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RESEARCH ARTICLE

MAXILLARY OBTURATOR PROSTHESIS REHABILITATION FOLLOWING MAXILLECTOMY FOR AMELOBLASTOMA: A CLINICAL CASE REPORT

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Abstract

Ameloblastoma is a benign, locally aggressive tumour arising from the odontogenic epithelium. The most common location of ameloblastoma is the posterior region of the mandible, with a mandibular-to-maxillary ratio of 5:1. Ameloblastoma of the maxilla is comparatively rare, and the molar area is the most commonly affected site compared to the anterior region. Surgical resection is the most common treatment modality for this kind of neoplasms.Rehabilitation following surgical resection of the maxillary area is frequently a difficult task for maxillofacial prosthodontists. The amount of impairment and difficulty in prosthetic rehabilitation is usually influenced by the size and location of the defect. Communication between the nasal and oral cavities impairs swallowing and speech and gives an unsightly appearance. Obturator prosthesis is a popular method for rehabilitating hemimaxillectomy patients. This article describes a case of acquired maxillary defect caused by ameloblastoma that was successfully treated with an interim obturator following surgical resection by maximising the support, stability, and retention, which acts as a barrier to communication between the oral and nasal cavities.

Introduction:-

Ameloblastoma is a benign, locally aggressive tumour arising from the odontogenic epithelium. The lesion accounts for 1% of all tumours of the head-and-neck region and approximately 11% of all odontogenic tumours. The most common location of ameloblastoma is the posterior region of the mandible, with a mandibular-to-maxillary ratio of 5:1. Ameloblastoma of the maxilla is uncommon, with the molar region being the most commonly affected site when compared to the premolar and anterior regions. The most common treatment method for these neoplasms is surgical resection [1]. The postsurgical effect is usually severe because it disrupts both the form and function of the normal stomatognathic system [2]. The management of maxillary defects necessitates all aspects of patient care, from diagnosis and treatment to rehabilitation. If possible, maxillofacial rehabilitation should include not only the design and fabrication of the prosthesis, but also provide fail safe mechanisms to ensure that the prosthesis is given a fair chance by the patient [3]. An obturator is a prosthesis used to close a congenital or acquired tissue opening,

primarily of hard palate and/or contiguous alveolar/soft-tissue structures (Glossary of Prosthodontic Terms, Edition 8) [4]. The primary function of an oral obturator is to close palatal defects in order to establish oronasal integrity. The fabrication of an obturator necessitates the use of biologically inert, technically simple, and long-lasting materials [5]. The primary goals of rehabilitating a maxillectomy patient are to restore mastication, deglutition, and speech function, as well as to achieve normal orofacial appearance. Lack of retention, stability, and support are the most common prosthodontic treatment issues with maxillectomy patients. The size of the defect, the number of remaining teeth, the amount of remaining bony structure, and the patient's ability to adapt to the prosthesis are all factors that influence the treatment prognosis. Depending on the type of surgical defect and the relationship of the defect area to the remaining abutment teeth, prosthetic rehabilitation is planned. This type of prosthesis aids in the separation of the oral and nasal cavities, allowing for adequate deglutition, speech, possible soft tissue support to restore midface contours, and acceptable aesthetic results [6].

Case Report

A 25-year-old male patient presented toDepartment of Prosthodontics and Crown and Bridge at Dr R Ahmed Dental College and Hospital. The patient had a history of desmoplastic ameloblastoma in the right maxilla, for which he had a hemi maxillectomy 8 months previously. Extraoral examination revealed a tissue contracture on the right side of the face (Fig 1 and 2). On intraoral examination, the left maxillary quadrant was found to be intact, with all teeth present except the left upper central incisor (Fig 3). The mandible had a full component of natural teeth and the oral hygiene was adequate. The patient had normal mouth opening and jaw movements. On the right side, a mature maxillary Aramany Class IV defect was present, with the loss of all teeth from the left upper central incisor to the right upper second molar [7]. The defect had a communication with the nasal cavity and undercuts were present (Fig 4).

Fig 1:-

Fig 2:-

Fig 3:-

Fig 4:-

Following the completion of the extra and intraoral examinations, a primary impression was taken in a selected stock tray using hydrocolloid impression material (alginate impression material) (Fig5).The defect area was packed with sterile gauze impregnated with petroleum jelly before the impression was taken. The primary cast was made with type III gypsum material. Double layer of wax sheet (modelling wax) was adapted over the teeth to act as spacer and single layer of wax sheet was used in other region followed by fabrication of the special tray with cold cure acrylic resin. Special tray was adjusted in patient's mouth and border moulding was done using low fusing impression compound. Admix material was used to record the defective portion. After applying tray adhesive, the final impression was taken with medium body addition silicone impression material (Fig 6). The final impression was poured with type III gypsum material and master cast was made. Following that, occlusal rim was fabricated on the master cast and the jaw relation was taken (Fig 7 and 8) and mounting was done. After teeth setting, try in was done. Following this, standard laboratory procedures such as flasking, dewaxing, packing, and acrylization were performed. After deflasking, prosthesis was finished and polished and was delivered to the patient.

Fig 5:-

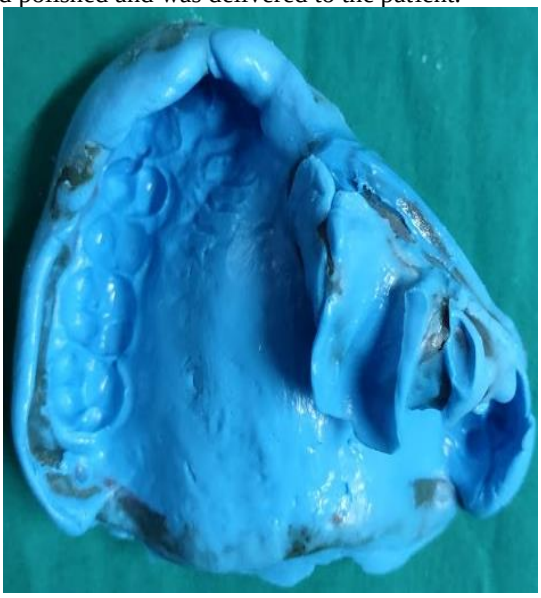

Fig 6:-

Fig 7:-Fig 8:-

Fig 9:-

Fig 10:-

Fig 11:-Fig 12:-

Occlusal adjustments were performed upon delivery of the finished prosthesis or interim obturator. The extensions of the prosthesis into the defect were kept to a minimum to ensure both retention and weight reduction of the prosthesis. Pressure indicating paste was used to detect pressure spots, which were then reduced. The patient's speech was assessed. The patient was asked to drink a glass of water to check for nasal fluid regurgitation. The patient was instructed on how to remove and insert the prosthesis, as well as what to do afterward. The patient was called back after 24 hours for a check-up, and any necessary adjustments were made. Follow-ups were conducted after one week, two weeks, one month, and three months. The patient adjusted well and was satisfied with functions such as masticatory ability, speech, and aesthetics.

Discussion:-

The prosthodontic management of patients with maxillary defects is done with prosthesis known as obturator which is used to protect the oro nasal/oro pharyngeal communications.Obturators restore daily functions such as mastication, deglutination, phonetics, and breathing [8]. It also improves the patient's aesthetics, as well as his or her psychological well-being and confidence. They also have a good retention and soothing effect on the affected area. They can be built based on the extent and shape of the lesion, as well as the patient's socioeconomic status. It also helps in keeping the lesion site clean and prevents post operative complications. Thus, the role of prosthodontist is very keen in maxillary defects after surgical procedures.

Obturators have been used since the sixteenth century, beginning with pebbles and progressing to sponges and wax. Fuchard later gave two models of obturators, one with hose wings and the other with butterfly wings, to the most recent implant supported obturators [8,9]. The majority of patients who have maxillofacial prostheses have had

extensive surgical and dental treatment. Postmaxillectomy patients typically require an immediate postsurgical prosthesis, an interim prosthesis, and a definitive prosthesis for prosthetic rehabilitation. In the present case report, illustrates an Aramany's Class IV defect was rehabilitated with the interim obturator. If the prosthesis becomes loose, relining can be done in subsequent follow-ups until the fabrication of the definitive prosthesis. The patient was completely satisfied with his prosthesis. It was seen that there was no nasal discharge while holding water or food in oral cavity and hyper nasal speech. Thus, prosthodontic rehabilitation of patients with maxillary defect is easy and economic method of management. Although there is no way to make everything as they were earlier but prosthesis can make it to normal [10]

Conclusion:-

Patients with such a defect experience a great deal of psychological trauma as a result of impaired functions and aesthetics. Prosthodontists play an important role in the rehabilitation of maxillofacial defects in order to restore lost oral functions while also improving aesthetic appearance. To improve retention and stability, unaffected regions must be preserved, which can be accomplished through proper surgical planning and prosthesis design. Psychological support/counselling is also an important factor in determining treatment prognosis because patients with maxillofacial defects may suffer from a variety of psychological impairments.

Conflict of interest:
None.

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