Case Report

Reconstruction of a large cheek defect caused by cancrum oris (noma)

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Abstract

A fourteen years old boy presented with a large cheek defect as late sequelae of noma, the defect was reconstructed with a postauricular flap with acceptable functional and cosmetic results.

Keywords: Large cheek defect, noma, reconstruction, post auricular flap.

Introduction

Noma is an orofacial infective gangrene that tends to afflict starving and malnourished children. It has a high mortality rate, and even if the child survives, a lifelong disfigurement of the face occurs(1). It causes progressive and mutilating destruction, of the infected tissues(2). The late sequelae of noma includes large facial defect, extensive scarring plus or minus temporomandibular joint stiffness or ankylosis(3). These defects are challenging to the reconstructive surgeon. Transposition regional flaps can be a good alternative where free tissue transfer is lacking. We describe a postauricular flap technique used for cheek reconstruction in this patient.

Case Report

A fourteen years old boy presented with massive loss of the right cheek, teeth and gum exposure since affliction at the age of four years. The condition started following an attack of measles. It started appearing with necrosis as small ulcer at the right cheek. The ulcer increased gradually to involve the whole cheek and part of the gum. His teeth were lost gradually one after the other till he lost all teeth left with the last molar. He suffered drooling of saliva for all this period for which he developed a trick with time where, he used to occlude the defect with his tongue. He did not show any restriction of jaw movement. He used to chew his food at the better side of his mouth.

On examination, generally the patient looked well. There was extensive scarring of the area. There was complete loss of the right cheek, teeth of the lower jaw, except the last molar tooth Fig 1. There was no stiffness of the temporomandibular joint. His speech was abnormal due to incompetent oral sphincter i.e. defective articulation.

His blood and urinary investigations were normal. An X-ray was not taken clinically, the mandible was not involved and the disease process was not active for years. We did not
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Take biopsy for histopathological examination as malignancy was not suspected in this patient. Swab for culture and sensitivity was not necessary as the lesion was inactive.

Fig 1: Large cheek defect caused by noma

Operative procedure
The procedure of closure was carried out in two stages under general anaesthesia with orotracheal intubation. In the first stage a postauricular flap was raised high up in the hair line as shown in Fig 2 including the occipitofrontalis muscle fibres based inferiorly.

Fig 2: Final step after reconstruction of oral commissure

The inner surface of the flap was covered with split skin graft harvested from the anterior right thigh to provide lining for the flap. The graft was secured using vicryl 3/0. The scarred tissue at the defect site was partially excised and prepared to receive the flap for closure of the defect. The flap was then secured in the recipient site using vicryl 2/0 Fig 3.

Fig 3: Post auricular flap covering the defect

The patient was fed through nasogastric tube postoperatively for seven days. Cefuroxime 1.5g and metronidazole 500mg were used as antibiotic prophylaxis.

Two weeks later the distal part of the flap was refashioned and angle of the mouth was reconstructed restoring the oral commissure Fig 2. The patient developed trismus in the first postoperative days which couldn’t be explained but it resolved completely by instructing him to introduce tongue depressors on daily basis till he managed to open his mouth normally within five days. The patient was instructed to use Vaseline massage as a moistening agent. The patient was followed for two years with no complications.

Discussion
The word “Noma” originates from the Greek word nemo, which means “to devour” or “to graze”(4). Infection malnutrition and poor oral hygiene are the key factors for the development of noma. The proposed pathogenesis of noma is the following, Infection e.g. measles, herpesviraedae - this will lead to neutropenia T-helper immunosupression, complement consumption leading to fever ,anorexia, increased nutrient need increased tissue catabolism this will lead
to hypercortisolemia T-helper 1 to T-helper 2 shift. Malnutrition poor diet, stress impaired salivary gland function, micronutrients deficiency will lead to impaired host resistance. Poor oral hygiene will lead to local viral multiplication in the mouth impaired oral mucosal immunity altered structural integrity selective growth of pathogenic bacteria and reduced t-cells function impaired and polymorphneuclear cells leading to acute necrotizing gingivitis and other oral ulcers. In the presence of specific microorganism e.g. fusobacterim nero phorum, prevotela intermedia this will progress to noma(5).

The cheeks represent the largest surface area of the face and frame the central facial units. Reconstruction must be planned carefully and executed meticulously to restore the natural contours, maintain hair patterns, and camouflage scars(6). From aesthetic point the cheek is divided into three subunits, sub orbital, preauricular and buccomandibular(7). Smaller defects may involve certain subunit, which can be reconstructed by local tissues. Moderate size defects, 2–4 cm in diameter, are treated with a variety of local flaps from surrounding healthy tissue(8), but in our patient with this large defect the three areas were involved not only that but also the oral sphincter was incompetent. Many types of flaps were used for cheek reconstruction, e.g. deltopectoral(9),sliding island flap(10), tissue expansion(11) cervicofacial(12) and free tissue transfer e.g. radial forearm flap(13). All this armamentarium of reconstruction were not possible in our case, because of unavailability of tissues as cancrum oris leads to extensive scarring or the technique was expensive or not available or cosmetically inappropriate. In such situation the post auricular flap was large enough to cover the defect and provides acceptable cosmetic outcome. In female patients we used to apply local flap from the neck where hair was not acceptable. The technique was simple safe compared to the technical demands of other flaps e.g. free tissue transfer.

The patient in the end was satisfied about the result of his surgery. Functionally and cosmetically the outcome was acceptable to the patient and his surroundings. Cancrum oris patient who have the defect for long period of time may be satisfied with less than maximum of aesthetic outcome(14)

Postauricular flap is a simple, safe, sound and satisfactory reconstruction method for large cheek defects. The surgical treatment of the sequelae in the patients affected by noma is possible even in developing countries where free tissue transfer is lacking. The surgeon has to carefully evaluate each case individually taking gender into consideration.

References
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