

Primary Lacrimal Duct Squamous Cell Carcinoma with Free Flap Reconstruction: A Case Report

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Introduction

Primary squamous cell carcinoma of the lacrimal duct system is an uncommon entity rarely described in the literature. Due to its location, defects arising from resection of lacrimal apparatus tumors pose many unique challenges, and surgery is routinely avoided due to this, in favor of primary chemoradiation therapy despite significant morbidity associated with radiation to the orbit.

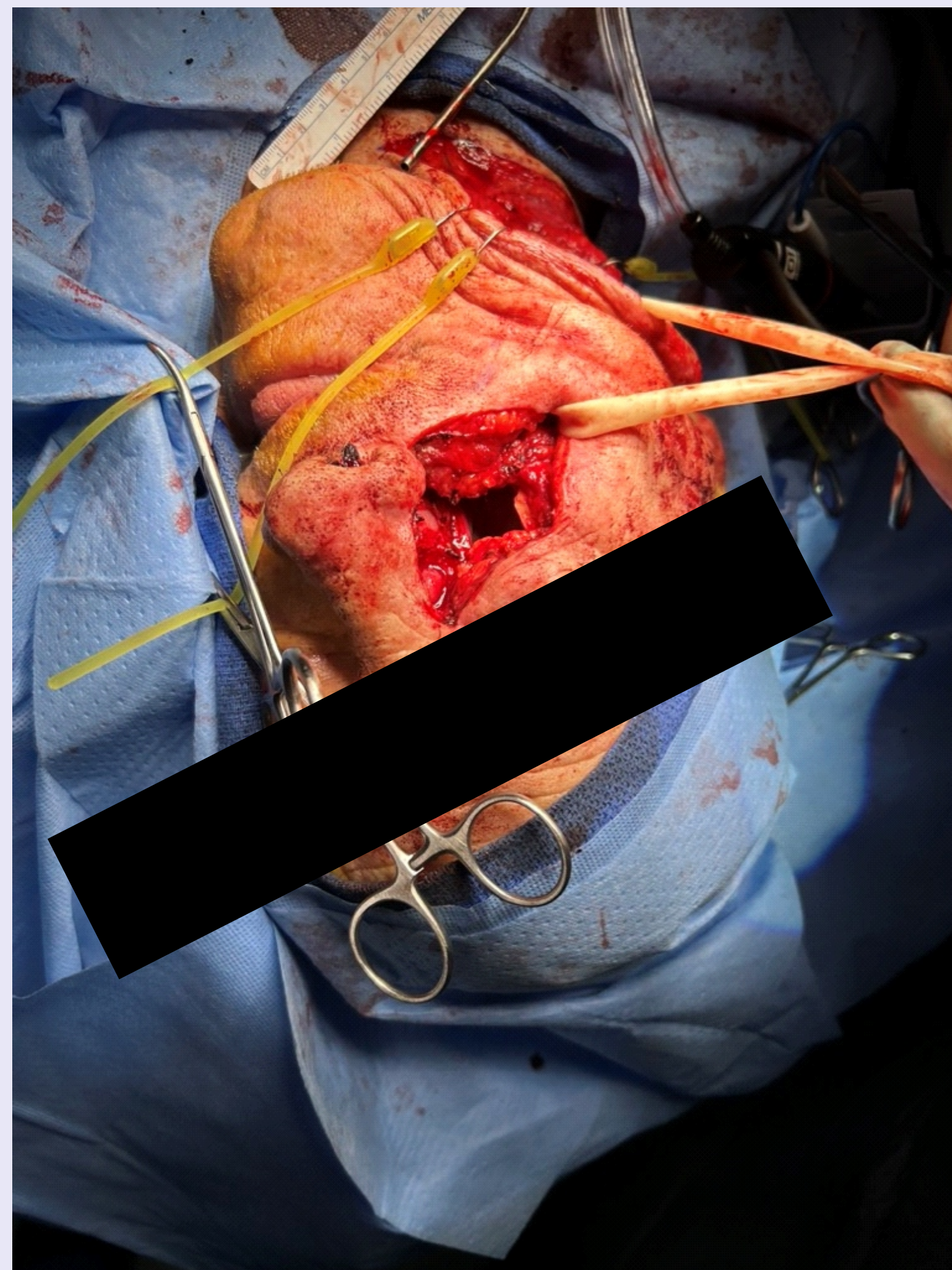


Figure 1: Intraoperative photograph showing the final defect following resection of the lesion. The resection required removal of the anterior maxilla including the inferior orbital rim. The defect communicates with the maxillary sinus, nasal cavity and the orbit

Presentation

A 78-year-old male presented to the head and neck surgical oncology clinic at our tertiary care center with history of a right sided facial mass, and facial pressure/pain which had been present for several months. The initial differential diagnosis was broad, however, biopsy eventually confirmed squamous cell carcinoma, with radiographic images implicating the lacrimal system as the origin of the tumor.

Presentation Continued

The patient was taken to the operating room for radical resection, maxillectomy, Level Ia/Ib modified radical neck dissection and reconstruction with left radial forearm osteocutaneous free flap with left thigh split thickness skin graft, with plating of the radius at the donor site. Donor bone was used to reconstruct the orbital rim to provide support for the orbital contents, mid-face mini plates were used to secure the bone flap to the nasomaxillary buttress medially and to the zygomaticomaxillary buttress laterally. There were no intraoperative nor post-operative complications. The final pathology reported squamous cell carcinoma of the Lacrimal Sac/Duct 3.2 cm in greatest dimension with all lymph nodes benign.

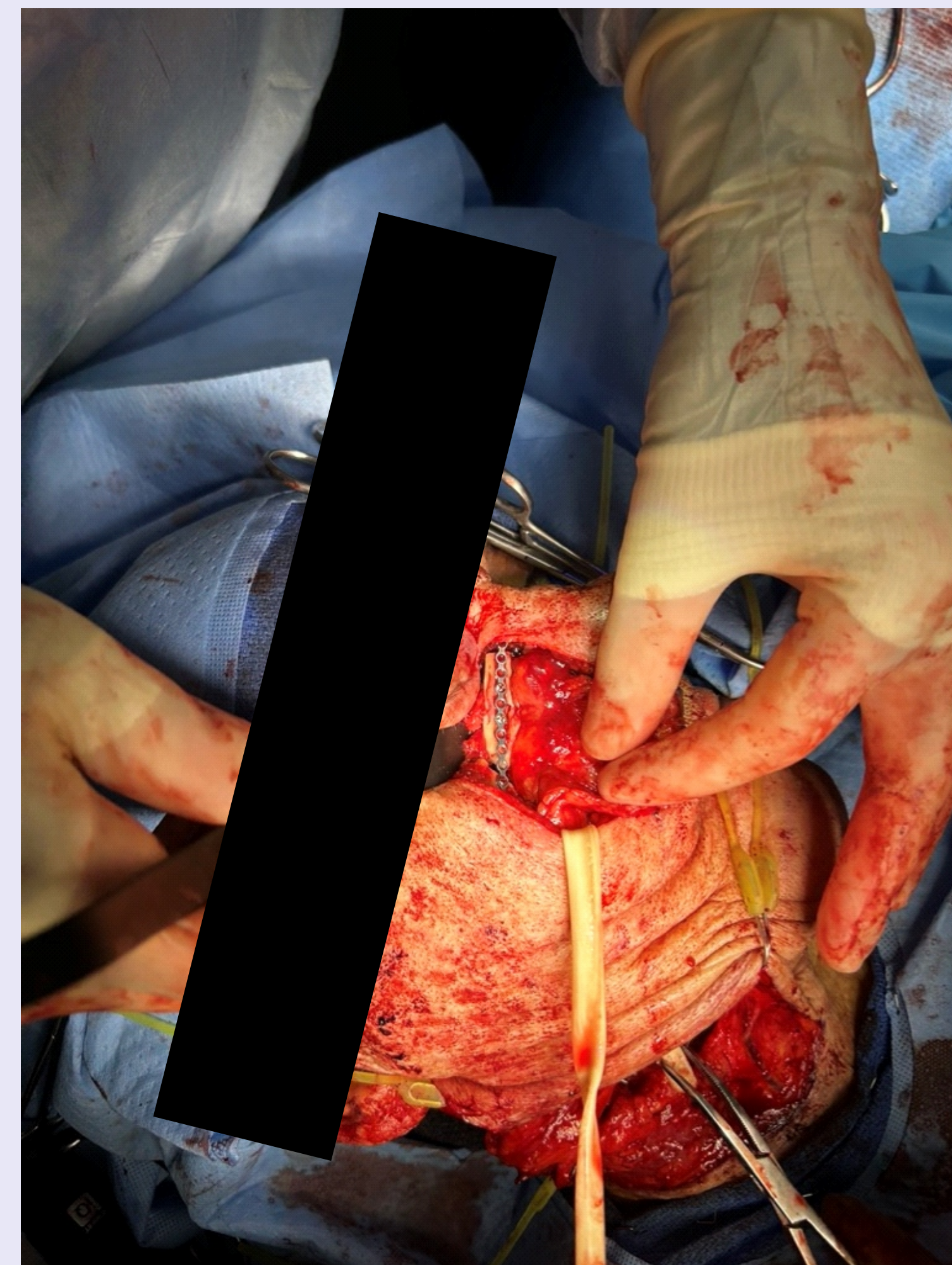


Figure 2: Intraoperative photograph showing inset of the osseous portion of the osteocutaneous flap. This portion of the flap was used to reconstruct the orbital rim. Mid-face plates were used to secure the bone laterally to the remaining maxilla, and medially to the frontal process of the maxilla.

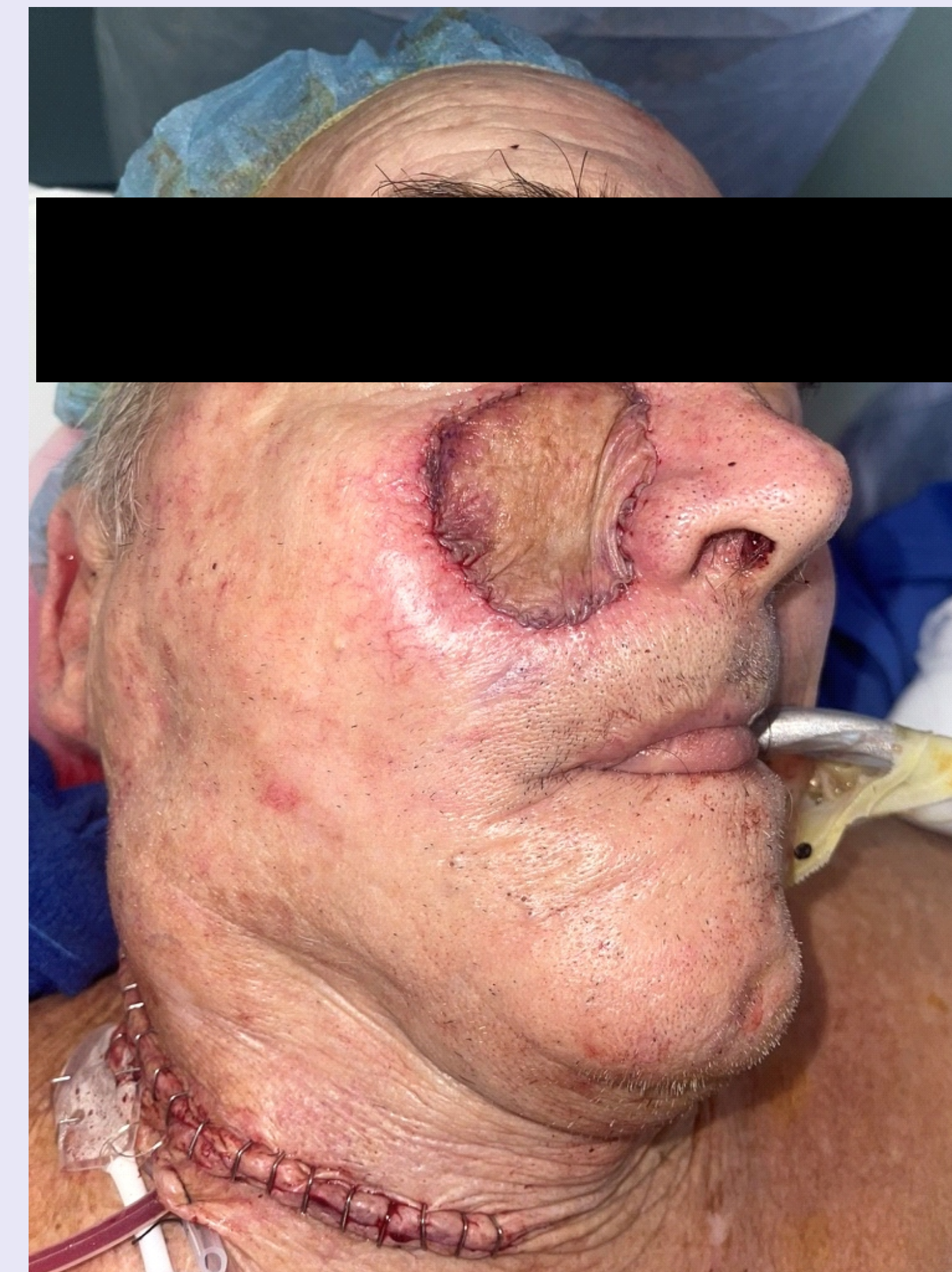


Figure 3: Post-operative photograph of the osteocutaneous radial forearm free flap in place. Interestingly, the flap would move in and out of the defect with the patient's breathing due to the communication of the defect with the nasal cavity and the maxillary sinus

Discussion

Primary tumors of the lacrimal system are very rare with total incidence reported at under 300 worldwide. Approximately 75% of these are malignant, with the most common malignancy being squamous cell carcinoma. Chemoradiation therapy is recommended in over 90% of patients in order to spare the globe as surgical cures typically require exenteration in order to get clear margins. However, in our case, due to early diagnosis, there was no involvement of the orbit. Therefore, we were able to provide a surgical cure for our patient without adjuvant therapy. Additionally, radiation was avoided with the hope to spare the eye for our patient. Radiation treatment to this site can be detrimental to the globe, and may require exenteration as a result of the radiation treatment. Our use of the radial forearm osteocutaneous flap provided an excellent reconstruction and the patient is now doing very well with minimal morbidity.



Figure 4: Photograph of the patient 6 weeks post-operatively. This shows excellent take of the free-flap with integration into the native tissues. Additionally, an excellent cosmetic outcome is observed here.

Conclusion

Primary squamous cell carcinoma of the lacrimal duct represents a very rare entity that is scarcely described in the literature. Typically, treatment of these tumors requires chemoradiation to provide cure and spare the eye. In our case, we were able to provide a surgical cure and preserve the patient's eye from receiving adjuvant radiation, which can have deleterious effects on ocular function and vision.

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