

Should Urinary Diversion for Bladder Pain Syndrome/Interstitial Cystitis Include Cystectomy?

NO

BLADDER pain syndrome (BPS) including interstitial cystitis (IC) is a rare disease. Major surgery, such as augmentation cystoplasty or urinary diversion, may be necessary in cases refractory to conservative treatment. In 2001 the most frequently performed procedure in the U.S. was cystectomy with ileal conduit.¹ The literature does not provide much evidence of whether cystectomy is necessary when performing urinary diversion and the evidence is further complicated by the fact that patients with BPS constitute a heterogeneous group. Patients with Hunner lesions (ESSIC type 3C) differ from those with nonHunner lesions with regard to disease characteristics, treatment effect and long-term outcome. Therefore, Hunner lesions should be classified as a specific disease (classic IC) when considering urinary diversion with or without cystectomy versus bladder augmentation.

During the last 10 years a few studies have demonstrated a relatively successful outcome of urinary diversion in patients with BPS without Hunner lesions. Of 34 patients with classic IC and 13 with BPS without Hunner lesions treated surgically 28 of the former group became symptom-free, including 14 treated with urinary diversion, while only 5 of those without Hunner lesions became symptom-free.² All of the failures in the latter group had undergone continent urinary diversion with a Kock reservoir. None of the patients underwent primary cystectomy, and secondary cystectomy performed because of pain in 8 patients did not relieve the pain.

In another study of 41 patients 2 with classic IC experienced complete pain relief after bladder augmentation.³ Of the remaining 39 patients with BPS without Hunner lesions 20 of 24 underwent urinary diversion without primary cystectomy and 15 of 16 underwent bladder augmentation without primary cystectomy. Secondary cystectomy due to persistent pain was necessary more often in the augmentation group (7 vs 6 cases). Although the authors did not indicate whether 8 patients relieved of pain after secondary cystectomy were in the

augmentation or diversion group, 4 of 5 (20%) treated with cystectomy and 16 of 20 (20%) who did not undergo primary cystectomy became pain-free. Also, the authors did not indicate whether those in whom treatment failed had a continent or a wet diversion. The only predictive parameter for successful outcome of major surgery in this study was the duration of symptoms before surgery, which was 12.1 years in the failure group and 5.4 years in the successful group, indicating that centralization of pain may be an issue if treatment is delayed. Bladder capacity with the patient under general anesthesia had no predictive value.

We recently reported our experience with ileal conduit diversion with and without cystectomy in 23 patients with BPS including 2 with classic IC.⁴ Of the patients 19 (83%) became pain-free (visual analogue scale score less than 1) including both patients with IC. Bladder capacity with the patient under general anesthesia had no predictive value. Primary cystectomy was performed in 1 patient due to a history of recurrent urinary tract infections and secondary cystectomy was performed in 2 patients for persistent pain in 1 with no effect and pyocystis in 1.

It is interesting that bladder pain can be relieved without removing the bladder. Is it because the constant mechanical stimulation by bladder filling and emptying is stopped or because "toxic" agents in the urine are removed? Further research is needed to provide clues about the pathophysiology of this disease.

In conclusion, I believe the present evidence in the literature supports urinary diversion without cystectomy in patients with BPS. The surgical trauma is less severe and there is no conclusive evidence that cystectomy provides better results. However, it is reasonable to perform cystectomy with urinary diversion in cases of concomitant bacterial bladder infections when the risk of pyocystis is so great. Whether a urinary diversion should be dry or wet is debatable but we always perform a wet ureteroileocutaneostomy. If this works well the patient is offered a reservoir after 1 to 2 years. To date,

only 1 patient has opted for the reservoir because the bag too often loosened from the skin. Bladder augmentation with or without supratrigonal resection should be reserved for patients with classic IC as the results in those with BPS without Hunner lesion BPS are discouraging.^{2,5}

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YES

Notwithstanding all of the strong opinions and theories about IC/painful bladder syndrome, and with all due respect to the dedicated and passionate clinicians and researchers as well as the NIDDK (National Institute of Diabetes and Digestive and Kidney Diseases) guidelines, at the present time there is no real consensus about how to even diagnose the condition or for that matter what to call it. Treatment is entirely empiric and the most recent guidelines state "...urinary diversion with or without cystectomy may be undertaken in carefully selected patients for whom all other therapies have failed." So, what are the indications for cystectomy? What follows is based on personal opinion derived from much experience, much discussion with peers and to a lesser extent a review of the peer reviewed literature, simply because it is so sparse, so empiric and so devoid of any meaningful conclusions.

Before cystectomy should even be considered, it would be good to know that the bladder is the cause of the symptoms. How does one know? There are a number of ways. You can tell by the way the patient describes the pain syndrome in relation to bladder filling and voiding, which can be documented with a bladder diary. Pain that intensifies as the bladder fills, gets worse and worse until the patient voids, and then is immediately relieved by voiding, after which the pain gradually builds up until she voids again, likely comes from the bladder. This can be checked further by cystoscopy and cystometry (if you talk to the patient during these exams).

You can also tell a lot about the bladder by the way it looks. Based on its cystoscopic appearance, Rossberger et al divided cases into ulcer (Hunner) and nonulcer disease, and subsequently found that 94% of 36 with classic Hunner disease had complete resolution of pain symptoms with reconstructive surgery comprised of various combinations of urinary diversion, supratrigonal cystectomy, enterocystoplasty and neobladder.² In contrast only 1 of 13 patients with nonulcer disease had a

successful outcome. In our published and unpublished experience the success rate for patients undergoing reconstructive surgery for ulcer disease was 87% compared to 0 of 7 with nonulcer disease.⁶ On the other hand, Kochakarn et al reported a 100% success rate in 35 women with nonulcer disease who underwent cystectomy and neobladder.⁷ Linn et al described a "good" response after supratrigonal or subtrigonal cystectomy and Mainz pouch neobladder.⁸ Of their patients 21 had nonulcer disease. Finally, you can tell by the way the bladder functions. In patients with small capacity, painful bladders, especially if there is low bladder compliance, the chances are that the bladder is the cause of the symptoms.

It is clear to me that when the bladder is the cause of the symptoms, urinary diversion with or without cystectomy is the most effective treatment for patients with refractory IC. Although two of the larger series revealed no difference in success rates after urinary diversion with or without cystectomy,^{8,9} in my opinion cystectomy has the best chance of achieving a successful outcome, especially in patients with long-standing severe bladder inflammation. In one such case that I treated invasive bladder cancer with sarcomatoid features was found which had no identifiable mucosal component, despite multiple negative prior bladder biopsies. That was sobering!

Of course there are many reasons not to perform cystectomy, especially in patients with comorbidities that need to be considered. However, in the absence of contraindications cystectomy and neobladder or urinary diversion offer the best chance of a successful outcome but only in patients who fulfill all of the aforementioned criteria. If the bladder is not the cause of the symptoms, there is no need for cystectomy (or even urinary diversion).

How does one choose between cystectomy and urinary diversion versus neobladder or continent diversion versus cutaneous urinary conduit? That decision has more to do with patient preference and surgical expertise than the disease itself. Choosing between supratrigonal and subtrigonal cystectomy also depends in part on surgical expertise. However, although the data of Kochakarn et al (subtrigonal cystectomy transecting the urethra below the bladder neck but above the endopelvic fascia)⁷ are compelling, they represent the results of only 1 series. In my experience, and speaking to peers, there are a substantial number of patients who have undergone urinary diversion alone or with supratrigonal cystectomy whose symptoms persisted only to be relieved by subsequent excision of the remaining bladder and urethra.⁹

In conclusion, severe IC symptoms refractory to conservative therapies represent an “orphan disease” whose treatment requires highly individualized considerations. For the patient with a small capacity, inflamed bladder in the absence of identifiable infection or cancer whose pain is clearly bladder related, cystectomy and urinary diversion

offer the best chance for a successful outcome. Or so I think.

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