Journal of
Case Reports: Open Access

Case report Open Access

Topical Therapy as a Treatmentfor Brachioradial Pruritis: a Case Report

Brianna De Souza M.D, Amy McMichael M.D*

Department of Dermatology, Wake Forest University School of Medicine, Winston-Salem, North Carolina

***Corresponding author:** Amy McMichael, MD Department of Dermatology, Wake Forest Baptist Medical Center,1 Medical Center Blvd, Winston-Salem, NC 27157, Phone: 336-716-7882, Email: amcmicha@wakehealth.edu

Received Date: April 12, 2019 **Accepted Date:** May 06, 2019 **Published Date:** May 08, 2019

Citation: Brianna De Souza (2019) Topical Therapy as a Treatmentfor Brachioradial Pruritis: a Case Report. Case Reports: Open Access 4: 1-5.

Abstract

Management of brachioradial pruritus (BRP) presents a formidable challenge to dermatologists and neurologists. BRP is a rare, neurocutaneous condition characterized by sharply localized, chronic pain with associated itching, burning, stinging, and or tingling sensation. Effective care of this patient population is confounded by limitations within the literature, comprised of case series and case reports. We present a case of one middle-aged female with a chronic history of BRP recalcitrant to the following oral therapies: pregabalin, gabapentin, mirtazapine, prednisone, and amitriptyline, as well as topical triamcinolone. After being evaluated in the clinic, the patient was started on combination therapy withKetamine 10%, Amitriptyline 5%, and Lidocaine 5% topical cream to which she responded.

Keywords: Brachioradial pruritus, Brachioradial, Pruritus, Neurocutaneous

Background

Brachioradial pruritus (BRP) is a rare, neurocutaneous condition whose management often presents a formidable challenge to dermatologists and neurologists. Patients usually present with a sharply localized, chronic pain without cutaneous changes in the dorsolateral arm consistent with the distribution of the brachioradialis muscle. The disorder is characterized by more than just itching, some patients often describean associated burning, stinging, and/or tingling sensation [1]. Despite reports in the literature as early as 1968, the exact etiology of BRP remains elusive; currently, there are only 3 documented theories on the conditionnamely ultraviolet radiation, trauma, and cervical spine disease [2-4]. Effective care of these patients is not only confounded by the theories on pathogenesis but also on the limitations within the literature, which largely consist of case reports and case series. Therapeutic options for BRP range from oral therapy such as antidepressants and anticonvulsants to topical therapy such asice packs. We present a case of BRP treated effectively with topical Ketamine 10%, Amitriptyline 5%, and Lidocaine 5%.

Case Presentation

A 63-year-old, Caucasian female presented to our dermatology clinic with recurrent pruritus of the medial aspect of the left forearm. She described pain relief with the application of ice packs to the region and minimal relief with daily Naltrexone therapy. She had a previous history of BRP and was seen in the clinic over the past 5 years for management. She reports a one-year history ofworsening pain and itching inher bilateral upper extremities and neck. Pertinent history included MRI of the cervical spine demonstrating disc bulge at C5 to C6 with mild, left lateral foraminal stenosis and disc bulge at C6 to C7 with minimal, bilateral foraminal narrowing. Notably, the patient denied trauma to the cervical spine.

During her initial clinic visit, she reported a prior history of gabapentin use for her symptoms. However, this was poorly tolerated due to side effects of migraine headaches. Shewas then prescribed pregabalin 150 mg BID and was well controlled on this therapy for 2 years. Then in 2014, her symptoms returned despite treatment. Her pregabal in was then increased from 150 mg BID to 150 mg in the morning and 300 mg in the evening. Her symptoms persisted despite the adjustment to her medication and on her return visit; she was started on mirtazapine 7.5 mg nightly. This was poorly tolerated by the patient. Thus, her medication was changed to combination therapy with topical triamcinolone, an oral prednisone taper, and amitriptyline as recommended by neurology.

Her symptoms persisted despite combination therapy. She was then started on naltrexone 50 mg daily and referred to pain management. Naltrexone proved efficacious in controlling symptoms for 2 years at which time symptoms recurred despite treatment. Topical creamof Ketamine 10%, Amitriptyline 5%, and Lidocaine 5% was initiated. She responded well to this and has been pain-free for one year.

Discussion

The treatment options for BRP are as varied as the factors (ultraviolet radiation, trauma, and cervical spine disease) proposed in its pathogenesis. Many patients with BRP are insensitive to multiple treatments, typically requiring multiple therapies before improvement, suggesting that the pathogenesis of BRP is likely multifactorial. Initial therapy typically consists of monotherapy with either topical or systemic antihistamines or topical steroids [2].Once a patient fails initial therapy, providers may escalate treatment to oral antipsychotic, anticonvulsant, or antidepressant therapy. The following medications are frequently prescribed by dermatologists in the treatment of BRP: amitriptyline, doxepin, gabapentin, and capsaicin [5, 6]. Studies have demonstrated successful treatment of refractory BRP with topical capsaicin patches [7-9]. There are even reports of steroid injections, surgical decompression, cervical spine manipulation, and acupuncture in the management of BRP for underlying cervical disease [2, 10]. Most notably, a study evaluating the use of topical amitriptyline-ketamine in post-herpetic neuralgia patients suggestedimproved symptomatic relief with higherdrugconcentrations (4% and 2% respectively) similar to concentrations used in our patient (5% and 10%) [11]. Other studies have demonstrated mixed success with lower concentrations of topical amitriptyline-ketamine (1%-2% and 0.5%-1% respectively), particularly among those patients with a history of neuropathic pain, erythromelalgia, or refractory proctodynia [12-17]. Although evidence is still lacking, improvement in the BRP symptom, pruritus, has been seen in those patients prescribed antidepressants or antipsychotics [5]. Best reductions in itching were associated with severe disease at baseline and prolonged use of treatment [5].

Our patient was diagnosed with BRP five years prior to her clinic visit. She had tried most of the first-line topical and systemic agents for her symptoms with minimal improvement and on two occasions had experienced adverse side effects. It was imperative that we considered second-line and or combination therapy given her clinical course, as well as side effect profiles for each medication. Given the risk of irritation and burning sensation secondary to the application of topical capsaicin, our patient refused this therapy. Her symptoms persisted despite the use of more efficacious therapies, such as antidepressants and anticonvulsants [5, 11]. The decision was made to start the patient on combination therapy with atopical combination of Ketamine, Lidocaine, and Amitriptyline based on a study reporting successful treatment of refractory BRP with topical amitriptyline-ketamine cream [18].This study suggested that the success of this novel therapywas based on the collective actions of each agent. While ketamine inhibits the synaptic transmission of nerve signals, amitriptyline inhibits the depolarization of axons [19,20]. It is believed that these two processes can prevent the transmission of pain [21]. For this reason, we selected these two agents in our combination therapy. Lidocaine was added to the mixture for its presumed, synergistic effects with amitriptyline. Lidocaine also inhibits the depolarization of axons, albeit indirectly, by decreasing nerve cell membrane permeability [22]. We hypothesize that these three agents used in combination block neuronal signaling thus minimizing, and possibly eliminating, the transmission of pain as evidenced by our patient. We propose that the combination therapy oftopical Ketamine, Lidocaine, and Amitriptyline is an effective option for the treatment of refractory BRP. Further studies are needed to identify evidence-based treatment plans in this patient population.

First Line Treatment	Protective clothing to prevent UV light exposure, cooling compounds (wet towel, ice packs)	Oral antihistamines (hydroxyzine, loratadine, cetirizine)	Topical local anesthetics agents (capsaicin)	Oral anti-depressants (amitriptyline, doxepin, fluoxetine)	Oral anti-convulsants (pregabalin, gabapentin)
Second Line Treatment	Oral antipsychotics (risperidone, pimozide, chlorpromazine)	Combination therapy (amitriptyline-ketamine cream, amitriptyline-ketamine-lidocaine cream)	NK-1 antagonists (aprepitant)	Alternative therapies: botulinum A toxin	Surgical interventions (cervical spine manipulation, discectomy)

Table1. First and Second Line Therapy in the Treatment of BRP [2,5,6].

References

1. Lott ME, Dudelzak J and Sheehan D (2007) what is your diagnosis? Brachioradial pruritus. Cutis 80: 3–4.

2. Weinberg, Brent D, et al. (2018) "Brachioradial pruritus treated with computed tomography-guided cervical nerve root block: A case series." JAAD case reports 4.7: 640-644.

3. Waisman M (1968) Solar pruritus of the elbows (Brachioradial summer pruritus) Arch Dermatol 4:481–485.

4. Marziniak M, Phan NQ, Raap U, Siepmann D, Schürmeyer-Horst F, et al. (2011) Ständer S.J Am Acad Dermatol 65:756-762.

5. Wachholz, Patrick Alexander, et al. (2017) "Impact of drug therapy on brachioradial pruritus." Anais Brasileiros de dermatologia 92.2: 281-282.

6. Stumpf, Astrid, Claudia Zeidler, and Sonja Stander (2016) "Brachioradial Pruritus." Pruritus. Springer, Cham 225-228.

7. Pereira M.P, et al. (2018) "Application of an 8% capsaicin patch normalizes epidermal TRPV 1 expression but not the decreased intraepidermal nerve fibre density in patients with brachioradial pruritus." Journal of the European Academy of Dermatology and Venereology 32.9: 1535-1541.

8. Zeidler C, et al. (2015) "Capsaicin 8% cutaneous patch: a promising treatment for brachioradial pruritus?" British Journal of Dermatology 172.6:1669-1671.

9. Hardy J, Uthurriague C, Bibas N et al. (2014) Brachioradial pruritus revealing cervicomedullary astrocytoma and treated with 8% capsaicin patches. Ann Dermatol Venereol 141:374–375.

10. Mirzoyev SA1, Davis MD (2013) "Brachioradial Pruritus: Mayo clinic experience over the past decade." British Journal of Dermatology 169.5:1007-1015.

11. Lockhart E (2004) Topical combination of amitriptyline and ketamine for postherpetic neuralgia. J Pain 5: S82.

12. Barton DL, Wos EJ, Qin R, et al. (2011) a double-blind, placebo-controlled trial of topical treatment for chemotherapy-induced peripheral neuropathy: NCCTG trial N06CA. Support Care Cancer 19:833-841.

13. Lynch ME, Clark AJ, Sawynok J, Sullivan MJ (2005) Topical 2% amitriptyline and 1% ketamine in neuropathic pain syndromes: a randomized, double-blind, placebo-controlled trial. Anesthesiology. 103:140-146.

14. Lynch ME, Clark AJ, Sawynok J, Sullivan MJ (2005) Topical amitriptyline and ketamine in neuropathic pain syndromes: an open-label study. J Pain 6:644-649.

15. Lynch ME, Clark AJ, Sawynok J (2003) a pilot studies examining topical amitriptyline, ketamine, and a combination of both in the treatment of neuropathic pain. Clin J Pain 19:323-328.

16. Sandroni P, Davis MD (2006) Combination gel of 1% amitriptyline and 0.5% ketamine to treat refractory erythromelalgia pain: a new treatment option? Arch Dermatol 142:283-286.

17. Lehman JS, Sciallis GF (2008) Effective use of topical amitriptyline hydrochloride 2.5% and ketamine hydrochloride 0.5% for analgesia in refractory proctodynia. J Drugs Dermatol 7:887-889.

18. Poterucha, Timothy J, et al. (2013) "Topical amitriptyline and ketamine for the treatment of brachioradial pruritus." JAMA dermatology 149.2:148-150.

19. Warncke T, Jørum E, Stubhaug A (1997) Local treatment with the N-methyl-D- aspartate receptor antagonist ketamine, inhibit the development of secondary hyperalgesia in man by a peripheral action. Neuro sci Lett 227:1-4.

20. Pancrazio JJ, Kamatchi GL, Roscoe AK, Lynch C III (1998) Inhibition of neuronal Na channels by antidepressant drugs. J Pharmacol Exp Ther 284: 208-214.

21. Oatway M, Reid A, Sawynok J (2003) Peripheral antihyperalgesic and analgesic actions of ketamine and amitriptyline in a model of mild thermal injury in the rat. Anesth Analg 97:168-173.

22. Mc Evoy GK, Miller J (2007) Antipruritics and Local Anesthetics. AHFS Drug Information. Bethesda: American Society of Health System Pharmacists, Inc.