Florence Yul N. Saquian, MD

Department of Otorhinolaryngology
Philippine General Hospital
University of the Philippines Manila

Basal Cell Carcinoma of the Lip and Mentum

CASE

A 52-year-old non-diabetic female presented with a 20-year history of hyperpigmented lower lip ulcer which gradually involved the mentum, and on punch biopsy revealed basal cell carcinoma. As a housewife, she had no excessive exposure to sunlight or radiation, and no family history of cancer. On examination, a non-healing ulcer with hyperpigmented rolled-up borders had eroded the lower lip and mentum, extending into the alveolus and mandible. Wide excision with segmental mandibulectomy, bilateral supraomohyoid neck dissection and pectoralis major myocutaneous flap reconstruction were performed and radiotherapy scheduled 6 weeks after surgery.

Basal cell carcinoma (BCC) is the most common skin malignancy with estimated annual incidences of 1 million, over 500,000 and 190,000 in the USA, Europe and Australia, respectively[1]. More than 60% of all skin cancers in the Philippines are basal cell carcinoma[2].

A slow-growing, locally invasive malignant epidermal tumor, it infiltrates tissues in a three-dimensional contiguous fashion through the irregular growth of sub-clinical finger-like outgrowths[3]. It rarely metastasizes, with morbidity related to local tissue invasion and destruction[4]. Most can be treated easily with a high cure rate; however, there are some lesions that are much more aggressive. Advanced basal cell cancers may be arbitrarily defined as tumors > 2cm; that invade bone, muscle, or nerves; that have lymph node metastasis; or that require removal of a cosmetic or functional unit[5]. Complications are highlighted when lesions occur in the face, particularly near orifices of the eyes, nose, ears and mouth. As with lesions close to vital structures, these pose a greater clinical challenge[4].

BCCs develop from pluripotential cells in the basal layer of the epidermis. Ultraviolet-induced mutations in the TP53 tumor-suppressor gene, which resides on chromosome arm 17p, have been implicated in some cases of BCC. Furthermore, the loss of inhibition of the patched/hedgehog pathway also appears to play a role in development of BCCs and influences differentiation of a variety of tissues during fetal development[6].

Recognizing the various histological subtypes of BCC is important because aggressive therapy is often necessary for some variants[3]. Nodular BCC appear as waxy or pearly papules with central depression, erosion or ulceration, bleeding or crusting, and rolled (raised) borders. Tumor cells typically have large, hyperchromatic, oval nuclei and little cytoplasm. Cells appear uniform, with few mitotic figures. Pigmented BCC contain increased brown or black pigment and are most common in individuals with dark skin. Superficial BCC appears as scaly patches or papules that are pink to red-brown, often with central clearing, commonly with a threadlike border, may mimic psoriasis or eczema, but they are slowly progressive. Micronodular BCC, an aggressive subtype, is not prone to ulceration, it may appear yellow-white when stretched, firm to touch, and may have a seemingly well-defined border. Morpheaform and infiltrating BCC present with sclerotic

Correspondence: Florence Yul N. Saquian, MD
Department of Otorhinolaryngology
Ward 10, Philippine General Hospital
Taft Ave., Ermita, Manila 1000
Phone (632) 526 4360 Fax (632) 525 5444
Email: goldsaquian@yahoo.com

(scarlike) plaques or papules with ill defined borders extending beyond clinical margins. Ulceration, bleeding, and crusting are uncommon. It may be mistaken for scar tissue[7].

Treatment is based on clinical diagnosis and a pre-operative biopsy[3]. A complete history relating the onset and rate of growth of the lesion as well as sun and radiation exposure should be taken. It is also necessary to examine and palpate the extent of lesion, with special attention given to high risk areas. Large extensive lesions may require radiographic examinations such as MRI or CT to assess soft tissue or bony involvement, respectively[8]. The most appropriate treatment options should be discussed with the patient. Co-morbidities may influence the choice between surgical and non-surgical treatment. Elderly patients with symptomatic and high-risk tumors may opt for less aggressive treatment options, which are palliative in intent[3].

Various surgical and non-surgical treatments are currently available. Non-surgical techniques include thrice-weekly intralesional injection of human recombinant interferon α-2 for three weeks for low-risk BCCs. This option is still investigational, unlikely to benefit high-risk tumor patients, and may be expensive and time-consuming[3]. Photodynamic and oral retinoid therapies are other options undergoing investigation and are not yet widely available[3]. Radiotherapy is an extremely useful form of treatment, but faces the same problem of accurately identifying tumor margins as standard excisional surgery[9]. It has been used to treat many types of BCC, including those with bony and cartilaginous involvement, but is less suitable for treating large tumors in critical sites, as these are often resistant and require radiation doses that closely approach tissue tolerance[3].

Topical treatment options have been used in patients with contraindications for surgery and with lesions not entirely amenable to extirpative excision. 5-flourouracil (5FU) has been used for low-risk, extrafacial BCC with unexciting results[2,3]. Imiquimod (an immune response modifier) 5% cream has been used alone and as adjunct to Mohs' microsurgery for the treatment of BCC, with reported regression but not complete eradication of the tumor. Topical neomycin was also reported to cause regression in one case[3]. A prospective study involving topical application of Cashew nut extract (DeBCC®) on 14 patients with BCC in different parts of the face had no detected recurrences on follow – up periods of 11 – 49 months (28.7 months)[2].

Excisional surgery removes the tumor entirely with a peripheral margin of normal tissue. For small lesions in the face, wide excision with adequate margins is sufficient, and various reconstructive methods can be used depending on the location of the lesion. Larger lesions which involve deeper structures such as bone, warrant more radical approaches to ensure adequate margins[10]. In our patient, infiltration of skin, mucosa, muscle, alveolus and mandible led to a segmental mandibulectomy and subsequent reconstruction.

Mandibular reconstruction aims to reconstitute the mandibular arch. Anterior defects result in the worst functional defects with the so-called "Andy Gump" deformity[11]. The preferred method for reconstructing anterior mandibular defects uses osseocutaneous free flaps, with the fibular free flap being most popular. The peroneal vessels act as the major blood supply to the periosteum in a segmental fashion allowing
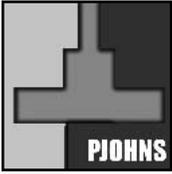
for multiple osteotomies, which are required for bone shaping with anterior defects. For reconstruction of the intra-oral structures, a large soft tissue paddle based on septal and intramuscular perforators can be used, and osteointegrated implants can be placed in the bone graft[12].

Another option for reconstruction is a pedicled flap, and the more commonly used is the pectoralis major osteomyocutaneous flap. Its dominant pedicle is the thoracoacromial artery and vein that runs on the undersurface of the muscle. The underlying rib is also harvested to reconstitute the mandible[13]. The advantages of pedicled flaps include less morbidity, shorter operative time, and a more definitve blood supply, which ensures the survival of the skin flap and bone[11]. However, these flaps tend to be difficult to harvest and have limited arcs of rotation and limited bone graft mobility relative to the soft tissue portion of the flap. The blood supply of the bony portion is often tenuous following transfer, and the lack of bony bulk limits dental rehabilitation[12].

Postoperative management of flap reconstruction includes gentle cleansing and application of topical antibiotics. Diligent oral hygiene offsets potential complications from post-operative drooling. Partial or total flap failure is a common postoperative concern. Partial distal flap necrosis can be managed expectantly. Cyanosis may be due to excessive wound tension or vascular pedicle compromise, and should be explored as necessary[15].

REFERENCES:

1. Staples M, Marks R, Giles G. Trends in the incidence of non-melanocytic skin cancer (NMSC) treated in Australia 1985-95: are primary prevention programs starting to have an effect? Int J Cancer 1998; 78: 144-8.

2. Talens E, Ocampo O, et al. Anacardium occidentale (Linn.) Cashew Nut extract (De BCC ®) in the Treatment of Basal Cell Carcinoma. In publication. Copy obtained though personal correspondence.

3. Telfer NR, Colver GB, Bowers PW. Guidelines in the management of basal cell carcinoma. Br J Dermatol 1999; 141: 415-423.

4. Lo JS, Snow SN, Reizner GT, et al. Metastatic basal cell carcinoma report of twelve cases with a review of literature. J Am Acad Dermatol 1991; 24: 715-19.

5. Andrade R, Gumport SL, Popkin G, et al: Cancer of the skin, in Thawley SE, Panje WR (eds): Comprehensive Management of Head and Neck Tumors, Vol. 2. Philadelphia, WB Saunders, 1976, pp 899-949.

6. Bale AE, Yu K: The hedgehog pathway and basal cell carcinomas. Human Molecular Genetics 2001; 10: 757-762.

7. Andrade R, Gumport SL, Popkin G, et al: Cancer of the skin, in Thawley SE, Panje WR (eds): Comprehensive Management of Head and Neck Tumors, Vol. 2. Philadelphia, WB Saunders, 1976, pp 899-949.

8. Randle HW. Basal cell carcinoma, identification and treatment of the high-risk patient. Dermatol Surg 1996; 22: 255-61.

9. Rowe DE, Carroll RJ, Day CL Jr. Long term recurrence rates in previously untreated (primary) basal cell carcinoma: implications for patient follow-up. J Dermatol Surg Oncol 1989; 15:315-28.

10. Wolf DJ, Zitelli JA. Surgical margins for basal cell carcinoma. Arch Dermatol 1987; 123: 340-4.

11. Greenstein B, Strauch B. Reconstruction. In Atlas of Head and Neck Surgery 2nd ed. Silver CE and JS Rubin, eds. Pennsylvania: Churchill Livingstone 1999. p48-49.

12. Cheung SW, Anthony JP, Singer MI. Restoration of Anterior Mandible With the Free Fibula Osseocutaneous Flap. Laryngoscope 104:105 - 113, 1994.

13. Buchbinder D, Urken ML. Mandibular Reconstruction. In Bailey BJ (ed). Head and Neck Surgery - Otolaryngology, Philadelphia, Lippincott, 1993.

14. Baker SR. Regional flaps in facial reconstruction. Otolaryngol Clin North Am 1990;23:925-946.

15. Mullins JB, Branham GH: Refinements and revision of local and regional flaps. Fac Plast Clinic North Am 4: 537-542, 1996.