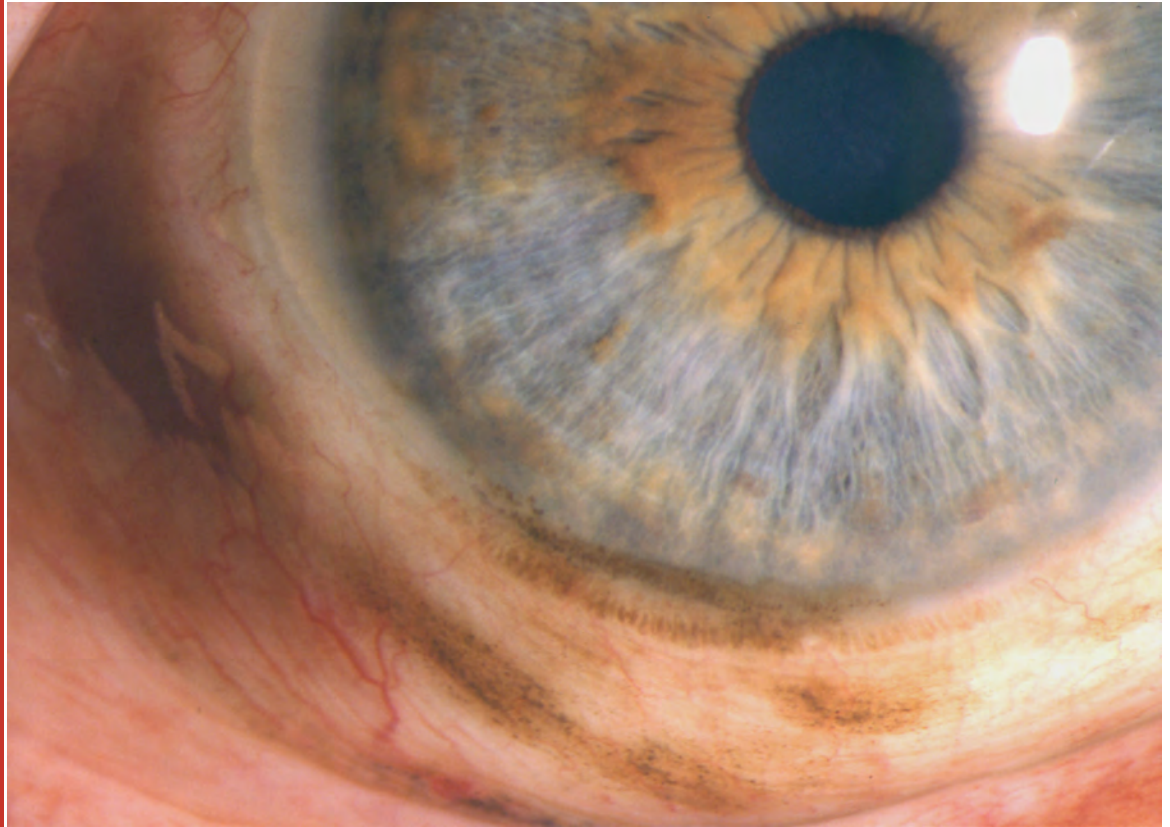


CONJUNCTIVAL TUMORS

Excellence Through Innovation



Dr Finger says, " Think of Sunglasses as Sunblock for your Eyes.™" These tumors are related to ultraviolet (UV) exposure.

New Studies on Conjunctival Cancer Trends in Diagnosis and Treatment

Primary excision (excision alone) of conjunctival carcinoma and melanoma has been associated with high recurrence rates. Further, these failures of local control are associated with loss of vision, loss of the eye and metastatic disease.

Dr. Finger has always felt that the first surgery offers the best chance for cure. Two recent reports have supported that theory.

In 2012, Yousef and Finger reported a retrospective study of 101 cases of squamous dysplasia and carcinoma of the conjunctiva and cornea. They found that when smaller AJCC T1staged lesions are treated

with excision with "Finger-tip" cryotherapy (freezing the tumor) one could achieve 96% local control. However, larger lesions required more complex strategies including topical chemotherapy "eye drops" for chemoreduction before surgery or after resection as adjuvant therapy.

We have been using either Interferon (Intron), mitomycin and 5-Fluorouracil alone or sequentially as needed. All local recurrences occurred within two years of follow up and only one patient developed metastasis.

We use external beam electron-based radiation therapy for otherwise unresponsive conjunctival squamous

carcinomas. Though tumor control was noted in 75% of these cases, complications of radiation included eye lash loss and severe dry eye. Dr. Finger notes, "these side-effects were acceptable in consideration of the alternative, surgical orbital exenteration (loss of the eye and surrounding tissues.)"

Take Away Messages:

- 1) The first surgery offers the best chance for cure.
- 2) Larger tumors require more complex multi-modality treatments.
- 3) Eyes and vision can be salvaged using radiation

Excision and Cryotherapy

The Current Standard

Excision alone has been shown to be an inadequate treatment for both conjunctival melanoma and squamous carcinoma. This finding is because the tumors edges typically extend beyond its visible margins. For example, when you look at a squamous carcinoma extending onto the cornea, there typically is a gray, avascular and fairly translucent advancing edge. It is reasonable to assume the conjunctival margins are also gray, translucent and advancing. But, these margins are much more difficult to see with the white sclera as a backdrop. Similarly, conjunctival melanomas are known to include edges that are “sine pigmenta” or without pigment. Therefore, if you are relying on the pigmented margin of a conjunctival melanoma to be the tumors edge, you are likely wrong.

This is why (at The New York Eye Cancer Center) we typically excise these tumors with 2 mm visible margins and add “Finger-tip” cryotherapy (bottom right figure) to extend the margins an additional 3 mm. This allows for a total of 5 mm margins in most cases. Diffuse and multifocal tumor treatments are more complex.

In cases of more advanced AJCC T-stage “bigger” tumors excision and cryotherapy is also used. However, these larger and more diffuse tumors require additional treatments (such as topical chemotherapy and radiation) to effect definitive control.

Though all patients should be checked for pre-auricular and cervical nodal spread, this is particularly important for larger tumors that require

“Excision with cryotherapy to the margins remains the most commonly used method to treat localized conjunctival and corneal cancers in the developed world.” Paul T Finger, MD

debulking excision with cryotherapy and or topical chemotherapy in order to allow for electron based external beam radiation therapy.

Cryosurgery destroys cells in several ways:

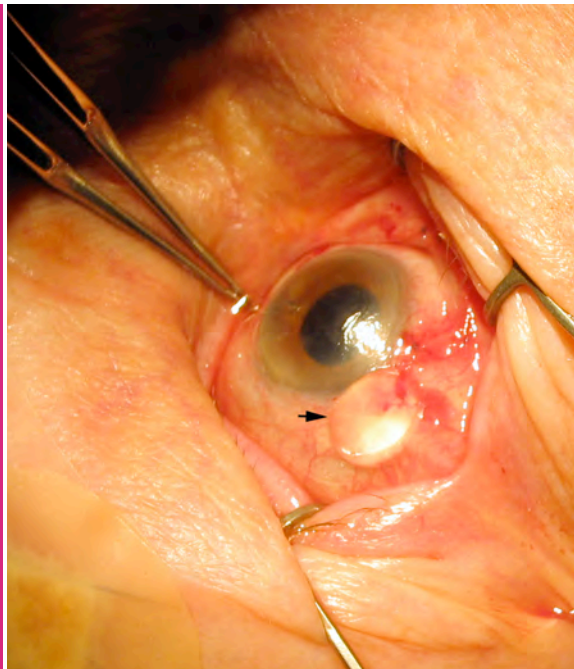
- First, the rapid creation of intracellular ice (within cancer cells) is lethal.
- Second, as ice forms outside a cell, the water inside is drawn out. This shrinks the cell and collapses cellular membranes resulting in a release of proteins and chemicals that kill cancer cells.
- Third, as ice (that surrounds shrunken cells) begins to thaw, large amounts of free water (produced by the thawing ice) rush back inside the cancer cells making them burst.

Modern cryosurgery is performed in a manner to produce a predictable tissue response in the target cancer. Factors that influence the efficacy of cryodestruction include the cooling rate, tissue temperature, the freeze-thaw cycle, and the number of repetitions. Special techniques must be used to prevent or limit intraocular freezing that might affect vision.

Finger PT. “Finger-tip” cryotherapy probes: treatment of squamous and melanocytic conjunctival neoplasia. British Journal of Ophthalmology 2005;89:942-949.

Finger-tip Cryotherapy

These hand-held cryotherapy units (currently manufactured by Dutch Ophthalmic Research Corporation (<http://www.dorc.nl/contact.php>) have uniquely large flat tips designed to provide large surface-area, superficial freezing for surface cancers.



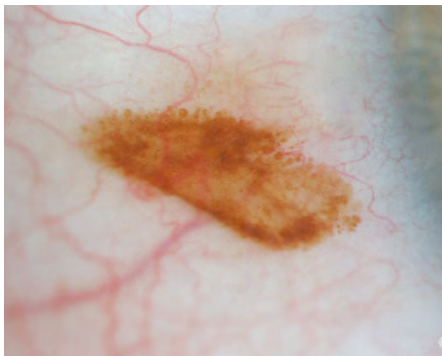
Late Breaking News! 101 Cases of Squamous Conjunctival Malignancy

Clinical and histopathologic factors related to recurrence of squamous neoplasia of the conjunctiva and cornea were analyzed. In this case series, 101 patients with squamous conjunctival dysplasia, carcinoma in situ or squamous cell carcinoma were analyzed.

As expected, malignant squamous conjunctival neoplasia was seen most commonly in older males (median 71 years old).

Recurrence was not correlated significantly to age, gender, laterality, clinical appearance or focality of the tumor at presentation. However, tumors larger than 5 mm in diameter, tumors extending more than 2 mm onto the cornea, and tumors with local invasion (corneal, scleral, intraocular or orbital invasion) were associated with a higher risk of recurrence. Increasing AJCC T-stage was also correlated strongly to recurrence ($P = 0.0006$).

Histopathologic diagnosis was correlated to recurrence ($P = 0.037$). For example, none of the tumors defined histologically as dysplasia showed recurrence, whereas 12.8% of carcinoma in situ tumors and 22.2% of squamous cell carcinoma tumors recurred.



Yousef YA, Finger PT

The Predictive Value of the Seventh Edition American Joint Committee on Cancer Staging System for Conjunctival Melanoma. In press.



“Squamous Carcinoma and Dysplasia of the Conjunctiva and Cornea.”

Yousef YA, Finger PT.

Ophthalmology

2012;119:233–240

Although the overall recurrence rate was 12.9%, the rate for tumors treated primarily at The New York Eye Cancer Center was 4% [(significantly less than the recurrence rate in previously operated tumors ($P = 0.0003$)).

Conclusions:

- Advanced AJCC T-stage, locally invasive tumors, and more pathologically aggressive tumors were at higher risk for recurrence.
- Inadequate initial therapy also was an important risk factor for recurrence.

- Treatment strategies should be affected by AJCC tumor staging at presentation.

Conjunctival Tumor Pearls:

- Take an initial photograph of all conjunctival surfaces for staging.
- Palpate for preauricular and cervical lymph nodes.
- If affixed to the globe, evaluate with a high-frequency ultrasound (UBM)
- Incisional biopsy can cause local failure.
- Local failure causes morbidity.
- Other than scraping for cytology, surgery should have curative intent.

Conjunctival Melanoma Does the AJCC Staging System Predict Local Control and Metastasis?

We evaluated the predictive value of the 7th edition, American Joint Committee on Cancer (AJCC) staging system for conjunctival melanoma.

Forty-two patients were studied. Recurrent disease was noted in 33% with 64% occurring at a median 2.5 (range 1-5) years after primary treatment.

Risk Factors for Recurrence:

Larger tumor size
Larger tumor thickness
Multifocality
Higher AJCC T-stage

Risk Factor for Metastasis:

Larger tumor thickness
Local tumor invasiveness
Local tumor recurrence
Higher AJCC T-stage

About Paul T. Finger, MD

Clinical Professor of Ophthalmology, Dr. Finger is a specialist in ocular tumors, orbital diseases and ophthalmic radiation therapy. He has developed new methods for the diagnosis and treatment of many ocular tumors, holds several patents and has written hundreds of scientific publications.

Dr. Finger is invited to lecture frequently at local, national and international meetings. He is founding Director of The New York Eye Cancer Center and The Ocular Tumor Services of The New York Eye and Ear Infirmary and NYU School of Medicine.

Dr. Finger is the Chair of the (AJCC) American Joint Committee on Cancer's Ophthalmic Oncology Task Force and a member of the Committee on Cancer (COC) of the American College of Surgeons. Further, he consults for The American Brachytherapy Society (ABS) and the Association for Physicists in Medicine (AAPM).

For more information visit his web site:
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