcerative IC, we sought to characterize our subset of patients and review our experience with transurethral EC as a treatment for ulcerative IC.

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METHODS

After obtaining institutional review board approval, we retrospectively reviewed a single urologist's patient population to identify those diagnosed with ulcerative IC based on clinical history and cystoscopic examination findings between January 1997 and January 2013. We further identified those who underwent fulguration with EC within this same time frame. All patients had undergone bladder biopsies at the area suspicious

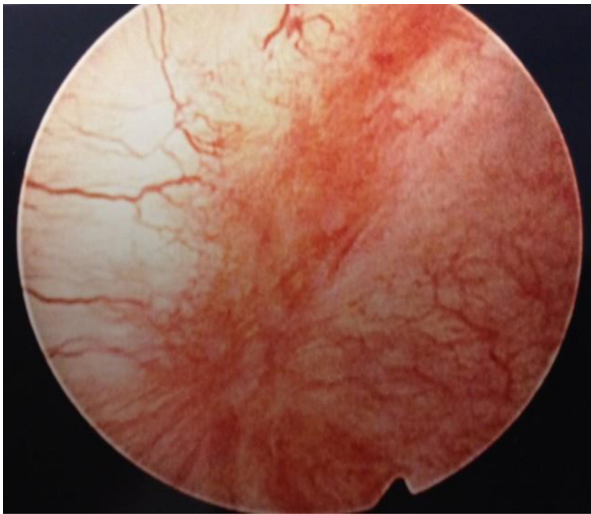


Figure 1. Hunner ulcer: pathognomonic lesion in ulcerative interstitial cystitis. (Color version available online.)

for HUs to exclude the diagnosis of transitional cell carcinoma. In cases where fulguration with EC was performed, the patient was placed under a general anesthetic, spinal anesthetic, or sedation with local. Fulguration was performed using either a resectoscope with rollerball or a No. 6 Bugbee electrode at settings of 25 W. All ulcerative areas were cauterized along with a small rim of normal mucosa at its periphery. Attempts were made to avoid fulguration of grossly normal mucosa. Before EC, most patients underwent hydrodistention to a bladder pressure of 80-100 cm water held for approximately 2 minutes and repeated. Bladder capacity under anesthesia was estimated based on the volume infused during hydrodistention. Patient's medical records were also reviewed for data regarding bladder capacity, related procedures, pathology reports, and perioperative complications related to the procedure.

These patients were then mailed a 2-page questionnaire survey to retrieve demographic information and data regarding their history of IC. Additionally, patients were asked to rank a list of various IC treatments from most effective to least effective on a standard 10-cm scale (0-10; none to worse possible). Finally, patients were asked whether they would undergo the procedure again and the overall change in symptoms after the procedure.

Descriptive statistics including frequencies, percentages, means, and standard deviations were used to describe the sample and the distribution of the data of interest. Categorical variables and continuous variables were analyzed using Pearson chi-square or Student *t* tests, respectively. Pearson correlation was used to determine the relationship between the number of EC treatments and change in bladder capacity.

RESULTS

A total of 76 patients were diagnosed with ulcerative IC. Seventy-one of 76 (93%) patients underwent EC of their ulcers using either a resectoscope with rollerball or a No. 6 Bugbee electrode. Of the 76 patients, 66 (87%) patients were women and 10 (13%) patients were men. Mean age was 66 ± 1.67 years. Fifty-one (69%) patients who underwent multiple EC had mean initial bladder capacity

(BC) of 438.62 ± 27.90 mL on hydrodistention. In these patients who had repeat hydrodistention, repeat cauterization of ulcers did not diminish BC significantly as mean final BC was 422.40 ± 30.10 mL (mean difference = -16.22 ± 20.72 mL; $P = .437$). The number of EC treatments a patient received was negatively correlated ($r = -0.285$) with the change in BC ($P = .05$). The mean number of EC episodes was 2.98 ± 2.16 (range, 1-11). If patients underwent repeat cauterization, the mean time between sessions was 14.52 ± 1.34 months (range, 1-121 months).

Fifty-two patients (68%) responded to our questionnaire. Of the survey responders, 46 (90%) considered themselves Caucasian, 3 (6%) African American, and 1 (2%) Native American. There were no significant differences between respondents and the 71 patients who underwent EC with regard to age, BC, mean number of procedures, and months between procedures. Patients reported on average 13.54 ± 1.28 years of symptoms, 10.66 ± 0.96 years since diagnosis, and 9.62 ± 0.81 years of active treatment. Of the patients who ranked EC in a list of IC treatments, 37 patients (84%) reported EC as the most beneficial of the treatments they had received (Table 1). On a 0-10 (none to worst possible) scale before and after EC, frequency improved from 9.04 ± 1.30 to 3.65 ± 2.75 ($P < .001$), urgency from 8.40 ± 2.38 to 3.28 ± 2.71 ($P < .001$), and pain from 8.62 ± 2.36 to 2.68 ± 2.55 ($P < .001$; Fig. 2). Overall, 89.6% (43 of 48) of patients noted some degree of symptom improvement after EC, with 56.3% (27 of 48) reporting marked improvement, 20.8% (10 of 48) reporting moderate improvement, and 12.5% (6 of 48) reporting mild improvement. A total of 6.3% (3 of 48) of patients reported feeling the same, and 4.2% (2 of 48) reported marked worsening (Fig. 3). Ninety-eight percent (46 of 47) of patients reported they would undergo EC again, whereas only 1 patient (2%) reported they would not undergo the procedure again.

COMMENT

IC-BPS is a chronic debilitating condition with a constellation of symptoms that have a drastic impact on a patient's quality of life. Cystoscopic findings can be used to categorize these patients into 2 general subtypes, ulcerative and nonulcerative, based on the presence of ≥ 1 distinct, recurring, inflammatory lesions in the bladder known as HU. The clinical presentation varies between the 2 subtypes as ulcerative patients tend to be older,⁸ have reduced bladder capacities,³ and have higher urinary frequency.⁹ On the other hand, nonulcerative patients tend to have more diffuse pain syndromes with multiple systemic complaints.¹⁰ Additionally, ulcerative patients have excellent responses to local treatments¹¹ suggesting that the subtype is more a condition of the bladder. We previously demonstrated the efficacy of cystectomy leading to high levels of patient satisfaction in a small population of ulcerative IC patients' refractory to

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