Severe itch from miliaria managed with propantheline: a case report

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ABSTRACT

Itch is a common symptom faced in palliative care. In this case report, we present a patient in his 80s with a background of prostate and bladder cancer who fell and was subsequently immobile following a resultant vertebral fracture. He experienced persistent and distressing pruritis during his hospital stay. This case highlights the assessment and management of pruritis in a palliative care setting, eventually leading to a diagnosis of miliaria which was successfully treated with Propantheline.

BACKGROUND

Pruritis is a common symptom in palliative medicine with many potential causes, including miliaria. Hyperhidrosis is a common cause of miliaria and is present in up to 28% of palliative patients with cancer.[1]

Propantheline is a non-specific acetylcholine antagonist which acts on muscarinic M1-3 receptors,[2] with multiple recommendations for use including hyperhidrosis. Unlike other anticholinergic medications such as atropine, propantheline does not easily cross the blood–brain barrier. Given the role of muscarinic receptor antagonists in decreasing perspiration and associated pruritus, propantheline could be an effective agent in the management of these symptoms in palliative care, however, the use of propantheline in this setting is poorly reported.

CASE DESCRIPTION

This case describes a man in his late 80s with a background of metastatic prostate and bladder cancer. He was admitted to an acute hospital following a fall at home which resulted in a T9/10 fracture. This patient was unsuitable for surgical intervention and was managed conservatively. His medical background included ischaemic cardiac disease, peripheral vascular disease, type 2 diabetes mellitus, polymyalgia rheumatic and gout. The patient's prostate cancer was diagnosed approximately 5 years prior and was maintained on androgen-suppression therapy. His bladder cancer was managed with serial transurethral resections of the bladder.

During his hospital admission, he developed wet gangrene in his left foot, which was managed non-surgically with broad-spectrum intravenous antibiotics (piperacillin-tazobactam 4.5 gm three times per day) due to frailty. Following discussions with his family, he was referred to the palliative care team for symptom control and transferred to the palliative care unit (PCU). He was functionally limited on arrival and was unable to mobilise out of the bed without significant assistance requiring a hoist.

On admission to the PCU, the patient's medications included mirtazapine 15 mg in the evening, slow-release morphine 30 mg two times per day, prednisone 10 mg daily, pregabalin 150 mg in the morning and 225 mg in the evening, tapentadol 200 mg slow release two times per day.

During his inpatient palliative care admission, he developed an extremely distressing and progressively worsening pruritus associated with a flat macular rash on the posterior torso, which demonstrated blanching and extended to his upper limbs (figure 1). There was no scaling, central clearing or interdigital webbing involvement, making the diagnosis of psoriasis, tinea or scabies infection less likely. The rash was not associated with changes to medications and did not correspond with any changes of hepatic or renal function. This man became increasingly more diaphoretic despite using cold compresses and fans for symptomatic relief.

Table 1 outlines the pharmacological management of the patients rash and pruritus. Regular moisturiser application, a prolonged trial of loratadine 10 mg daily for 45 days and promethazine 10–25 mg

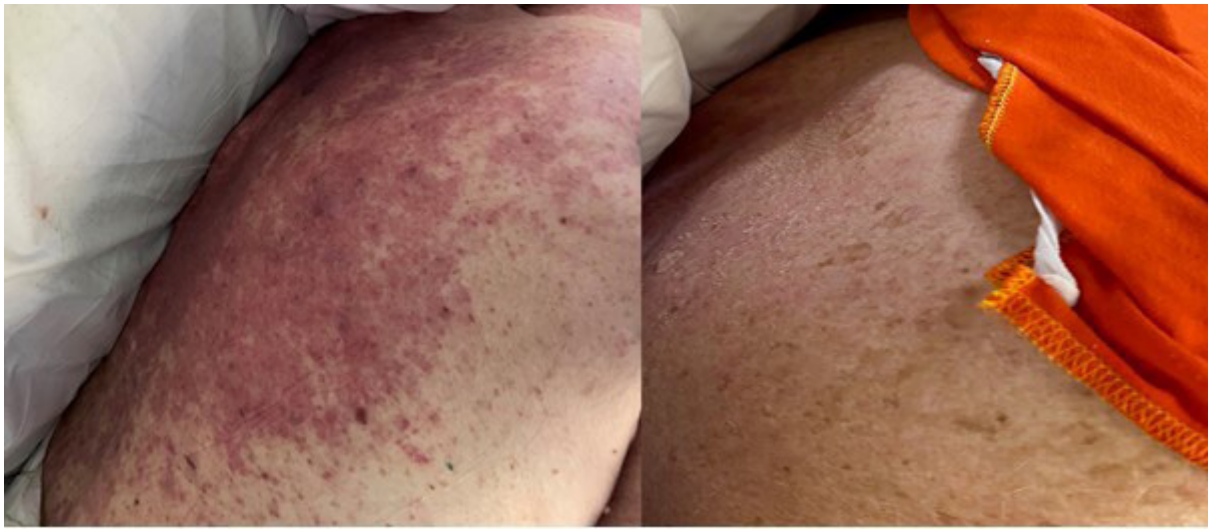

Figure 1 Macular rash (left) and resolution of rash with propantheline (right).

as required, was trialled without benefit. Topical hydrocortisone 0.5% and 1% were used for 34 days, betamethasone 0.02% for 51 days and 0.05% for 20 days. Topical lidocaine gel was trialled for a total of 54 days with limited success. These measures were only partially effective and the rash continued to spread across his torso.

Aprepitant was trialled which provided a significant decrease in distress from pruritus for approximately 10 days; repeat dosing of 165 mg provided a shorter effect of 5 days only. The patient's distress worsened, with physical scratching being required to alleviate his distress. A one-off subcutaneous dose of methylnaltrexone 6 mg did not provide relief. Sertraline 25 mg daily was commenced with partial effect and subsequently increased to 50 mg daily after 2 weeks, and again to 75 mg after 2 weeks and continued for 40 days. Capsaicin cream 0.0025% was trialled for a total of 20 days with limited effect. A subcutaneous lidocaine infusion was trialled at 100 mg/24 hours and increased gradually to 800 mg/24 hours over 16 days with partial benefit, then ceased.

A skin biopsy was taken on day 53 of pruritus treatment. The results returned after 14 days and showed a mixed spongiotic and interface dermatitis pattern. Subsequent telehealth consultation with a dermatologist concluded that the clinical and histopathological findings were consistent with miliaria. Dermatological input advised to reduce sweating by positioning the patient away from his mattress during the day. However, this proved difficult due to his poor bed mobility and the debilitating nature of his illness. A trial of propantheline was commenced with the aim of reducing sweating, initially 15 mg two times per day, with regular application of towels to the posterior torso. Propantheline was increased to three times daily dosing; over

Table 1 Trialled pharmacological management of rash and pruritus

Drug name	Dose/frequency	Commencement/duration*	Effect?
Loratadine	10 mg daily	Started day 6, over 45 days	Nil effect
Promethazine	10–25 mg daily PRN	Started day 13	Nil effect
Hydrocortisone	0.5%, titrated to 1% topical cream daily	Started day 17, over 34 days	Partial effect
Lidocaine gel	2% topical cream, two times per day	Started day 24, over 52 days	Partial effect only
Aprepitant	165 mg, once only	Days 29, 39 and 51	Initial dose effective, partial effect thereafter
Methylnaltrexone 6 mg	6 mg, once only	Day 49	Nil effect
Betamethasone cream	0.02%, titrated to 0.05% topical cream, two times per day	Started day 51, over 71 days	Partial effect only
Sertraline	25 mg, titrated to 75 mg daily	Started day 51, over 40 days	Partial effect only
Capsaicin cream	0.0025% topical cream, two times per day titrated to three times per day	Started day 56, over 20 days	Partial effect only
Lidocaine infusion	100 mg/24 hours, titrated to 800 mg/24 hours	Started day 62, over 16 days	Partial effect only
Propantheline	15 mg two times per day, titrated to three times per day	Started day 73, over 111	Effective

*Commencement refers to time period since rash/pruritus presence.

the course of 2 weeks the rash and itch improved and then the pruritus steadily resolved (figure 1). Dosing was maintained successfully without the return of either a symptom or the development of adverse effects.

Despite the eventual treatment of his pruritus, the patient deteriorated due to multiple septic episodes in the context of his malignancy and died comfortably in the PCU on day 206 of admission.

DISCUSSION

Propantheline is a recommended medication used in the treatment of hyperhidrosis. However, this medication is rarely used in the palliative setting for the treatment of hyperhidrosis-induced miliaria, partly due to a lack of documentation of use. To the best of our knowledge, this case report documents the first successful use of propantheline in the treatment of miliaria in a palliative patient.

Given the many causes of pruritus and differing treatment methods, it is important to identify the underlying cause. Miliaria is a condition that can result in extreme pruritus, typically caused by obstruction of the eccrine ducts in the deeper layers of the skin resulting in inflammation.[3] This patient's symptoms appeared to worsen with increased perspiration, contributed by prolonged periods of immobility, large body habitus and malignancy. Treatment is usually directed at non-pharmacological approaches to increase 'breathability' to affected areas and topical steroids[3]; however, in this case, such management was impractical given the patient's frailty and poor bed mobility. As hyperhidrosis is a main contributing factor to miliaria,[3] it was proposed by the authors that propantheline could prove suitable for treatment by reducing perspiration. Our patient did not experience significant side effects from the medication including anticholinergic delirium. He had a marked improvement with the resolution of pruritus and improved quality of life.

Other treatments used for this patient included aprepitant and lidocaine infusion aprepitant antagonises the effect of substance P on the NK-1 receptor, resulting in a decrease in pruritus in the palliative care setting.[4] In this case, the trial of the aprepitant was efficacious early, with a diminishing rate of return. Lidocaine has been of benefit in treating pruritus in the setting of cutaneous T-cell lymphoma,[5] likely due to blocking sodium channels in neuronal cell membranes. In this case, there was only a partial response seen.

CONCLUSION

Pruritus in palliative patients can be a difficult symptom to appropriately manage. Multiple lessons may be learnt from this case. First, skin conditions such as miliaria are common and can occur in palliative patients particularly if they have limited mobility, are bed-bound, demonstrate a high body mass index and are prone to hyperhidrosis such as those with cancer. This condition can result in extreme pruritus and distress. In patients who are unable to reposition easily in bed, an anticholinergic such as propantheline can assist in the resolution of pruritus and rash. Second, complex treatments such as aprepitant and lignocaine should not be discounted, in the case of refractory itch, although conventional therapies should be trialled first. Lastly, the utility of a skin biopsy and seeking expertise should not be discounted, despite the general concept to avoid invasive procedures and medicalisation in patients with limited life expectancy.

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