Recurrent basal cell carcinoma with maxillary bone invasion

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Abstract

Background: Basal cell carcinoma (BCC) is a malignant, slow growing, and locally invasive skin tumor. Advanced and neglected BCC may invade adjacent structures. The 5-year recurrence rates of facial BCCs are 4.1% after excision and 2.5% after Mohs Micrographic Surgery (MMS). The number of BCC cases invading the bones of the head and neck region is limited.

Case Illustration: A 75-year-old male complained of bleeding and ulcer enlargement on the right cheek expanding to the right nasal ala for 1 month. The patient had a history of an enlarged and painful lenticular nodule with a hyperpigmented spot that appeared 10 years ago on the right cheek and was diagnosed as BCC. The patient was treated with a wide excision having a negative pathological margin 3 years ago. He noticed that the similar lesion reappeared at the same location 2.5 years ago. Post-operative histopathological results showed nodular infiltrative BCC and maxillary bone invasion.

Discussion: Based on history taking, physical examination, and diagnostic evaluation, the diagnosis of the patient was recurrent nodular infiltrative BCC. The final histopathology confirmed that tumor cells invaded the maxillary bone. After considering the treatment options, the patient opted to proceed with radiotherapy.

Conclusion: Recurrent nodular BCC with invasion to the maxillary bone is a rare and interesting case. Among 140 BCC cases that we treated with MMS in our hospital from June 2014 to September 2019, this case is the first recurrent BCC with maxillary bone invasion.

Keywords: basal cell carcinoma, skin tumor, MMS, bone invasion

Background

Basal cell carcinoma (BCC) is a malignant, slow growing, and locally invasive skin tumor.\textsuperscript{1,2} Its global incidence increases by 3\%–10\% per year.\textsuperscript{1} It predominantly affects the Caucasian population, individuals aged > 60 years, and males.\textsuperscript{2} The incidence of BCC in Australia is > 1000/100,000 people-years.\textsuperscript{3} In Japan, the incidence of BCC is 50\% of all skin malignancies.\textsuperscript{4} In Indonesia, 91 cases of BCC were reported at Dr. Cipto Mangunkusumo National Central General Hospital, Jakarta in 1996–1999.\textsuperscript{5}

The risk factors of BCC likely include sun or radiation exposure, indoor tanning, history of skin cancer affecting patients or family members, arsenic exposure, tobacco smoking, and immunosuppression. The subtypes of BCC are nodular, pigmented, superficial, morpheaform, and fibroepithelioma of Pinkus.\textsuperscript{1} The histopathology of BCC varies depending on subtypes. Certain BCCs, especially recurrent and infiltrating ones, show an aggressive pattern, and they even invade and destroy underlying tissues. Only a few cases of invasion to the bones of head and neck region, have been reported.\textsuperscript{5}

Various treatment options for BCC include electrodessication and curettage, cryosurgery, CO\textsubscript{2} laser ablation, photodynamic therapy, wide excision surgery, Mohs micrographic surgery (MMS) or radiation therapy.\textsuperscript{2} BCC treatment is selected on the basis of the preferences of patients.
and the characteristics of tumors e.g., size, location, and subtypes. In our case report, the diagnosis, treatment with MMS, and follow-up of BCC with maxillary bone invasion were discussed.

Case Illustration

A 75-year-old male patient, who was a retired civil servant, came to the Dermatology and Venereology Outpatient Clinic of Dr. Cipto Mangunkusumo National Central General Hospital with a chief complaint of a bleeding and enlarging wound that started occurring on the right cheek 1 month ago. He had a history of an enlarged and painful lenticular nodule with a hyperpigmented spot that appeared 10 years ago on the right cheek. This condition was diagnosed as BCC. He was treated with wide excision 3 years ago. He noticed that a similar lesion reappeared at the same location 2.5 years ago. The patient also had a medical history of hypertension (treated with 5 mg of amlodipine once daily). He was rarely exposed to sunlight, and he rarely used sunscreen. He did not smoke or consume alcoholic beverages.

His physical examination found a 5 cm × 4 cm × 1 cm deeply depressed ulcer with a granulating surface on the right nasolabial region. Active bleeding with a dark red crust was noted in some areas of the ulcer. No purulent discharge and lymph node enlargement were found. The multislice computed tomography (CT) scan of the right maxilla revealed bone erosion, an irregular defect on the right anterior maxillary sinus, loss of the right nasal ala, and thickening of the skin and subcutaneous tissue on the remnant right nasal ala. These conditions indicated tumor recurrence.

Histopathological findings revealed the islands of basophilic basaloid cells with a peripheral palisading pattern and a retracting space filled with mucin. This finding suggested that BCC was infiltrative and nodular, and it invaded the bones. These histopathological results were confirmed by the Department of Pathology at Dr. Cipto Mangunkusumo National Central General Hospital.

Based on clinical history, physical examination, and histopathology examination, the final diagnosis of this case was established to be a recurrent infiltrative nodular BCC. The lesion was then resected through MMS under general anesthesia. MMS was performed in accordance with the standard MMS procedure of the American College of Mohs Surgery. Histopathological results confirmed that tumor cells invaded the maxillary bone (Figure 1). The wound defect was closed by a plastic surgeon using a forehead flap and a split thickness skin graft.

A multidisciplinary meeting involving the departments of ear, nose, and throat–oncology, radiotherapy, plastic surgery, hematology–oncology, pathology, and dermatology and venereology was held to discuss further treatments for the patient. After considering the options, the patient decided to proceed with radiotherapy. Clinical and imaging results revealed that he has been disease-free for 2 years.

Discussion

The patient’s history indicated that he complained about the symptoms 10 years ago, and the lesion spread widely and deeply. This condition was likely to be BCC, considering that BCC lesion develops slowly. The patient was treated with a wide excision and have a negative pathological margin 3 years ago. A similar lesion appeared on the same location 2.5 years ago. We suspected BCC recurrence.

The 5-year recurrence rate of BCC is about 5%, but it depends on histological subtypes and treatment modes. The recurrence rate of primary (previously untreated) BCCs treated with MMS is less than 1%. Nodular infiltrative and morpheaform BCCs most likely recur because of horizontal and vertical occult invasion, which can be missed clinically and histopathologically. Recurrent and long-standing cases are more biologically aggressive than other cases; in such cases, BCCs deeply and widely invade tissues. The pathology of invasive tumors shares a number of aggressive histological features.

In our case, the patient’s lesion initially formed 10 years ago and recurred locally 6 months after the surgery. However, the patient had neglected the lesion for 2.5 years. Moreover, the lesion was located on the alar fold, which is anatomically unique, and more surgical experiences are required to clear the tumor. The multi-slice CT scan of the maxilla/face revealed irregular defects on the right nasal ala and erosion on the right maxillary bone. This finding suggested recurrence, which was later pathologically confirmed to be a maxillary bone invasion.
Most recurrent and invasive cases occur in the head and neck region. The risk of BCC recurrence and invasion is related to the location and size of tumor, its histological features, treatment modality, excision radicality, and patient's immunoresistance. Three other BCC cases with maxillary bone invasion similar to our case have been reported.

In comparison with less invasive cases, an aggressive histopathological subtype of BCC requires multiple stages of MMS. In our case, two stages of MMS were accomplished until the bone surface was reached. The maxillary bone underneath the tumor was chiseled to ensure tumor cell clearance. Among the BCCs that we treated with Mohs surgery in our hospital from June 2014 to September 2019 (N=140), this case was the first recurrent BCC with maxillary bone invasion.

After considering the options discussed in multidisciplinary meeting, the patient opted to undergo radiotherapy. Clinical and imaging results revealed that he has been disease-free for 2 years.

**Conclusion**

Recurrent nodular BCC with bone invasion is a rare and interesting case. In this case report, BCC recurred in less than 1 year after the patient underwent wide excision. This case was treated with MMS based on high-risk factor and recurrence.
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