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Nasal Glioma a Rare Case in Maxillofacial Surgery Practice: A Case Report

Dr. SURESH BOMMAJI
MDS(OMFS)FCCS B'MAXFAC Clinics
Associate Professor
CIDS Coorg Karnataka

Dr SUNITHA
MD(General Pathology)
Associate Professor
Kurnool Medical College

Dr SANDHYA RAMPATI
MDS(Maxillofacial Prosthodontics and Implantology)
Department of Prosthodontics
CIDS,Coorg Karnataka

Dr SRI SAI AISHWARYA
MDS(OMFS)
Post Graduate
CIDS, Coorg Karnataka

Abstract:- Nasal glioma (NG) also known as nasal cerebral heterotopia is a subcutaneous tumour made primarily of mature astrocytes that can be seen either at the nasal radix or in the nasal cavity. A rare developmental anomaly, nasal glial heterotopia is especially uncommon in adults. Divided from an intranasal form (60%) is an extra nasal form. 10% of forms are mixed. These lesions are typically congenital in origin. Adult cases are uncommon, and affected people frequently exhibit non-specific nasal symptoms or are asymptomatic. A chance discovery of heterotopic glial tissue serves as the basis for the diagnosis. These are treated by complete surgical excision. Surgery is recommended to histologically confirm the diagnosis, to lower the risk of local infection with a potential risk of intracranial suppuration,and to minimize the nasal deformity. Nasal gliomas are encephalocele variants that can be safely removed using endoscopic methods as they are not true neoplasms.

Keywords:- *Nasal glioma, Intranasal form, Astrocytes.*

I. INTRODUCTION

Nasal glial heterotopia, which has a congenitally neurogenic origin, is a condition in which tissue is abnormally isolated from the nervous system and has no intracranial link. Adult cases are uncommon, and infected individuals frequently have non-specific nasal symptoms or are asymptomatic. 30% of nasal gliomas are intranasal, which mimics nasal polyps and is most usually associated with the middle turbinate or higher structures. [2] This article describes a symptomatic case of adult nasal glioma, where the swelling is soft and the upper anterior teeth are noted to be mobile. The case was successfully treated through surgical excision.

II. CASE REPORT

A 35-year-old male patient was reported to the maxillofacial unit of St.Theresas Hospital, Hyderabad in September 2015 with severe pain in the upper lip and nasal cavity. On clinical examination, a noticeable swelling was seen about 3*3cms extending from columella of the nose to the entire upper lip shown in fig.1. Intraorally there is an evident vestibular swelling of the upper lip with a sinus tract discharging pus. Consistency of the lesion is soft, the lips were incompetent due to edema. Aspiration cytology yielded blood-tinged pus that revealed chronic inflammatory infiltrate. Differential diagnoses include encephaloceles, (epi-)dermoids, infantile hemangiomas (IH), teratomas, lipomas, and rhabdomyosarcomas.

CT scans revealed a polypoid high attenuation mass of size 3*3cm lesion with a cortical bone expansion of the upper maxillary bone outwards and inwards into the right nasal cavity without any intracranial extension. A total surgical excision of the lesion planned under general anesthesia was performed. Patient was informed regarding the surgical procedure and consent was taken prior to the procedure. Through a transmucosal incision, layer by layer dissection was done to approach the lesion and total surgical excision was performed along with the extraction of infected bony fragments and mobile central and lateral incisors. The maxilla was reconstruced using reconstructin plate.The wound was closed in layers with absorbable sutures. The specimen sent for histopathology, which evaluated respiratory type mucosa with lobules of mature central nervous system parenchymal tissue with neuronal and glial components separated by loose connective tissue and chronic inflammatory infiltrate. The glial component showed typical features of reactive gliosis with enlarged astrocytes suggesting nasal glioma. Postoperative recovery was uneventful and discharged on the third day with oral antibiotics prescribed for a week followed by regular reviews. After thorough healing of the wound intraorally, the bridge with crowns was planned to camouflage the lost anterior teeth. Patient complained about plate exposure when they visited our clinic again in 2022. Under general anaesthesia, the surgical site was exposed, the plate was retrieved, and the remaining defect was corrected using a 20 –hole continuous plate with 1.5mm screws and filled in with an iliac crest graft and closed with absorbable sutures.

Follow-up following surgery has gone without incident in the past one year.

III. DISCUSSION

Schmidt identified the condition as a nasal glioma in 1900. [3]The anterior neuropore in the embryology of nasal gliomas fuses at around day 24. Face bones and cartilage are created by mesodermal tissues. The foramen cecum, which at this stage extends from the meninges almost to the skin of the nose, must vanish as development moves further. Failure to complete this process could result in anomalies in the frontal fonticulus, foramen cecum, cribriform plate, or sphenoid roof, as well as the persistence of the anterior neuropore. The deformity will eventually lead to an encephalocele. Gliomas will develop if the defect closes, leaving behind isolated neuroglial tissue that is not connected to the cranial cavity. [4,5] Nasal gliomas should be regarded as anomalies in embryologic development because they frequently manifest soon after birth.Sequestration of glial tissue of the olfactory bulb entrapped during cribriform plate fusion is one of the prevailing theories.

The tumour has no sex preference, is not familial, and is not frequently associated with other defects.One in 20,000–40,000 live babies experience them. [4]Anatomically, the intranasal glioma's base develops from the lateral nasal wall at or above the middle turbinate, and sporadically from the nasal septum. 10–25 percent of plants may have a fibrous stalk [6]. [7] The inconspicuous fibrous connective tissue is observed in older people. A accurate diagnosis would be confirmed by specific stains or immunohistochemistry and there is a high clinical suspicion for extra nasal glial heterotopia. [8] Since lesions histologically identical to nasal gliomas have been observed in the nasopharynx, tongue, and face, the term "facial glioma" has been used to refer to all extracranial glial lesions detected in the head.[9]These are solid, non-pulsatile lesions that are grey or pink in hue and can be mistaken for other midline lesions.[10]In addition to providing information regarding the fluid or soft tissue features of the mass, MRI is effective in identifying bony abnormalities in the anterior skull base. [1] When an adjacent communicating cerebrospinal fluid (CSF)-filled area indicative of an encephalocele is present, these techniques enable the distinction between nasal gliomas and encephaloceles. Bony structural definition is improved by CT scans. Bifidity of the crista galli or an enlarged foramen cecum on a CT scan are indicators of intracranial involvement, although they are not diagnostic.[11]Due to the high danger of meningitis and probable harm to functional brain tissue associated with encephalocele, the biopsy and aspiration of nasal tumours are contraindicated. [12]Because the clinical presentation might not instantly push this diagnosis to the top of the list of potential diagnoses, intranasal glial heterotopia may prove to be fairly difficult to diagnose. HoweverEncephalocele, (epi-)dermoids, infantile hemangiomas (IH), teratomas, lipomas, and rhabdomyosarcomas are a few other diagnoses. [13]Histologically, nasal gliomas are covered by the skin or the nasal respiratory mucosa and lack a meningeal sheath. They consist of mature astrocytic and oligodendrocytic glial cells, dense, fibrous connective tissue that is vascularized, and occasionally neurons and ependymal cells. [14]Imaging and histological features, along with the immunohistochemistry presence of S100 and glial fibrillary acidic protein, can be used to confirm the diagnosis of glial heterotopia.[10] Glial heterotopy can be cured with total surgical resection.[12]Nasal deformity, airway blockage, vision impairment, and failure to flourish are among potential effects of nasal glioma. Infection or deformation of the septum and nasal bone may result from postponing therapy. The surgeon's ability and the size and placement of the mass should be taken into account as well as the exposure, exploration, and cosmetic results. [15]In these situations, complete surgical excision is advised to lower the risk of nasal abnormalities and cerebral suppuration.

IV. CONCLUSION

Unless the use of modalities like CT and MRI of the head and neck are evaluated, the clinical evaluation of intranasal lesions keeps us in a stupor, especially in adults with the frequently observed cysts. To avoid nasal deformity, recurrence, and consequent visual developmental defects, total early resection of the tumour is required if the existence of a nasal glioma is confirmed.

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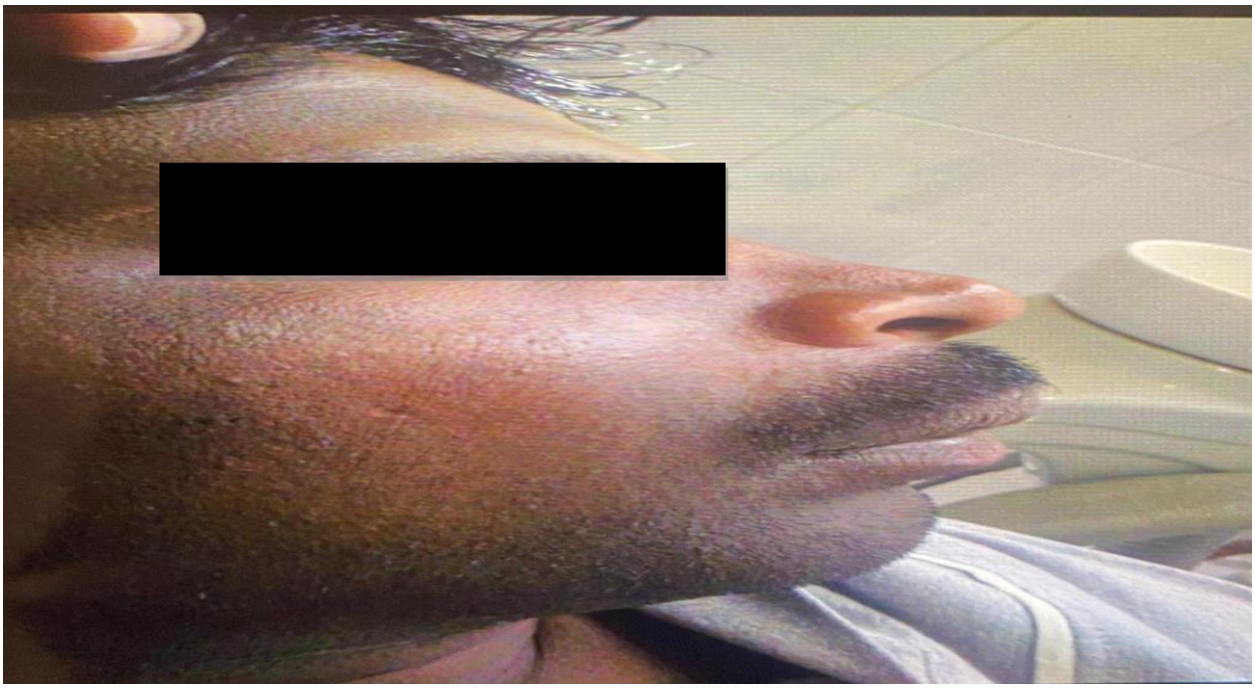

Fig. 1: Swelling in the upper lip region

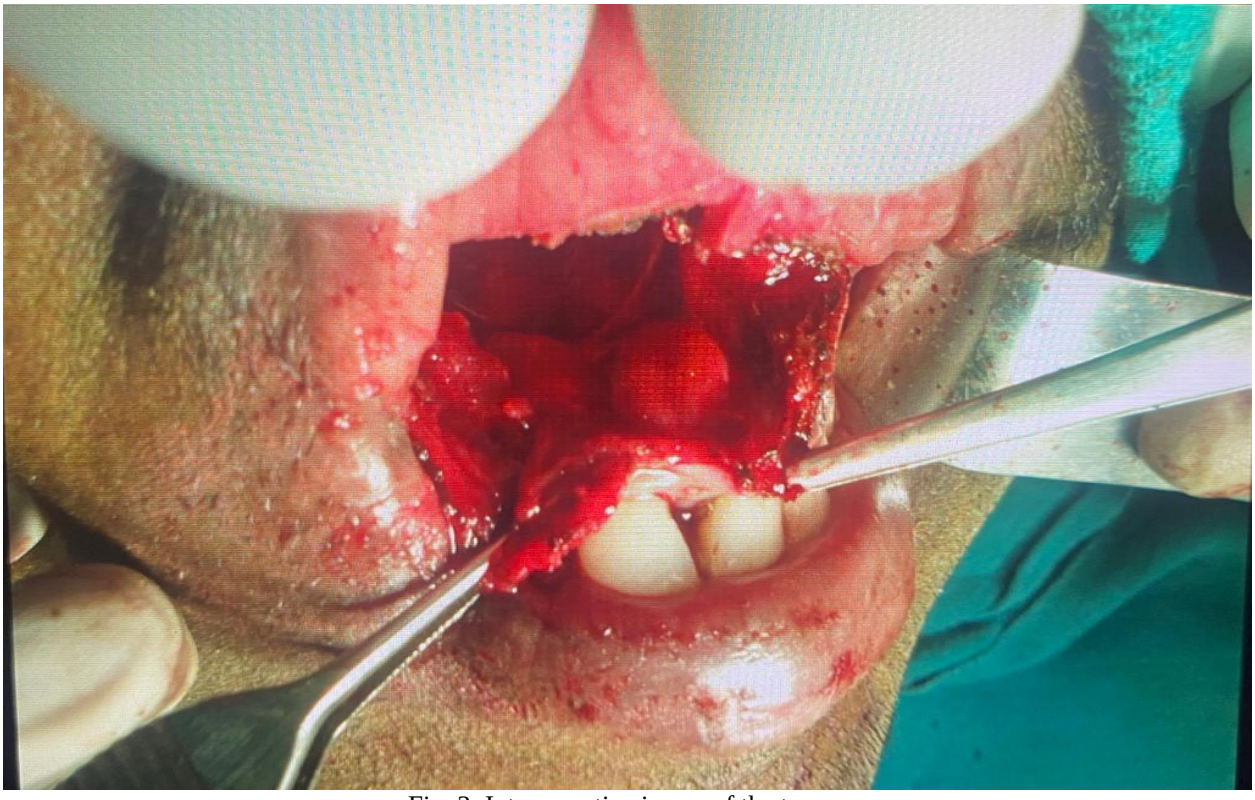

Fig. 2: Intraoperative image of the tumor

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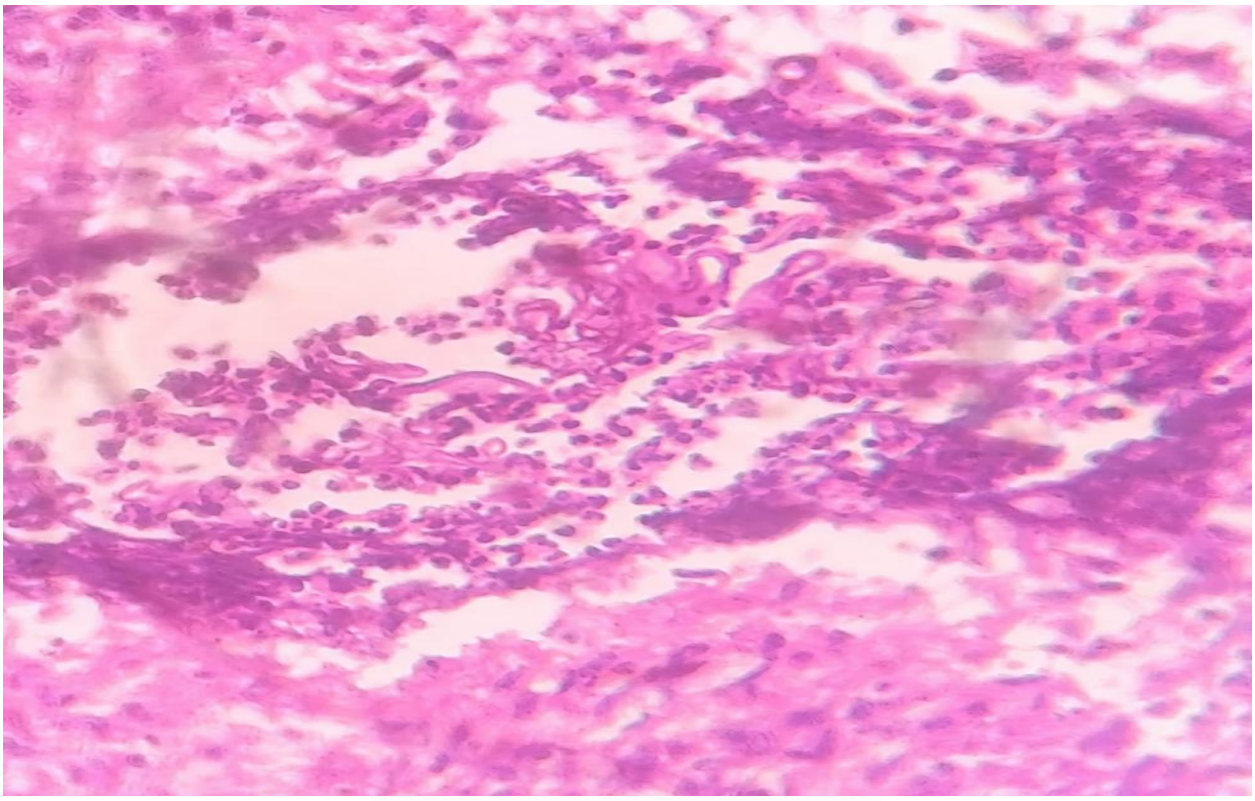

Fig. 3: Histopathological image of nasal glioma

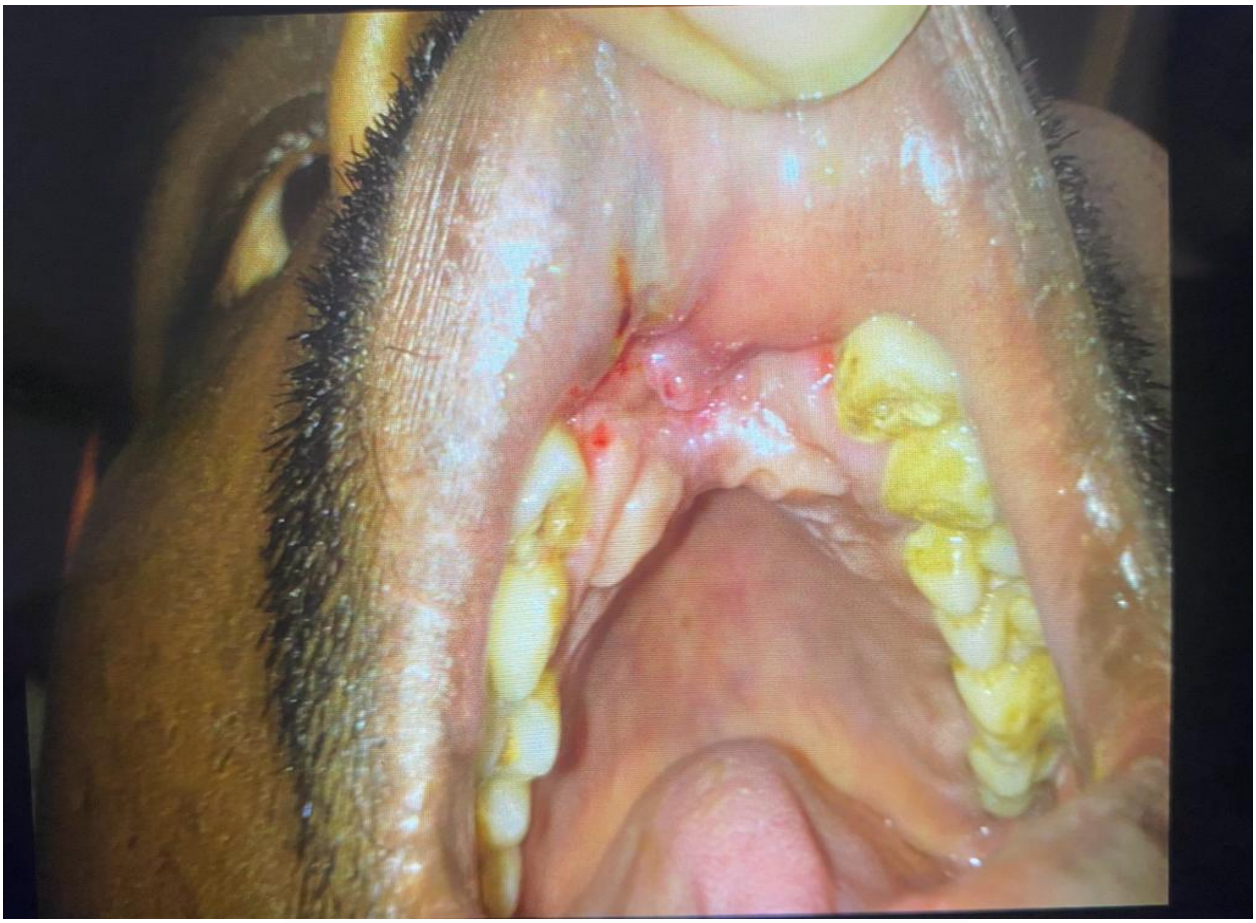

Fig. 4: Postoperative image after reconstruction plate placement

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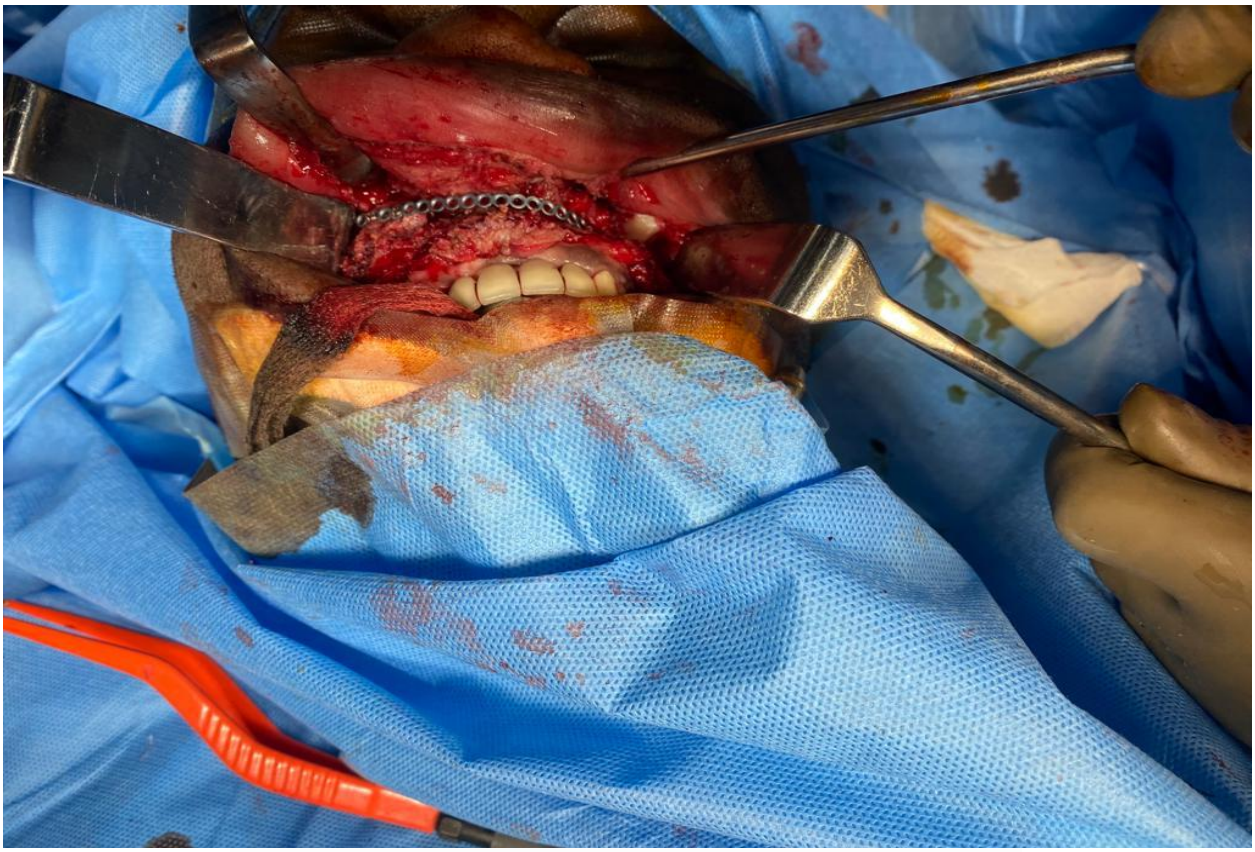

Fig. 5: Intraoperative image of the 20-hole continuous plate and iliac graft

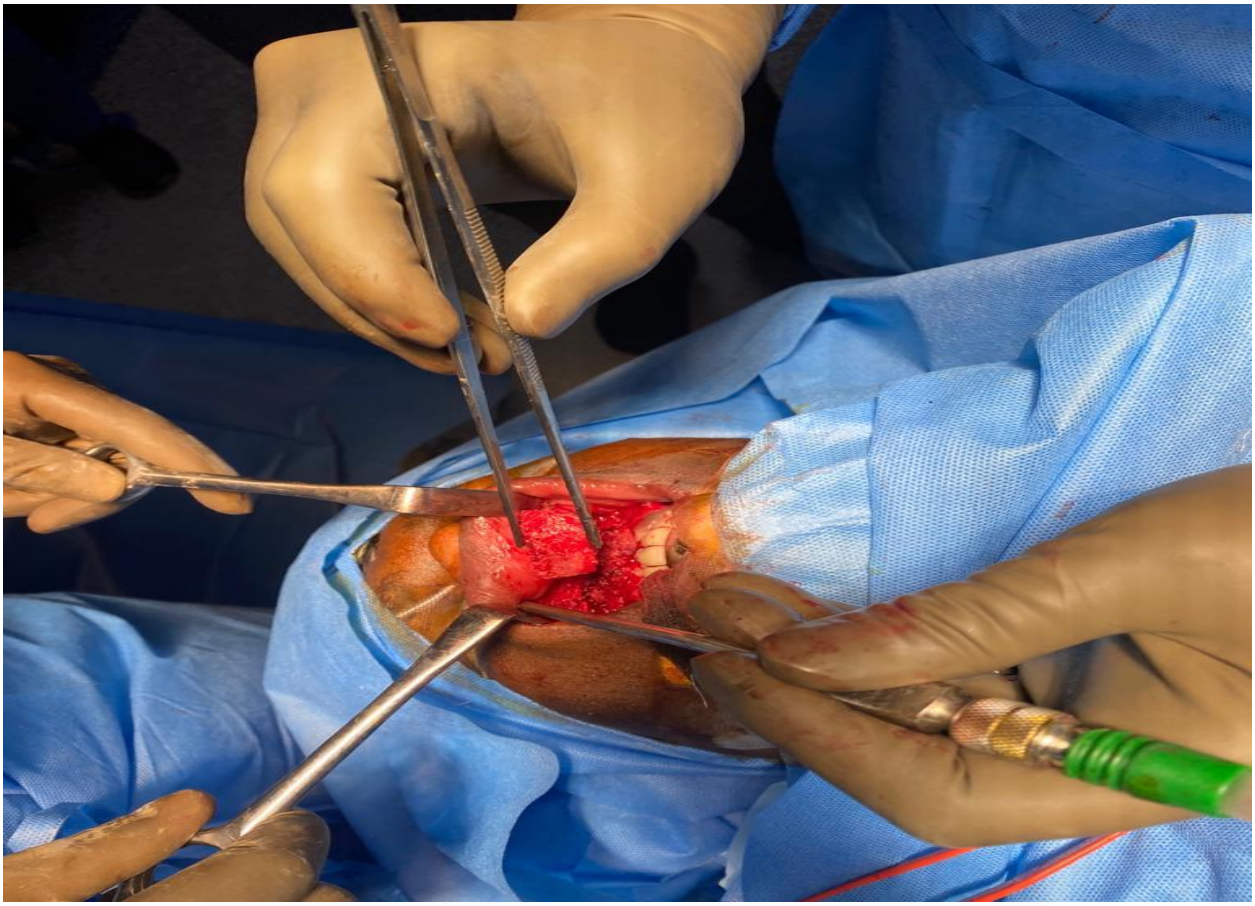

Fig. 6: Intraoprative image of filling of the residual defect with iliac crest graft.