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Ureteric bupivicaine infusion for loin pain haematuria syndrome

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ABSTRACT

INTRODUCTION Loin pain haematuria syndrome is a common problem with complications including opiate dependence. Morbidity treatments include intra-ureteric capsaicin infusion, nephrectomy, autotransplantation and nephrolysis. We explored the use of flexible cystoscopic infusion of intra-ureteric bupivicaine.

PATIENTS AND METHODS Patients presenting with chronic loin pain underwent urological and nephrological evaluation. Bupivicaine (0.5%, 20 ml) was infused via an intra-ureteric catheter under flexible cystoscopic guidance. Repeat infusions were offered if indicated.

RESULTS Sixteen of 17 patients with 1-year follow-up responded and were satisfied. Twelve of these required repeat infusions (mean, 2.9 infusions). The procedures were well tolerated by all patients without adverse effects.

CONCLUSIONS Intra-ureteric bupivicaine infusion has a place in the management of patients with chronic renal pain. It offers a minimally invasive alternative to other treatments. This procedure warrants further investigation within a randomised, controlled trial setting.

KEYWORDS

Chronic renal pain – Bupivicaine – Intra-ureteric infusion

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Loin pain haematuria syndrome (LPHS) was first reported in 1967 in three female patients with recurrent attacks of severe flank pain and intermittent macroscopic haematuria in which the diagnostic work-up could reveal no cause.[1] The management of patients with loin pain that appears to be of renal origin but without a demonstrable cause remains a conundrum for clinicians. Management strategies have involved surgical procedures that include nephrectomy, renal denervation and renal autotransplantation with their associated morbidities.[2] Alternatively, many patients have become dependent on opioid analgesia, or simply remained untreated.[3] We report a case series of such patients treated with flexible cystoscopic infusion of intra-ureteric bupivicaine as a minimally invasive treatment option.

Patients and Methods

Patient selection

Adult patients who presented with intractable loin pain that required opioid analgesics, but without an obvious or easily treatable cause were considered. All patients underwent urological evaluation that included cystoscopy and sonographic and radiological imaging of the upper tracts as a minimum, as well as ureteroscopy in selected cases. Further nephrological investigation included serum creatinine, urinary protein and blood pressure measurements.

Infusion method

The procedure was carried out in a day-case endoscopic suite. Following urethral instillation of lidocaine hydrochloride 2% gel (Instillagel®, Climimed Ltd, High Wycombe, UK), a flexible cystoscope was passed and the ureteric orifice of the symptomatic side identified. Under cystoscopic guidance, a 5-Ch ureteric catheter was introduced and passed proximally until resistance was felt. Bupivicaine (0.5%, 20 ml) was then infused through the catheter over a 5–10-min period.

Patients who reported initial symptomatic benefit but subsequent return of symptoms were offered further infusions at later dates.

Data collection

Data concerning adult patients who had undergone intra-ureteric bupivicaine infusion since August 2002 were collected prospectively; the case notes of those with a minimum of

1-year follow-up were retrieved and further reviewed for the purposes of this report.

Ethics

Detailed informed consent was obtained from all patients prior to undergoing any procedure. The study was conducted as an audit approved by the Kent and Canterbury Audit Commission.

Results

Seventeen patients were treated: 14 female and three male. The median age at presentation was 54 years (range, 39–80 years). Twelve patients were diagnosed with LPHS. The remaining five suffered chronic loin pain without haematuria; of these, three had a history of treated calculi and two had previously suffered pyelonephritis.

The procedures were well-tolerated by all patients without any adverse effects. Sixteen of the 17 patients who presented with chronic loin pain described an improvement in their symptoms. Four patients were later discharged from follow-up having reported resolution of symptoms following a single treatment. Twelve patients required repeat infusions at intervals ranging from 3 months to 1 year with a mean number of 2.9 infusions prior to symptom resolution. In only one case (with LPHS) was there no response.

Discussion

This case series suggests that intra-ureteric bupivicaine infusions have a role to play in the management of loin pain in the context of LPHS, and prior upper tract pathologies. Patients can be treated with repeated infusions on a symptomatic basis and avoid the need for dependence upon opioid analgesia and surgical interventions.

The majority of LPHS reported cases have been in females and 70% of patients in the three largest cases series to date were female.[4,5] The age of onset can vary between the first to sixth decades of life, but the majority develop symptoms in the third decade.[2] An association between LPHS and psychiatric symptoms was reported in early cases. Subsequent studies have revealed an increased incidence of depression, somatisation and drug-seeking behaviour in LPHS compared to the general population; some authors have suggested that LPHS may represent a somatic pain disorder.[6,7] On the other hand, LPHS may represent a renal pathological entity. Spetie *et al.*[8] reported the biopsy results of 43 patients who had been diagnosed with LPHS. Of these, 9 patients were found to have immunoglobulin A nephritis, and the remainder had glomerular haematuria. They proposed that pain may be caused by obstructing red cell casts and microcrystals ultimately causing stretching of the renal capsule.

However, there is a subset of patients who suffer LPHS who develop persistent, chronic, intractable pain which is refractory to opiate analgesia and such patients run the risk of becoming opiate dependent. This persistent pain has warranted such invasive procedures for pain control as nephrectomy, renal denervation and renal autotransplantation.[2] The efficacies of these highly invasive procedures are variable. Greenwell *et al.*[4] reported a modest 25% success rate in a study of 32 patients with chronic loin pain who underwent renal denervation. Chin *et al.*,[9] in their 26-patient study of renal autotransplantation, recorded pain reduction in 69% of patients at follow-up; six cases, however, required nephrectomy due to complications such as ischaemia and renal vein thrombosis at surgery. Parnham *et al.*,[10] in their study of 11 patients who underwent renal autotransplantation for chronic loin pain, recorded a 75% recurrence in pain in the transplant site at 24–48 months' follow-up. Nephrectomy is rarely advocated due to the risk of development of pain in the contralateral kidney, although studies by Gibson *et al.*[11] have suggested complete pain relief in patients undergoing bilateral nephrectomies with subsequent dependence upon haemodialysis.

Intra-ureteric infusion of capsaicin has been used as a minimally invasive alternative to surgical intervention.[12] A recent systematic review concluded that relief (in approximately 50% of patients) was only evident in the short term and that the side effects (including nephrotoxicity and increased nephrectomy rate) outweighed the benefits of treatment.[13]

Intra-ureteric bupivicaine infusion, therefore, offers an alternative to surgical treatment and capsaicin. It offers a minimally invasive method for treating patients who suffer debilitating pain in a flexible cystoscopy suite using local anaesthetic as opposed to a general anaesthesia in an operating theatre. The procedure can be repeated and is well tolerated by patients.

Although this study is limited by its size, lack of a control group, and the use of a validated pain score, it is the first report of the use of bupivicaine for this indication. This data set is, therefore, important and would warrant further investigation in the context of a randomised, controlled setting. Due to the small patient numbers and follow-up period required, this would ideally be carried out as part of a multicentre trial.

References

1. Little PJ, Sloper JS, de Wardener HE. A syndrome of loin pain and haematuria associated with disease of the peripheral renal arteries. *Q J Med* 1967; **36**: 253–9.
2. Weisberg LS, Bloom PB, Simmons RL, Viner ED. Loin pain haematuria syndrome. *Am J Nephrol* 1993; **13**: 229–37.
3. Dube GK, Hamilton SE, Ratner LE, Nasr SH, Radhakrishnan J. Loin pain haematuria syndrome. *Kidney Int* 2006; **70**: 2152–5.
4. Greenwell TJ, Peters JL, Neild JA, Shah PJ. The outcome of renal denervation for man-

aging loin pain haematuria syndrome. *BJU Int* 2004; **93**: 818–21.

5. Sheil AG, Chui AK, Verran DJ. Evaluation of the loin pain/haematuria syndrome treated by renal autotransplantation or radical renal nephrectomy. *Am J Kidney Dis* 1998; **32**: 215–20.
6. Lucas PA, Leaker BR, Murphy M, Neild GH. Loin pain and haematuria syndrome: a somatoform disorder. *Q J Med* 1995; **88**: 703–9.
7. Lall R, Mailis A, Rapoport A. Haematuria loin pain syndrome: Its existence as a discrete clinicopathological entity cannot be supported. *J Clin Pain* 1997; **13**: 171–7.
8. Spetie DN, Nadasdy T, Nadasdy G, Agarwal G, Mauer M, Agarwal AK *et al.* Proposed pathogenesis of idiopathic loin pain-hematuria syndrome. *Am J Kidney Dis* 2006; **47**: 419–27.
9. Chin JL, Kloth D, Pautler SE, Mulligan M. Renal autotransplantation for the loin pain-hematuria syndrome: long-term follow up of 26 cases. *J Urol* 1998; **160**: 1232–5.
10. Parnham AP, Low A, Finch P, Perlman D, Thomas MA. Recurrent graft pain following renal autotransplantation for loin pain haematuria syndrome. *BJU Int* 1996; **78**: 25–8.
11. Gibson P, Winney RJ, Masterton G, Fowles RG. Bilateral nephrectomy and haemodialysis for the treatment of severe loin pain haematuria syndrome. *Nephrol Dial Transplant* 1994; **9**: 1640–1.
12. Bultitude M, Young J, Bultitude M, Allan J. Loin pain haematuria syndrome: distress resolved by pain relief. *Pain* 1998; **76**: 209–13.
13. Uzoh C, Vivekanandan K, Timoney A. The use of capsaicin in loin pain-haematuria syndrome. *BJU Int* 2009; **103**: 236–9.

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