

CASE REPORT

REPAIR OF LARGE SKULL BASE DEFECT FOLLOWING EXCISION OF BASALOID SQUAMOUS CELL CARCINOMA OF MAXILLO-ETHMOID REGION: A CASE REPORT

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HOW TO CITE THIS ARTICLE:

Monoj Mukherjee, Avishek Palai, Shubhrakanti Sen, Siddhartha Das, Somnath Saha. "Repair of Large Skull Base Defect following Excision of Basaloid Squamous Cell Carcinoma of Maxillo-Ethmoid Region: A Case Report". Journal of Evidence based Medicine and Healthcare; Volume 2, Issue 8, February 23, 2015; Page: 1049-1052.

ABSTRACT: AIM: To present a case of basaloid squamous cell carcinoma of maxillo-ethmoid region with intracranial extradural extension and its surgical management including repair of the skull base defect. **MATERIAL:** A 30 year female presented with progressive bilateral nasal obstruction, facial deformity for 5 years duration. She developed blindness in last 6 months. Recent CT scan showed large heterogeneous enhancing soft tissue mass in right maxillary sinus, nasal cavity and right ethmoid sinus invading the skull base. **INTERVENTION:** She underwent excision of the mass by modified weber ferguson incision and repair of skull base defect with temporalis muscle flap. Skin defect over the face and nose was repaired by median forehead flap. **RESULT:** There was total tumor clearance and no CSF leakage following surgery. **CONCLUSION:** Sinonasal malignancy with intracranial extradural extension is not a contraindication for successful surgical management. Resultant skull base defect can be repaired by a temporalis muscle flap to prevent CSF leak and intracranial infection. **KEYWORDS:** Basaloid squamous cell carcinoma, Temporalis muscle flap, Skull base defect. Intracranial extradural extension.

INTRODUCTION: Squamous cell carcinoma (SCC) is the most frequent tumor encountered in the head and neck region. One of its variant basaloid squamous cell carcinoma is a high grade tumor, which is characterized by early lymph node metastasis and poor prognosis. They are most frequently seen in aerodigestive tract usually involving the floor of the mouth, pyriform sinus, tongue, tonsil and the larynx. These tumors arising in the nasal cavity may spread extensively and involve the intracranial structure by eroding the skull base. And the mainstay of management of these tumors is surgical excision. Despite of our advancement in skull base surgery tumors associated with extensive skull base defect are always a challenge for the surgeons. Reconstruction of these is being made possible these days with the use of grafts, local flaps, regional flaps and revascularised free flaps. With the advancement of use of local flaps in skull base repair there has been success in managing these complications after tumor resection. The main purpose of the reconstruction is not only to give the patient good functional and cosmetic result but also to reduce post-operative complication of CSF leakage, meningitis and brain herniation. In this case we successfully repaired a huge defect of the skull base using temporalis muscle flap after the resection of sinonasal basaloid SCC.

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CASE REPORT: A 30 yr old Muslim female presented to the otorhinolaryngology OPD of N.R.S medical college and hospital with a huge sinonasal mass. (fig. 1) She complained of nasal obstruction, epistaxis, loss of vision in both the eye and headache. The patient had history of resection of a similar sinonasal mass 6 years back. On examination, it was seen that the nasal cavity was filled with a huge mass which was reddish in nature, there was broadening of the nasal bridge and there was no light perception in both the eye. On posterior rhinoscopy, the tumor was seen to involve the nasopharynx. Diagnostic nasal endoscopy could not be done as the scope could not be negotiated.

Pre-operative CT Scan of nose and paranasal sinus revealed, a large heterogenous enhancing soft tissue mass in right maxillary sinus, nasal cavities and ethmoid sinuses with areas of necrosis and air densities. The mass also extended intracranially involving rt temporal fossa, basifrontal and frontal, sellar and suprasellar regions. Laterally it involved into right orbit abutting the optic nerve. Posteriorly, the mass extended into the nasopharynx.(fig. 2)

OPERATIVE PROCEDURE: Modified lateral rhinotomy incision was given as per figure (fig. 3). The skin, subcutaneous tissue was incised and retracted laterally. The lesion was dissected from the surrounding structure by sharp and blunt dissection. The mass along with the overlying skin was removed. The nasal septum was partly necrosed so removed making the right antrum and right nasal cavity a single one. Defect was noted in anterior skull base. Right lamina papyrcea was eroded and right optic nerve, was exposed by the disease itself. The defect was repaired with temporalis muscle flap. It was exposed by hemicoronal incision with a preauricular extension. It was mobilized sub-periosteally and elevated from the temporal fossa. The zygomatic arch was exposed and divided. The flap was tunneled to the nasal cavity and sutured to the periosteum.

The resultant skin defect was repaired by median forehead flap.

Post-operative period was uneventful. Repositioning of the forehead flap was done after 4 week.(fig. 4)

Biopsy report of the patient showed basaloid SCC with lymphovascular invasion, but no perineural invasion.

DISCUSSION: Skull base surgery has developed rapidly during the past few decades, It now include lesions extending from the cribriform plate to C2 vertebra and laterally out to the infratemporal fossa and petrous apex. The primary aim of these surgeries are to separate the intracranial structures from any epithelial lined cavities, to restore a water tight closure of the defect with a biological compatible membrane, to correct the bone defect, and to provide support to the brain tissue.^{1,2}

A wide variety of options, ranging from grafts and alloplastic implants to local¹⁻⁵, regional,^{6,7} and distant revascularized free flaps,⁸⁻¹¹ are available for skull base reconstruction. The temporalis muscle flap comprises the temporalis muscle, with or without the overlying temporalis fascia. It is an axial flap based on the anterior and posterior deep temporal arteries. The temporalis muscle flap was used to reconstruct various defects in the craniofacial region following tumor resection, in post trauma reconstruction, in congenital deformities, TM joint

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ankylosis and facial nerve palsy. It is a versatile local flap as it can encompass fascia, periosteum, skin and bone. It is a popular flap in reconstruction of defects in skull base, orbit, maxillo-facial region, oral cavity and the oropharynx because of its closed proximity, reliable and predictable vascular pedicle, adequate length, flexible arc of rotation and minimal complication at the donor site. Local flap are better managed than the free flaps because of better vascularisation. These flap are capable of nourishing bone grafts and supporting skin graft. Complication seen in case of TMF is flap necrosis which is very rare, cosmetic defect at the donor site where the depression can be camouflaged by hair and deficit in the function of the frontal branch of the facial nerve which is prevented by meticulous dissection and delicate handling of the tissue.

CONCLUSION: The temporalis myofascial flap is a versatile option for reconstruction of moderate to large sized skull base defects, the muscle can provide abundant viable and vascular tissue, with minimal to no functional morbidity or esthetic deformity at the donor site.

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Fig. 1

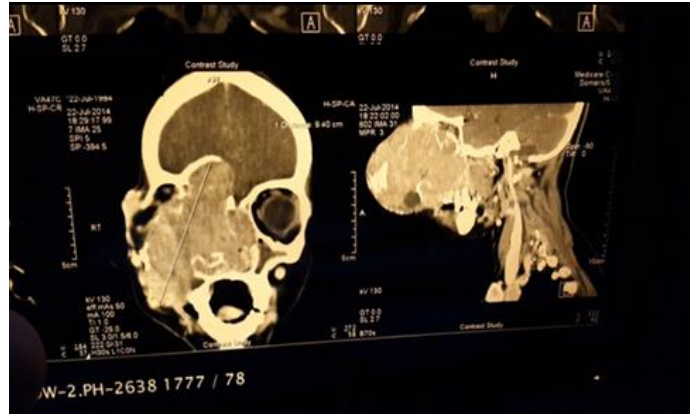


Fig. 2



Fig. 3



Fig. 4

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Date of Submission: 04/02/2015.
Date of Peer Review: 05/02/2015.
Date of Acceptance: 09/02/2015.
Date of Publishing: 19/02/2015.