

# Antineoplasm and healing effects of Hypochlorous acid. A case study of an ulcerating bleeding Basal Cell Carcinoma.

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## Introduction

Basal cell carcinoma (BCC) can be treated using various treatment methods, including surgery, radiation, phototherapy, topical and oral medication.

A case of ulcerating bleeding BCC of the ear that was successfully treated with application of hypochlorous acid (HOCl) 3 times per day over a period of ten weeks, is presented.

## Clinical Case Presentation

We present a case of a 80-year old Caucasian male with a 3-month history of an ulcerating bleeding BCC of the left ear.

The diagnosis was confirmed through incision biopsy of the tumour. The lesion extended from the upper anti-helix of the ear inferiorly towards the tragus and was unsuccessfully treated with Imiquimod (Aldara). There was marked inflammation around the lesion that affected the whole external ear. Excision surgery would have resulted in removal of most of the ear with resulting functional (the patient wears hearing aids in both ears) and aesthetic defects.

Treatment was commenced through the spray application of 250 mg/l HOCl three times per day. Healing was evident in the closure of the lesion and resolution of the inflammation. Follow-up biopsy confirmed almost complete resolution of the BCC after 10 weeks of treatment. The treatment is being continued and a follow-up biopsy will be performed in two months time.

## Methods

Treatment was commenced through the surface spray application of 250 mg/l HOCl three times per day. Healing was evident in the closure of the lesion and resolution of the inflammation. The rodent ulcer (picture Day 15) disappeared completely.

Follow-up biopsy confirmed almost complete resolution of the BCC after 10 weeks of treatment. Very little tumor remains and will be followed up until complete resolution is obtained.

## Results



## Discussion

HOCl is normally manufactured by the neutrophils through the oxidative burst process and has antiseptic<sup>1</sup>, anti-inflammatory<sup>2</sup> and anti-neoplastic<sup>3,4</sup> properties. Recent advances in the manufacturing of pure HOCl, without concomitant sodium hypochlorite, has made it possible to treat multiple clinical conditions without side effects. Various experimental studies confirm the antineoplastic nature of HOCl, but a clinical case in the treatment of skin neoplasm has not been demonstrated.

A recent study<sup>3</sup> demonstrated that DNA repair protein disappears from skin treated with HOCl. This points to the disappearance or absence of chromosomal defects that normally occur during cell division. These defects are under normal circumstances repaired by the DNA-repair protein.

HOCl has also been shown to increase the immunogenicity of tumor cells<sup>4</sup>. The role of the innate immune response in the human is therefore to protect against infection (including biofilm), to modulate inflammation and act as an antineoplastic agent. The external application of HOCl could therefore hold promise as a potential treatment against tumor cells.

Recent studies at the North-West University confirmed the antineoplastic effect of Thoclor's HOCl against A375 human melanoma cells. More studies will follow.

## Conclusion

The successful treatment of BCC highlights the potential for treating skin neoplasms with HOCl.

The external application through a spray on solution containing HOCl holds promise due to its efficacy and lack of any side effects.

Further studies should be done to confirm the antineoplastic effect of HOCl and to develop treatment protocols for its use in the clinical setting.

## Bibliography

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