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Orbital Rehabilitation of Patient With Adenoid Cystic Carcinoma Of Nasal Cavity

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Abstract

Surgical intervention in midfacial carcinomas can lead to extensive defect and disfigurement of facial structures. This results in lowered self confidence in patients, compromising their quality of life. In the presented case, patient reported with Adenoid cystic carcinoma in left nasal cavity. Excision of the tumour was followed by exenteration of left orbit. This article explains the prosthetic rehabilitation of the patient. The undercuts developed in the nasal area after the surgery enhanced the retention of the prosthesis.

Keywords: Orbital Prosthesis, Eye Prosthesis, Exenteration, Cancer Rehabilitation, Adenoid cystic carcinoma of nasal cavity

Introduction

Adenoid Cystic Carcinoma (ACC), the most common tumor of minor salivary glands is a rare occurrence in nasal cavity and paranasal sinuses, accounting to about 10-25% of all head and neck ACC. The asymptomatic course of this tumor renders patient's presentation at advanced stages with extensive involvement of surrounding structures[1]. Histologically, it is composed of small deeply basophilic nuclei with characteristic gland like structures. Clinically ACC of nose and para nasal sinuses present with a mass or epistaxis[2]. Pain is also a presentation of this tumor which is caused due to neoplastic cell neurotropism[3].

Recurrence and decrease in survival rate is due to intraneural, perineural infiltration and positive margins[4]. The prognosis of ACC tumour is influenced by its location, with tumours of maxillary region having the worst prognosis[5]. Surgery with adequate and clear margins followed by adjuvant radiotherapy, when indicated, is the best treatment modality for adenoid cystic cancers[6].

Case History

A female patient of age 51 years visited the Department of Oral and Maxillofacial Surgery in a Dental institute, Gujarat, India. She complained of swelling on left side of the nose with epiphora. Her clinical examination revealed scar of lateral rhinotomy with non tender diffuse swelling both externally as well as intranasally. She gave history of surgery, 1 year ago for left sided nasal tumour. The histopathology report was suggestive of Adenoid cystic carcinoma. CT scan showed a lobulated lesion involving anterior left nasal cavity extending into the inferior left orbit with erosion of left nasal bone, inferior orbital rim, floor of orbit and anterior wall of maxilla (Fig.1). Lesion was abutting the nasal septum and inferior rectus muscle. The findings clearly indicated towards recurrent adenoid

cystic carcinoma. The tumour from the nasal cavity was excised along with left sided partial maxillectomy with resction of left nasal bone, exenteration of left orbit and removal of anterior wall of left maxilla (Fig.2). Postoperative radiotherapy was given and an adequate healing period was observed before considering the patient for prosthesis.

On her first Prosthodontic appointment in the same dental institute, 14 months after the surgery, the defect was evaluated and it was found that an undercut was created after removal of left nasal bone which could be leveraged for good retention of orbital prosthesis. Finally it was decided to give a two piece orbital prosthesis.

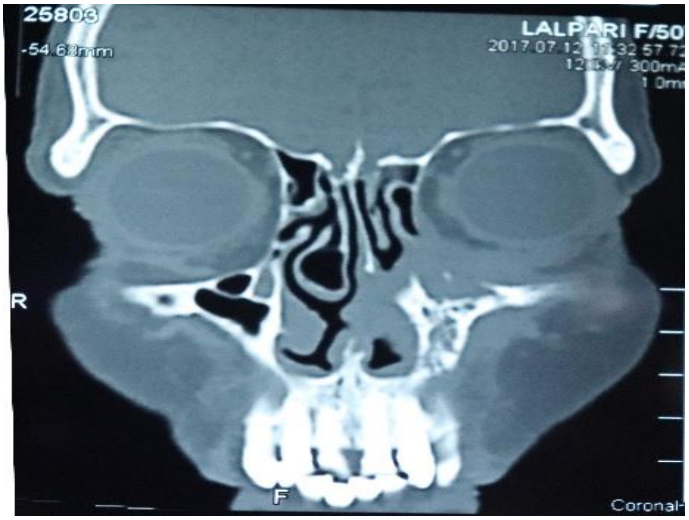

Fig. 1: Lesion in left nasal cavity

Fig. 2: Post operative

Methodology

A brief case history was recorded and examination of the defect was done. The tissue in the defect seemed healthy to proceed with prosthodontic procedures.

The patient was prepared for impression making. The base of the defect was covered by surgical gauze. The impression of the defect was made with reversible hydrocolloid (Imprint, Alginate dental impression material, Dental Products of India) and supported by modelling plastic impression compound tray (Pinnacle Impression Compound, Dental Products of India). Subsequently, a cast was obtained over it using Type III gypsum (Dental stone, Kalabhai). Clear acrylic template was fabricated on the defect, with heat polymerizing acrylic resin (Pyrax, Heat cure denture base resin material) engaging the undercut (Fig.3). Grooves were provided on the dorsal surface of the template for engaging silicon.

Fig. 3: Acrylic Template for retention of prosthesis

A commercially available stock acrylic eye shell matching the sclera and iris colour of the patient's right eye was selected. The ocular shell was waxed up. Facial measurements were marked on the patient's face to orient the eye shell in conversational gaze. The entire assembly was tried on the patient for accurate fit and aesthetics (Fig.4). After wax trial, sticky wax was attached onto the ocular shell to maintain its position in the mould. Flasking

was done and before de-waxing the ocular shell with sticky wax was retrieved. Dewaxing was done and flasks were prepared for packing.

Fig. 4:Try in of wax pattern

The ocular shell-sticky wax assembly was duplicated in pattern resin with the help of putty index. The duplicated pattern resin replica was then repositioned in the counter flask. Silicone material 'A' and 'B' (Trulife Healthcare India) was mixed (10:1) and colour matched as per the manufacturer instructions and packed with the template and pattern resin ocular shell. The prosthesis was retrieved, finished and polished.

Fig. 5: Final prosthesis

The ocular shell was replaced in position. Artificial hair was used for upper eyelid.

The prosthesis was delivered to the patient with a spectacle (Fig.5) for better camouflage of prosthesis margins.

Discussion

The peak incidence of ACC is found to be in the fourth to sixth decades and slight predominance in females. They usually arise in accessory salivary glands (60%), most common in the oral cavity (palate), rarely seen within the nasal cavity where the lateral nasal wall is the most common site[7]. Three architectural growth patterns: cribriform, tubular, and solid (anaplastic) have been described. Sivaji et al[8] have reported a 5-year recurrence rate of 59%, 89%, and 100% for tumors with tubular, cribriform or solid growth patterns respectively. Furthermore there is a higher incidence of metastases (most commonly to the lung) being associated with tumors with a solid growth pattern[9].

Tubular pattern has the best prognosis and solid types have worst prognosis[2].

The orbital prosthesis can be made from a variety of materials such as PMMA resin, polyurethane elastomer, silicone elastomer, or urethane-backed medical grade silicone[10]. We have used PMMA resin as a substructure to fit into the defect and aid in retention. It is non-invasive, cheap and easy to fabricate and clean. Any secretions from the defect can be cleaned efficiently on it as compared to that on silicone, preventing chances of infection. Superstructure was fabricated with room temperature silicone. This combination aids in better maintenance, good retention, sturdy appeal along with improved esthetics and better camouflage of margins[11].

With rapid advancements in techniques and technology we have come over a long distance for prosthesis retention. CAD-CAM has opened new bounds in creating

such prosthesis to give life like appearances. Magnets and implants along with tissue adhesives, tissue undercuts, prosthetic accessories are few retentive aids for maxillofacial prosthesis[10].

Implants enhances the retention of the facial prostheses and improve patient's self-confidence and acceptance with treatment, but according to Nishimura RD[12] et al orbital implant success rate in the non-radiated patients was 37.5% and that for radiated patients was 33.3%. Hence implants placed in the orbital region demonstrated a high failure rate. Also hygiene maintenance is an issue with orbital implants.

Therefore, after evaluating all the factors and taking care of financial background of the patient, silicone prosthesis backed with acrylic resin was chosen for this patient. The patient was followed up after 15 days. Patient had no complaints and was very well adapted to the prosthesis.

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