

Nasofacial Cutaneous Cancer at High Altitude: Patients Awareness and Surgical Outcome

¹JS Thakur, ²NK Mohindroo, ³DR Sharma, ⁴VK Diwana, ⁵DC Chauhan

¹Assistant Professor, Department of ENT, Head and Neck Surgery, IG Medical College, Shimla, Himachal Pradesh, India

²Professor and Head, Department of ENT, Head and Neck Surgery, IG Medical College, Shimla, Himachal Pradesh, India

³Professor, Department of ENT, Head and Neck Surgery, IG Medical College, Shimla, Himachal Pradesh, India

⁴Professor and Head, Department of Plastic and Reconstructive Surgery, IG Medical College, Shimla, Himachal Pradesh, India

⁵Associate Professor, Department of Plastic and Reconstructive Surgery, IG Medical College, Shimla, Himachal Pradesh, India

Correspondence: JS Thakur, Assistant Professor, Department of ENT, Head and Neck Surgery, IG Medical College, Shimla-171001 Himachal Pradesh, India, e-mail: anujagdeep@yahoo.co.in, j.s.thakur@hotmail.com

ABSTRACT

Introduction: Nose has anatomical variation from other facial units. Nasal skin surgery needs experience due to limited skin mobility for postsurgical defect. MMS is the preferred method for facial skin cancers but it is available in only few advanced centers of the country. We performed retrospective study to evaluate the results of traditional surgery and reconstruction in our hospital lacking frozen section facility.

Results: A total of 129 lesions of the face were excised in 87 patients. Thirty-six skin cancers were found in 31 patients. 21 postoperative defects were repaired with full thickness skin graft and seven cases needed local or distant flap. The recurrence occurred in two patients (one lesion each) in 1 year follow-up.

Conclusion: Nasal cutaneous cancers need utmost surgical expertise and experience in reconstruction. Health awareness campaign is needed to avoid skin cancers, especially people living at higher altitude.

Keywords: Face, Basal cell carcinoma, Squamous cell carcinoma, Surgery, High altitude, UV rays.

INTRODUCTION

Skin cancer, mainly basal cell cancer (BCC), is a well-known entity in the Australian continent¹ but its incidence is less in the Asian population than Caucasian.² Mohs micrographic surgery (MMS) is the standard treatment for facial skin cancer but it is limited to advanced centers only, and hence traditional excision is the preferred practice in other centers lacking this facility.

In the face, nose is most important unit which has finely demarcated boundaries and carries minimal skin mobility for defect closure. This anatomical variation needs utmost surgical expertise and MMS is the preferred modality for treatment of skin cancers of nose. Larger postoperative nasal defect needs local or distant flap cover. Our institute lacks frozen section facility, and hence all the cutaneous malignancies are treated by traditional surgical excision. We did a 5-year retrospective study in the two departments (Plastic and Reconstructive Surgery, ENT, Head and Neck Surgery) to know the results of traditional surgery and reconstruction in cutaneous cancers of nasal and surrounding areas.

METHODS

We reviewed records of 87 patients treated for various cutaneous cancers in the Department of Plastic and

Reconstructive, and of ENT, Head and Neck Surgery between 1st January 2003 and 31st December 2009. The clinical records were reviewed to know the patients awareness by following:

1. Initial thought about lesion
2. What was the initial treatment, and time interval between first symptom and first qualified consultation?
3. Outcome of surgery.

A total of 129 malignant lesions were excised from the face and head. BCC was excised with 5 to 10 mm, usually 10 mm of normal skin while squamous cell carcinoma (SCC) was excised with 15 to 20 mm, usually 20 mm of normal skin. Due to lack of frozen section biopsy facility, tumor free margins were confirmed by regular histopathology. All the defects were reconstructed during surgical excision. Patients were kept on minimum regular follow-up of 1 year.

RESULTS

The study group comprised of 87 patients with slight male predilection (M:F ratio of 1.28:1). The mean age of presentation was 66 years and oldest patient was 97-year-old. Only 19 patients were conscious about the lesion and directly consulted a qualified doctor during initial symptoms, rest of 68 patients had some local topical herbal medication initially as they thought it to be a boil. The mean time of

Table 1: Distribution of facial skin cancer according to the site										
Site	Eye		Nose	Cheek	Angle of mouth	Pinna	Scalp	Chin	Lip	Forehead and eyebrow
	Medial canthus	Lower lid								
No. of cases	8	16	36	27	4	13	3	8	6	8

presentation was 10 months and 79 patients were referred from peripheral health centers only. Only 16 patients were concerned about reconstructive outcome and seek referral to our center.

A total of 129 lesions were excised, and were BCC and SCC only (Table 1). We did not have any other cutaneous cancers in the study group. BCC contributed 94 lesions (74%) while 33 lesions (26%) were SCC. The smallest lesion was about 1 × 1 cm and the largest was about 12 × 10 cm, covering whole of the left cheek and nose.

Thirty-one cases had cancer of nose and adjoining areas, contributing 36 lesions. In the nasal cutaneous cancers, eight postoperative defects were closed primarily. Full thickness skin grafts were used in 20 defects of nasal dorsum (Table 2, Figs 1 and 2). Median forehead, nasolabial, glabellar and bilobed flaps reconstructed six excised defects (Figs 3 to 5). The pedicle radial forearm flap was used in a patient suffering with xeroderma pigmentosa (XP). There was no free flap reconstruction in any defect.

Table 2: Distribution of nasal skin cancer according to the type of cancer and management		
	Squamous cell carcinoma (7)	Basal cell carcinoma (27)
Primary closure	2	5
Split skin graft	–	1
Full thickness skin graft	3	18
Local flap	1	5
Distant flap	1	0



Fig. 2: Case of Figure 1 after excision and full thickness skin graft



Fig. 3: Large squamous cell carcinoma lesion causing destruction of nasal lateral wall



Fig. 1: Typical BCC lesion on the nasal dorsum



Fig. 4: Patient of Figure 3 after excision and median forehead flap cover



Fig. 5: Another postoperative case of BCC of nose with median forehead flap repair

Tumor margins were found infiltrated with BCC in five excised specimens of nasal lesion, however, all SCC excised lesions had tumor-free margins. Except the patient of XP with recurrent BCC, there were two patients (one lesion each) with recurrences in the follow-up of 1 year. Recurrence was managed by repeat surgical excision with or without radiotherapy and had no relapse. As patient of XP has predilection for recurrent skin cancers, he was excluded from the recurrence patient data list.

DISCUSSION

Excessive exposure to sun and ultraviolet rays are the most important etiological factors in skin cancers. Each year, 2 to 3 million nonmelanoma skin cancers and 1,32,000 melanoma skin cancers occur globally.³ Estimated new cases of nonmelanoma skin cancer in 2009 was 1 million in US⁴ and 0.1 million in UK.^{5,6} The incidence of skin cancer in India is 1 to 1.8 per 1,00,000 population⁷ and contribute about 1 to 2% in diagnosed cancers.⁸

Cutaneous cancers of face pose a challenge to the surgeons due to scarce availability of free margins, and MMS is the ideal technique for facial cutaneous cancer. However, this technique is available in few centers of the developing countries. In India, there are very few medical centers with frozen section facility and majority of the patients are managed in centers lacking MMS. In our state, the facility of plastic surgery is available only in this hospital, which is catering a population of about 6 million. Patients are referred to this institute for specialized management of cancers.

In this study, 84 patients belonged to snowbound areas with altitude more than 2,100 meters. These patients had

long history of sun exposure due to cold climate and they did not use sunscreen lotions. Since 1992, WHO has started INTERSUN project but it is still not implemented in India, and hence people living in higher altitude are not aware of risk of developing UV induced cancer.

As prevalent in India, people in this state take local herbal medication before taking medical consultation first. In this study, we found that 68 patients thought cancer lesion as a boil and applied herbal medicine, and hence mean time of presentation was 10 months. The reason of this prevalence is multifactorial and includes residences in the far-flung areas with inability to attend multiple surgical procedures, illiteracy and lack of health awareness.

We perform traditional wide excision with reconstruction simultaneously as they belong to far-flung areas. Due to these reason, we perform wider resection for cutaneous cancer with 5 to 10 mm, usually 10 mm of normal skin for BCC and 15 to 20 mm, usually 20 mm of normal skin in SCC.

We found residual tumor in five excised specimens. Availability of limited free margins might lead to residual tumor in specimens otherwise MMS could have been better modality. Lang et al⁹ reported residual tumor in 11% MMS excised specimen (5 out of 45 patients). They advocated for histopathological examination of fresh excised margins whenever high-risk patients undergo reconstruction after MMS. Jin et al² reported recurrence of 3.7% (3 out of 86 cases) with traditional excision of facial cutaneous cancers in Korea. They took 2 to 5 mm normal skin in BCC and 5 mm, usually 10 mm, in SCC. The tumor-free margins were confirmed on frozen section, and later on routine histopathology. A retrospective study was done in Singapore reported 84.9% success rate with traditional surgical excision.¹⁰

In the present study, the results of traditional surgical excision were comparable to other reported results. Nasal cutaneous cancers need surgical reconstruction, and hence surgeons need experience in facial plastic and reconstructive surgery. Further, health awareness campaign is needed to avoid skin cancers especially in people living at higher altitude.

REFERENCES

1. Staples MP, Elwood M, Burton RC, Williams JL, Marks R, Giles GG. Non-melanoma skin cancer in Australia: The 2002 national survey and trends since 1985. *Med J Aust* 2006;184(1):6-10.
2. Jin HR, Lee JY, Lee DW, Shin SO, Choi YS, Yoo SJ, et al. Primary facial skin cancer: Clinical characteristics and surgical outcome in Chungbuk province, Korea. *J Korean Med Sci* 2005;20(2):279-82.

3. Skin cancers. Available at: <http://www.who.int>. Accessed 14th Aug 2009.
4. Skin cancers. Available at: <http://www.cancer.gov/cancertopics/types/skin>. Accessed 14th Aug 2009.
5. Holme SA, Malinovsky K, Roberts DL. Changing trends in non-melanoma skin cancer in South Wales, 1988-98. *Br J Dermatol* 2000;143(6):1224-29.
6. Nonmelanoma skin cancer incidence statistics. Available at: <http://info.cancerresearchuk.org>. Accessed 14th Aug 2009.
7. Atlas of cancer. National cancer registry programme. Available at: <http://www.ncrpindia.org>. Accessed 14th Aug 2009.
8. Deo SV, Hazarika S, Shukla NK, Kumar S, Kar M, Samaiya A. Surgical management of skin cancers: Experience from a regional cancer centre in North India. *Indian J Cancer* 2005;42(3):145-50.
9. Lang PG, Duncan IM, Hochman M. Occurrence of subclinical tumor in excised facial subunits. *Arch Facial Plast Surg* 2004;6:158-61.
10. Goh BK, Ang P, Wu YJ, Goh CL. Characteristics of basal cell carcinoma amongst Asians in Singapore and a comparison between completely and incompletely excised tumors. *Int J Dermatol* 2006;45(5):561-64.