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# The Risk Associated with Corneal Transplantation from Donors with Cancer: Worth the Gamble?

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### Abstract

Our fragmented understanding of cancer biology limits the early detection of benign growths and metastases to other sites. Here, we discuss recent studies illustrating the need to further refine the screen for the detection of metastases and experimental studies to aid our understanding of the effects of completed chemotherapy on the potential transplant.

**Keywords:** Cancer biology; Chemotherapy; Transplantation

### Introduction

In a retrospective study published in 2001, one patient developed prostate cancer after 3 years of having received a cornea from a donor with lymphoma (incidence 1/40), compared to 5 patients developing cancers between one and four years after having received cornea from donors where no cancer was found (incidence 5/103) [1].

With no evidence available as to the description of the lymphoma or records of anamnestic interviews, one could speculate that this lymphoma that infiltrated the prostate and ultimately gave rise to the prostate cancer observed in the recipient could have perhaps been a malignant lymphoma of the prostate to begin with. These malignant lymphomas of the prostate were discovered in patients complaining about poor urinary stream, dysuria, frequency and nocturia, collectively resembling symptoms of lower urinary tract obstruction in middle-aged men. Later investigations using biopsy specimens revealed an infiltration of malignant lymphomas. There appears to be a precedent, albeit difficult to diagnose, for malignant lymphomas of the prostate [2-4].

### Discussion

There is a report where a primary prostate cancer is ascribed to have metastasized to the eye, specifically a reported choroidal metastatic growth [5]. Pathology using the biopsy obtained through fine needle aspiration supported the notion that these cells showed signs of a primary prostate cancer. The authors do not provide evidence whether the team of oncologists assayed for a possible lymphatic infiltration into the prostate. Albeit rare, this report illustrates the metastasis of an apparently primary prostate cancer to the eye. Whether the cornea was involved could not be assessed from the published report. Much needs

to be done to establish whether cancers may be transmitted via corneal transplantation. There is very little published evidence available to formally address this concern.

Aside of the above-mentioned, the effect of chemotherapeutic treatments of the donor are likely to affect the cell biology of the donor tissue. In a retrospective study, van Meter demonstrated that out of a pool of 120 corneas, 29 donors died of cancer-related causes. Five of those cancer-patients completed a regimen of chemotherapy. All five recipients of those corneas from patients who completed chemotherapy developed central opacity of the cornea with three of them needing re-grafting due to the severity of vision impairment. Van Meter concludes that “both eye banks and cornea surgeons should recognize the potential for this complication” [6].

### Conclusion

All of the above-mentioned should not take away from the advantages of corneal transplantation to the patient. We meant to shed light on unresolved matters in the field of cancer detection and biology with implications for refinement of the information available to patients to weigh both sides of the intervention as the patient decide whether the risks taken are outweighed by the benefits.

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