

# SUPERFICIAL SKIN NECROSIS AFTER DEHYDRATED ALCOHOL NEUROLYSIS IN A PATIENT WITH CHRONIC POST-TRAUMATIC KNEE PAIN

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## Introduction

Chronic post-surgical pain (CPSP) is a pervasive and often debilitating complication following orthopedic and other surgical interventions, with incidence rates reported as high as 57% for certain elective procedures. Chemical neurolysis, particularly with dehydrated alcohol, has emerged as a promising yet underutilized option for managing refractory pain syndromes. Its use is not without risks, including rare side effects such as local tissue irritation or necrosis, which require careful consideration during patient selection and planning. This case aims to highlight the potential utility of this technique as a salvage therapy for refractory post-surgical allodynia, contributing to the sparse but growing body of evidence supporting its role in complex pain management.

## Case Report

- 24-year-old female former athlete with knee pain
  - Past medical history of ADHD, depression, anxiety, and bilateral knee pain.
- Complications with knee pain began in 2012 after injuring right knee during softball practice - pain localized around the patella, worsened with activity
- Evaluated by orthopedic surgery and underwent several procedures over the course of several years (2013-2020) Throughout her complicated course of injuries and interventions, the patient's chronic bilateral knee pain was managed with long term opiate therapy. Patient gradually developed severe allodynia over the medial aspect of the right knee. Symptoms became so severe that patient avoided jeans/pants for several years.
- Most recently, injection with dehydrated alcohol was localized to the superficial nerves in the skin surface area consistent with the allodynia with significant relief. Upon follow up, patient reported skin changes associated with the area of the injection, including initial scabbing followed by development of overlying erythema and ultimately superficial skin necrosis but also continued full resolution of allodynia symptoms. The skin necrosis was treated and resolved by debridement with plastic surgery with full skin healing.
- Pt with marked relief for approximately 8 months before gradual return. Currently in the process of having a peripheral nerve stimulator placed.

## Conclusion

- Dehydrated alcohol neurolysis can serve as an effective salvage option for refractory post-surgical allodynia, providing meaningful relief in a patient with exhausted alternatives.
- Clinicians should consider this technique in carefully selected cases, balancing its benefits against procedural risks through proper planning and patient education.



Figure 1: Skin markings over the area of allodynia along the medial aspect of the right knee. Picture was taken following superficial skin dehydrated alcohol neurolysis.



Figure 2. Image from virtual patient encounter at follow up after superficial skin neurolysis procedure indicating area of skin peeling over injection sites. Patient would later develop redness, warmth and eventual necrosis over the area



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## Discussion and Limitations

- The case offers several clinical insights. First, the efficacy of superficial nerve targeting suggests that precise localization of allodynic areas, potentially aided by diagnostic blocks or imaging, could enhance outcomes of chemical neurolysis. Second, the recurrence of symptoms raises questions about whether repeat injections or combination therapies might sustain relief while minimizing risks. However, challenges remain, including the importance of thorough patient counseling regarding temporary benefits and potential side effects.
- Limitations of this report include its single-case design, which precludes generalizability, and the confounding influence of the patient's extensive surgical history on outcomes. Future studies should investigate optimal dosing and injection techniques for dehydrated alcohol in superficial applications, assess predictors of sustained response, and compare this approach to emerging therapies like peripheral nerve stimulation in post-surgical cohorts.

## References

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