## Objective

To encourage more use of cryotherapy in outpatient setting for treatment of skin cancer, especially basal cell carcinoma.

#### Background

Basal cell carcinoma (BCC) is most common malignancy of skin, constituting approximately 90% of skin cancers in United States. It occurs in all races, more commonly in white populations. Risk factors contributing to BCC includes sun exposure, tanning beds, phototherapy, radiation exposure, and family history. Most common types of BCC are superficial, followed by nodular and morpheaform/infiltrative. Diagnosis can be made clinically using dermoscope or taking biopsy of the lesion. First line standard treatment of BCC is surgical excision called Mohs. During Mohs surgery, thin layer of cancer containing skin are progressively removed until cancer free tissue remains. This technique affectively removes skin cancer but often leaves patients with obvious scarring, infection, pain, prolonged wound care and subsequent plastic surgery. This is also expensive procedure. Average cost is in between \$1000-\$2000 per lesion depending on the size of the cancer.

Alternative method to treat skin cancer is cryotherapy. Traditionally, cryotherapy has been used to treat various benign skin conditions such as seborrheic keratosis. The idea behind this technique is using liquid nitrogen to kill cells, causing disruption of cell wall, release of cell contents activating immune modulators for repair and regeneration. This can be used to treat superficial tumors like BCC. It can easy performed in outpatient setting and is highly affective in treating BCC.



Figure 1. Types of skin cancer and characteristics of BCC

# **UCR** School of Art of Cryotherapy – Treatment for Basal Cell Carcinoma

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# **Case Report**

History and Physical Examination: 69-year old Caucasian male with history of basal cell carcinoma of left posterior shoulder came in for annual full body skin check. Patient has no other medical history. He was first diagnosed with basal cell carcinoma of the left shoulder in 2017. Punch biopsy was done and pathology came back as BCC. Patient was treated with surgical excision at that time. During this visit, patient endorsed lesion on his right earlobe and on his right lower leg. He denied any pain or drainage from the lesions. Patient noted history of extensive outdoor activities under the sun. Denied use of any sun block cream. Vital signs were within normal limits. Generally, patient appeared well without any signs of distress and no signs of head trauma. No lesions noted underneath his eyelids. There was ill-defined destruction at the right helix. Size was approximately 1 cm in diameter. Margin was rolled up without any surrounding erythema. No drainage noted. Patient denied any pain. No lymphadenopathy noted. Another ill-defined lesion noted at right anterior mid-tibia with 1.5 cm diameter. Pinkish in coloration. Crusts and erythema the lesion noted. Patient was alert and oriented x4. **Differential Diagnosis:** Basal cell carcinoma, squamous cell carcinoma, actinic keratosis, sebaceous hyperplasia, seborrheic

keratosis, Bowen's disease.

**Tests and Results**: No biopsy performed for any of these lesions. Dermoscopic exam done confirming BCC Final Diagnosis: Basal Cell Carcinoma.



Figure 2: Treatment stages of right helix lesion. A-C: Initial presentation. E: Second visit s/p 1<sup>st</sup> tx. F: Third visit s/p 2<sup>nd</sup> tx

**Treatment:** Lesions on right helix and right lower leg were treated with liquid nitrogen for 10-15 seconds. The lesions were thawed for 5 minutes. The same process was repeated twice. The lesions were covered with micropore tape and patient was followed up in 3 weeks. Same procedure was done in subsequent visits.





Figure 3. Treatment stages of right tibial lesion.



Patient endorsed little to no pain during and post treatment. BCC of right helix and right tibia healed well. Patient endorsed feeling well and had no complaints at the procedure site. Patient was sent home with recommendation to follow up every 6 months for another full body skin check. SPF 15 or higher was recommended for all outdoor activities.

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# **Results/Conclusion**

### Discussion

Basal cell carcinoma is easily recognizable and often can be diagnosed clinically without biopsy. This patient had history of BCC in the past who newly developed two superficial BCC. Patient was only treated with cryotherapy in outpatient clinic, three times with threeweek interval, and showed complete resolution of BCC

without any complications. Patient endorsed minimal to no pain during the procedure and required no prior anesthesia.

When primary care physicians refer patients to dermatology clinic for BCC, patients often go through biopsy and multiple rounds of Mohs procedure as this is standard care for BCC these days. Mohs procedure is expensive, requires multiple visits and wound care, and might require subsequent plastic surgery. This will be especially problematic for patients with compliance issues or those without health insurance. Moreover, this procedure is painful often requiring pain medications for days to weeks.

Cryotherapy is available in most of outpatient primary care clinic. It is time efficient, easy to perform, cost effective and most importantly, safe for patients. Proven in this case report, uncomplicated BCC can be treated in outpatient setting with the use of liquid nitrogen. Biopsy is often not necessary. This needs to be utilized more in family medicine clinic - to better recognize and treat patients with skin cancer.

## References

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