



EARLY OUTCOME AND PATIENT SATISFACTION BY NASAL AND CHEEK RECONSTRUCTION WITH FLAPS

Faheem Nawaz S. MD^{1*}, Venkateswaraiah²

¹Associate Professor of General Surgery, Sri Lakshmi Narayana Institute of Medical sciences, Pondicherry, (Affiliated to Bhaarath University, Chennai), India.

²Associate Professor of Pharmacology, Sri Lakshmi Narayana Institute of Medical sciences, Pondicherry, (Affiliated to Bhaarath University, Chennai), India.

ABSTRACT

Cutaneous invasion of the facial vicinity by using the nasal hollow space and paranasal sinuses tumors or necrotizing facial infections are uncommon. Skin involvement via basal cellular or squamous cell carcinomas originating in the pores and skin of the face is greater not unusual. The aim of the study early outcome and patient satisfaction by Nasal and Cheek Reconstruction with Flaps. The study was carried out that included patients with defects in the nasal region and in the cheek caused by oncological resections for malignant tumors and necrotizing facial infections and conducted at Sri Lakshmi Narayana Institute of Medical sciences, Pondicherry. Seven patients were treated, six for malignant tumors and one for a necrotizing facial infection, which required reconstruction with local and regional flaps. There were five men and two woman, the average age was 75.53 years. The location of the malignant tumors was the nasal cavity and paranasal sinuses (4/7) and the skin of the nose (3/7). 7 reconstructions were done (one patient had a recurrence post maxillectomy and reconstruction and needed a new excision with another reconstruction two years later and another had a recurrence 16 months after a rhinectomy, for which a new excision of the tumor and another reconstruction was performed). In 5, reconstructions were made with more than one flap, due to facial defects that compromised the upper lip and nose (2/7), and the cheek and nose (3/7). We accept as true with that the usage of these flaps remains the quality alternative for reconstruction of these regions due to their awesome vascularization, reliability and few headaches.

Key words: Squamous cell carcinoma Local and Regional flaps, Nasal and Cheek Reconstruction, Positron Emission tomography.

INTRODUCTION

Usually, cutaneous invasion of the facial vicinity by using the nasal hollow space and paranasal sinuses tumors or necrotizing facial infections are uncommon. Skin involvement via basal cellular or squamous cell carcinomas originating in the pores and skin of the face is greater not unusual. BCCs (Basal cell carcinoma) are supplied as a slowly growing nodular pores and skin lesion or as an ulcerated lesion; this clinical presentation is the cornerstone of diagnosis. Addition of dermatoscopic findings increases the accuracy of prognosis as much as

ninety eight percentages. A tumor biopsy is retained for ambiguous lesions or while the prognosis is unsure.²

High-risk BCCs consist of all tough-to-treat subtypes, whereas low-danger BCCs consist of clean-to-treat ones. The danger of recurrence will increase with perivascular or perineural involvement and in immunocompromised patients³. BCCs of the nostril are categorized to be high-danger BCCs as a result of their anatomical issues and troubles in presurgical identity of tumor margins.

Repair of skin defects due to oncological resections is hard and regularly calls for complex

Corresponding Author: - **Dr. Faheem Nawaz S.MD** Email: drpebyreddy@gmail.com

reconstructions. Local flaps are an wonderful choice because they're in the surgical discipline, have superb irrigation, and because the identical surgical crew can carry out the repair on the same time because the resection the posterior trapezius flap may be very beneficial to restore great facial defects wherein the usage of local flaps is insufficient. The goal of the study is to decide the efficacy and complications in their production of nasal pyramid and cheek soft tissue defects with neighborhood and local flaps after oncological resections for malignant tumors and necrotizing facial infections.

MATERIAL AND METHODS

The current prospective study was conducted at the Surgery Department, Sri Lakshmi Narayana Institute of Medical sciences, Pondicherry India. The study protocol was approved by ethical and research committee, of both institutes. A written informed consent was obtained from all participants after full explanation about the study design and possibility to use intraoperative or postoperative pictures. The study was carried out that included patients with defects in the nasal region and in the cheek caused by oncological resections for malignant tumors and necrotizing facial infections.

The following data were recorded: Age, sex, histology and staging of tumors, type of facial infection, reconstructed nasal subunits, and size of the cheek defect after surgical resection, flaps used, reconstruction success (vitality of the flaps and ability to repair the defect), and complications.

The facial defect: Nose (reconstructed subunits) and cheek. Skin defects on the cheek were considered small (<3 cm), medium (> 3 cm and < 6 cm), and large (> 6 cm).

Patients with malignant rhinosinusal tumors were evaluated by nasal endoscopy, computed tomography and/or magnetic resonance imaging and computed tomography of the brain, neck, thorax, abdomen, and pelvis, or positron emission tomography (PET-CT).

In the oncological resections, free margins were obtained, confirmed by intraoperative biopsies and their deferred histological analysis. In resections of tissue devitalized by infections, the margin was considered healthy when the facial tissue bled.

RESULTS

Seven patients were treated, six for malignant tumors and one for a necrotizing facial infection, which required reconstruction with local and regional flaps. There were five men and two women; the average age was 75.53 years.

The location of the malignant tumors was the nasal cavity and paranasal sinuses (4/7) and the skin of the nose (3/7).

7 reconstructions were done (one patient had a recurrence post maxillectomy and reconstruction and needed a new excision with another reconstruction two years later and another had a recurrence 16 months after a rhinectomy, for which a new excision of the tumor and another reconstruction was performed).

In 5, reconstructions were made with more than one flap, due to facial defects that compromised the upper lip and nose (2/7), and the cheek and nose (3/7).

Nasal reconstructions: N = 4

In one patient the nasal ala was reconstructed with a nasogenian flap and in two the nasal ala and upper lip were repaired with a nasogenian and advancement flap for the lip (post-maxillectomy recurrence and Mustardé flap) and in another with a midfrontal and nasogenian flap for the upper lip .All nasogenian flaps were dissected with upper pedicle.

In another patient, a Mustardé and midfrontal flap were used to repair the nasal dorsum and cheek skin.

In two, the nasal pyramid was reconstructed in three layers: Mucosa, with a unilateral flap from the lateral wall with anterior pedicle, cartilaginous support with cartilage grafts from the auricular concha, and coverage with a midfrontal flap.

The two patients previously had a partial anterior maxillectomy due to epidermoid carcinomas that compromised the floor of the nasal cavity.

One of them had a recurrence 16 months later, and the defect caused by the resection was repaired using a contralateral lateral nasal wall flap, auricular cartilage, and midfrontal and Mustardé flaps. The reconstructions included the nasal tip, columella, nasal wings and in one also the nasal dorsum.

Three patients had previous or postoperative radiation therapy

All defects could be completely repaired, there was no total or partial necrosis of the flaps.

In one patients, a dehiscence occurred in the suture of the midfrontal flap with the upper lip (columella reconstruction).In patients who had reconstructions with midfrontal flaps, a second surgical time was performed to section the pedicle between 45 and 90 days after the initial surgery.

In a patient with a mediofrontal flap, the donor bed could not be closed, leaving a sector of the frontal bone exposed, which required a third surgical procedure in which a rotating scalp flap was used to repair the defect.

In another of the patients, the thickness of the midfrontal flap used to repair the nasal tip was reduced and laser hair removal was performed with the DOT technique (CO2 laser and radiofrequency).

Table 1: Nasal reconstruction

Age	Sex	Histology & location	Reconstructed nasal subunits	Flaps	Success	Complications
75	M	Squamous cell (Recurrence advancement carcinoma post maxillectomy and cheek skin resection)	Nasalwing + Upperlip	Nasogenian + Upperlip advancement	yes	not
82	M	Nasal cavity melanoma	Cheek + Nasal dorsum	Midfrontal + Mustardé	Yes	Not
72	M	Nasal cavity squamous cell carcinoma	Tip, bilateral partial wing, columella	Nasal lateral wall, ear cartilage and midfrontal	Yes	Columella dehiscence, donor bed exposure and scalp flap closure
60	M	Nasal cavity squamous cell carcinoma	Tip, wing, dorsum, bilateral lateral wall, and columella	Nasal lateral wall, ear cartilage and midfrontal	yes	Columella dehiscence

Table 2: Cheek reconstruction

Age	Sex	Defect size	Etiology	Associated surgery	Flaps	Success	Complications
60	F	3.5 × 3 cm	Total maxillectomy + Orbital exenteration	posterior trapezius musculocutaneous	Mustardé	yes	Not
53	M	10 × 9 cm	Maxillary sinus squamous cell carcinoma	Total maxillectomy + Orbital exenteration	posterior trapezius musculocutaneous	Yes	Not
60	M	10 × 8 cm	Gangrenosum ecthyma	Partial rhinectomy + Orbital exenteration	Posterior trapezius musculocutaneous + midfrontal	Yes	Not

Cheek reconstruction: N = 3

In five patients, the cheek skin that was infiltrated by squamous cell carcinoma was reconstructed at the same surgical time as the maxillectomy.

In another patient, the skin of the cheek was resected in a second surgical procedure to widen the margin in a malignant Schwannoma of the infraorbital nerve.

In two patients the reconstructions were done with a Mustardé rotary flap and in another who had a total cheek defect (10 × 9 cm) and orbital exenteration with a posterior trapezius flap. Three had adjuvant treatment with radiotherapy

In a patient with ecthyma gangrenosum that compromised the skin of the cheek, dorsum, lateral wall left nasal wing, and the eye, an orbital exenteration and a wide facial skin resection (10 × 8 cm) were performed. The defect was reconstructed with a posterior trapezius

musculocutaneous flap (cheek) and a midfrontal flap (dorsum, lateral wall, and nasal ala)

DISCUSSION

Usually, the Resection of malignant tumors of the paranasal sinuses or nasal hollow space with extension to the facial smooth tissues or pores and skin necrosis due to infections leaves defects that require reconstruction to improve the character and acquire an excellent aesthetic end result.

The nasal vicinity is complex to reconstruct when you consider that in cases of partial or general rhinectomy, the restoration needs to be multilayered: Mucosal lining, cartilaginous guide, and pores and skin coverage.⁴ The use of neighborhood flaps to perform the reconstruction is the principle option and there are several possibilities. The mucosa can be reconstructed with skin flaps which include the nasogenian flap or with mucosal flaps which are dissected from the nasal cavity.

It is also the precise tissue, with the same epithelium, which makes mucosal reconstruction greater physiological. There are different opportunities, but the unilateral lateral wall flap without or with extension to the nasal floor, with an anterior pedicle (anterior ethmoid and facial artery) lets in the reconstruction of the mucosal lining, reaching the anterior zone of the nasal tip when it's miles turned around ⁵. The cartilaginous assist is acquired from cartilage grafts from the auricular concha with which the alar, columella, and nasal tip cartilages are reproduced. Skin insurance is finished with the mid-frontal flap with a unilateral pedicle (supraorbital and supratrochlear artery). It can be done in a single time, tunneling the pedicle below the nasal dorsum or as we decide on, with an outside pedicle and segment after 45 days.

By acting the flap with a slim pedicle (1.5cm), the opportunity of a brand new reconstruction with a contra lateral flap may be preserved, as came about in one of our sufferers.

Tissue improvement thru bioengineering and the usage of 3-d printing is a future possibility for nasal reconstruction. Instead of artificial material, cells are positioned to create strong organs. The advantages could be to carry out the reconstruction in a single technique, not the use of immunosuppressive tablets, and now not desiring donor tissue from the affected person ⁶.

Although no bioengineered solid organ has been transplanted into a human, bioengineered synthetic skin is currently commercially to be had. In small nasal ala defects, the nasogenian flap can be used, and it is able to also be beneficial in complex upkeep of the nostril and top lip, as in one of the sufferers defined.

The headaches we had had been two dehiscence of the suture of the midfrontal flap with the higher lip (reconstruction of the columella) without partial or overall necrosis of the flap. Both sufferers had an anterior partial maxillectomy of the infrastructure and used prosthesis to

project the higher lip forward and fill the hollow space. Possibly the modification of the projection of the lip whilst disposing of and putting the prosthesis once more has desired the dehiscence.

Defects in the cheek place can be reconstructed while they may be up to six cm with the Mustardé cervicofacial rotary flap. We have used it successfully in resections of the pores and skin and subcutaneous smooth tissues, due to infiltration of paranasal sinus tumors at the identical time because the maxillectomy.

Cervicofacial rotary flaps can be dissected with an anterior pedicle (facial and submental artery) or posterior pedicle (superficial temporal artery and preauricular vessels inside the face, vertebral and occipital artery in the neck, and perforating branches of the trapezium and thoracoacromial artery in the shoulder and thorax).

The dissection may be subcutaneous or in a deeper aircraft that consists of the musculoaponeurotic device (beneficial when there was preceding radiotherapy). In our sufferers, the reconstruction was with rotary flaps with an anterior pedicle, the dissection was subcutaneous and the defects compromised the complete thickness of the cheek.

CONCLUSION

Reconstruction of the nasal pyramid and cheek with local and regional flaps was very effective, because it allowed to restore defects of slight and huge length, as well as to reconstruct complicated defects that blanketed exclusive areas of the face and a multilayer reconstruction. There becomes no partial or overall necrosis of the flaps and the best defects in the donor bed required delayed closure with a rotary flap. We accept as true with that the usage of these flaps remains the quality alternative for reconstruction of these regions due to their awesome vascularization, reliability and few headaches.

REFERENCE:

1. Ruggeri. *International Journal of Surgery Research and Practice*, 9(4), 2016:147.
2. Cannady SB, Cook TA, Wax MK, The total nasal defect and reconstruction. *Facial Plast Surg Clin North Am* 17, 2009, 189-201.
3. Uwe Wollina FP, Krönert C, Schorcht J, Haroske G, Klemm E, Kittner T, *et al.* High-risk basal cell carcinoma: an update. *Expert Rev Dermatol* 5, 2010, 357–368.
4. Phillips TJ. Total nasal reconstruction: A review of the past and present, with a peak into the future. *Curr Opin Otolaryngol Head Neck Surg* 27, 2019, 420-425.
5. Hadad G, Rivera-Serrano CM, Bassagaisteguy LH, Carrau RL, Fernandez-Miranda J, *et al.* Anterior pedicle lateral nasal wall flap: A novel technique for the reconstruction of anterior skull base defects. *Laryngoscope* 121, 2011, 1606-1610.
6. Ravnicek D, Leberfinger AN, Koduru SV, Hospodiuk M, Moncal KK, *et al.* Transplantation of bioprinted tissues and organs. Technical and clinical challenges and future prepectives. *Ann Surg* 266, 2017, 48-58.