OASIS DERMATOLOGY GROUP

Ph: (956) 971 - 0404
www.oasisderm.com

Brachioradial Pruritus

Brachioradial pruritus (BRP) is a chronic dermatologic condition characterized by intense itching or a burning sensation, typically affecting the outer forearm and, in some cases, extending to the shoulder and neck region. The condition was first described in the literature in 1968, initially termed *solar pruritus of the elbows* or *brachioradial summer pruritus*. The prevalence is highest in middle-aged women with lighter skin tones. Although the precise etiology remains unclear, the condition is believed to result from cumulative sun exposure or nerve root entrapment due to degenerative spinal disease.

Etiology and Pathophysiology

The exact cause of brachioradial pruritus is not fully understood, but it is thought to involve a combination of photodamage and neurological factors. Studies suggest that excessive sunlight exposure, particularly over a short period, may trigger flare-ups of symptoms. Interestingly, patients living in colder climates tend to experience symptom relief during the fall and winter months, highlighting the potential role of UV exposure in exacerbating the condition.

In addition to sun exposure, degenerative cervical spine disease, particularly nerve root compression, has been implicated in the pathophysiology of BRP. It is common for dermatologists to recommend cervical spine imaging, such as an X-ray, to rule out underlying spinal pathologies that may contribute to nerve root irritation, which can manifest as pruritus.

Clinical Presentation and Diagnosis

Brachioradial pruritus typically presents as localized itching or burning sensations on the outer forearm, which may extend to the shoulder and neck. Although the condition can cause significant discomfort, it is often not accompanied by visible skin changes, although some patients may experience erythema or excoriations from scratching. Symptoms tend to flare in the summer months due to increased sun exposure. The condition is commonly diagnosed based on the characteristic pattern of symptoms, particularly in patients with a history of sun exposure. Diagnostic confirmation is often achieved through the ice-pack sign, in which the application of ice to the affected area significantly alleviates the pruritus.

Treatment Options

The management of brachioradial pruritus involves both pharmacologic and non-pharmacologic therapies aimed at alleviating symptoms and addressing underlying etiologies such as sun exposure and spinal disease. Treatment regimens are individualized based on symptom severity, patient response, and the presence of contributing factors such as cervical spine degeneration.

- ***Topical Treatments***
  - *Capsaicin cream*: Capsaicin, the active ingredient in chili peppers, is known for its ability to reduce itching and pain by depleting substance P, a neuropeptide involved in the transmission of pain and itching sensations. Although capsaicin initially causes a stinging sensation, this typically subsides with continued use, resulting in significant symptomatic relief.
  - *Pramoxine cream*: Pramoxine is a topical anesthetic that works by numbing sensory nerve endings, providing temporary relief from the burning and itching sensations associated with BRP.
  - *Doxepin cream*: Doxepin, a tricyclic antidepressant with antihistamine properties, has been used in topical form to treat pruritic conditions. It reduces histamine release and prevents itching.
  - *Amitriptyline 1%/ketamine 0.5% cream*: This combination therapy has shown the most promise in treating BRP. Amitriptyline, another tricyclic antidepressant, works by modulating neurotransmitter release, while ketamine acts as an NMDA receptor antagonist, blocking pain transmission. Research indicates that this cream, when applied two to three times daily, provides significant relief for many patients.
  - *Ice packs*: The application of cold compresses or ice has been shown to significantly alleviate symptoms, earning the "ice-pack sign" as a diagnostic clue for BRP.
- ***Oral Medications***: Oral treatments are used for patients who do not respond to topical therapies. Commonly prescribed medications include:
  - *Gabapentin*: This anticonvulsant medication, commonly used to treat neuropathic pain, has been shown to be effective in reducing pruritus in BRP patients by modulating nerve activity.
  - *Lamotrigine*: Another anticonvulsant, lamotrigine has been reported to provide symptomatic relief by stabilizing neuronal membranes and reducing abnormal nerve firing.
  - *Carbamazepine and valproate*: Both of these medications are used off-label for neuropathic conditions, including BRP, and may provide relief by inhibiting nerve excitation and synaptic transmission.
  - *Oral antihistamines*: Although less commonly effective in BRP, oral antihistamines may be used in cases where histamine-mediated pruritus is suspected.
- ***Non-Pharmacologic Treatments***
  - *Physical therapy and cervical traction*: For patients with a suspected cervical spine contribution to their symptoms, physical therapy and cervical traction devices may help alleviate nerve root compression and reduce symptoms.
  - *Acupuncture*: Some studies have reported that acupuncture may provide symptom relief by modulating nerve function and improving local blood flow, although more research is needed to establish its efficacy for BRP.

- *Osteopathic manipulative therapy (OMT)*: For patients with cervical spine involvement, OMT may be useful in addressing spinal misalignments and alleviating associated nerve root irritation.

➢ ***Sun Protection***: Given the exacerbation of symptoms with sun exposure, sun protection is a critical component of managing BRP. Patients are advised to use broad-spectrum sunscreen, wear protective clothing, and limit sun exposure during peak hours to reduce flare-ups.

Conclusion

Brachioradial pruritus is a chronic condition that primarily affects individuals with a history of excessive sun exposure or degenerative cervical spine disease. Treatment strategies involve a combination of topical therapies, oral medications, and non-pharmacologic interventions tailored to the individual patient's needs. Ongoing research continues to refine treatment protocols, but management remains largely symptomatic. Additionally, emphasizing sun protection is crucial in preventing exacerbations and improving patient quality of life.

References

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