Oncology and Translational Medicine
DOI 10.1007/s10330-019-0359-9

August 2019, Vol. 5, No. 4, P192–P194

CASE REPORT

Condylar invasion after postoperative chemotherapy for primary intraosseous squamous cell carcinoma of the mandible: a case report

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Abstract

Primary intraosseous squamous cell carcinoma (PIOSCC) is a rare malignant tumor that occurs predominantly in the jaw. Pathological evidence shows that PIOSCC originates from the residual odontogenic epithelium and a preexisting odontogenic cyst or tumor. Here, we report the case of a 63-year-old man with central squamous cell carcinoma of the mandible. On the basis of imaging and histopathology reports, the patient was diagnosed with PIOSCC of the jaw. Subsequently, he was treated with postoperative adjuvant chemotherapy. During a postoperative follow-up visit in the ninth month, mandibular computed tomography (CT) scanning and bone imaging revealed local recurrence and condylar invasion. Therefore, radiation along with chemotherapy was administered. This case study adds to the literature on PIOSCC and widens the understanding of its diagnosis, treatment, and prognosis.

Received: 19 May 2019
Revised: 17 June 2019
Accepted: 26 July 2019

Key words: PIOSCC; condyle invasion; postoperative chemotherapy

Primary intraosseous squamous cell carcinoma (PIOSCC) of the mandible is a rare malignant intramaxillofacial tumor. There are few reported cases; therefore, epidemiology, treatment, and prognosis of the disease remain unclear. Here we report a case of PIOSCC of the mandible [1–2].

Case presentation

In May 2017, a 63-year-old man with odontalgia on the left lower posterior tooth underwent exodontia at the Department of Oral Surgery, Hospital of Yilong County. The toothache persisted post operation; this was accompanied by a non-healing extraction socket and an emerging feeling of numbness in the left lower lip. The patient was later referred to the Department of Oral and Maxillofacial Surgery, West China Hospital of Sichuan University, for review of the above symptoms. Upon physical examination, the patient was found to have a lump on the left side of the face with swelling around the angle of the mandible; 37 teeth were missing and a cauliflower-like hard ulcer with unclear margins was observed. A hard, mobile, cervical lymph node measuring 1 centimeter in diameter was identified through palpation on the right side of the neck. As there was no contraindication, surgery was performed on August 2017. The patient was sedated under general anesthesia; the operative procedure involved resection of the left mandibular mass plus left mandibulectomy (half of the mandible), gum resection, cervical lymph node dissection plus left laryngeal recurrent nerve surgical exploration plus left carotid artery and right femoral anterolateral flap vascularized free graft. Postoperative pathological diagnosis showed grade I PIOSCC in the left mandible (Fig. 1). Cervical lymph nodes showed normal histoarchitecture. Subsequently, the patient received two cycles of chemotherapy (a combination of tegafur and lobaplatin). Bone imaging of condylar invagination after postoperative chemotherapy revealed no local recurrence.

In May 2018, on the ninth month during a postoperative follow-up visit, the patient noticed a recurrence of the left buccal swelling and experienced pain. Computed

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tomography (CT) scan and bone imaging of the mandible (Fig. 2) revealed local recurrence and condylar invasion. The patient received two cycles of chemotherapy (a combination of docetaxel, cisplatin, and tegafur). He was then referred to the Department of Oncology, Affiliated Hospital of North Sichuan Medical College, for further treatment. When the patient presented at our facility, the left face was swollen, and the patient was experiencing local pain (Fig. 3). Panoramic radiograph and CT (Fig. 4, 5) scan showed the invasion of the condyle after postoperative chemotherapy. The patient then received local radiotherapy (radiotherapy planning: first stage: p-gtv 44Gy/20Fx (95%); second stage: p-Gtv 26.4 Gy/12Fx (95%), and concurrent sensibilization chemotherapy based on endostar.

Discussion

PIOSSC is a rare malignant tumor of the mandible. It commonly originates from the residual cells of the enamel epithelium of the tooth germ and a preexisting odontogenic cyst or tumor [3]. PIOSSC commonly affects men, with a high incidence observed in men aged > 50 years. The mandible is primarily affected by bone cancer, suggesting an origin from epithelial cells that exist within the bone. These epithelial cells can proliferate and give rise to odontogenic carcinoma. Often, this process is triggered by inflammation [4–5]. In this case, we do not know whether the patient had an odontogenic jaw cyst in the past; however, the patient reported having dead teeth. Early detection of an odontogenic jaw cyst and the presence of chronic inflammatory signs should be followed by prompt treatment, which can reduce the extent of malignancy originating from a benign odontogenic cyst.

In this case, distant metastasis was not identified during the initial diagnosis. A CT scan suggested bone destruction and expansion of the medulla to the cortex, suggestive of PIOSCC of the mandible. The condylar process was spared in the operation of this patient and the bone flap fashioned. Although occlusion remained unaffected, condylar invasion occurred during postoperative adjuvant chemotherapy; this indicated a high degree of recurrence, in addition to the aggressive nature of the tumor leading to local invasion. The standard treatment of PIOSCC involves combining chemotherapy and postoperative

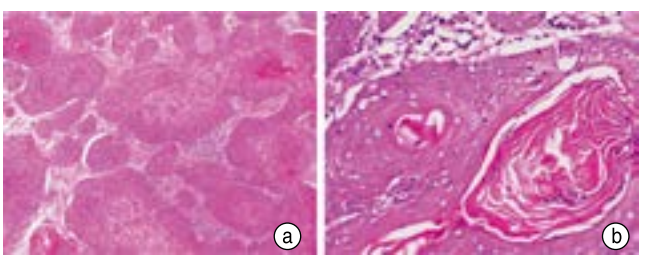

Fig. 1 Postoperative pathology of the mandibular mass. (a) HE staining × 400; (b) HE staining × 40

Fig. 2 Bone imaging of condylar invagination after postoperative chemotherapy

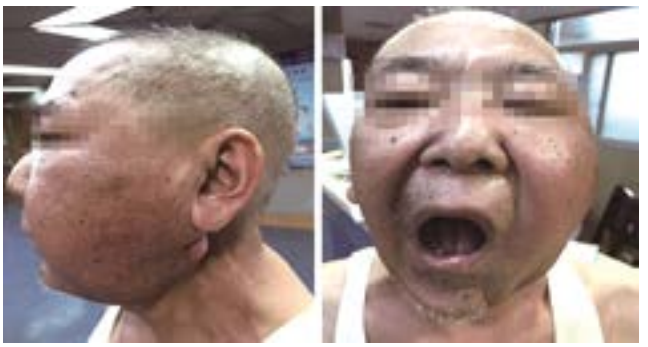

Fig. 3 Buccal asymmetry was observed on the left side of the patient's face

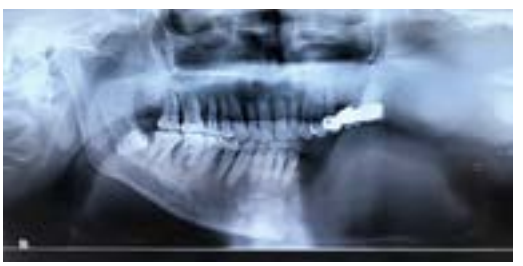

Fig. 4 Panoramic radiograph shows the missing left mandible

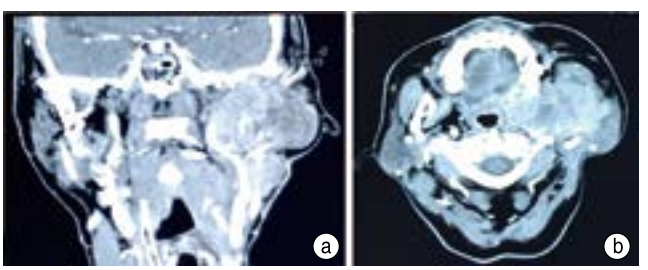

Fig. 5 CT scans of condylar invasion after postoperative chemotherapy. a: sagittal section; b: coronal section

radiotherapy [5-7]. Complete resection is performed based on the prognosis before extensive involvement of adjacent tissues or lymph node metastases; early aggressive surgical treatment helps to reduce local recurrence [8].

PIOSCC of the mandible has a short course and a rapid replication rate, and it is often found in the body and ascending ramus of the mandible. The early symptoms are not obvious. When the tumor encroaches on the alveolar nerve, toothache, tooth loosening, a non-healing wound after tooth extraction, and lower lip numbness occur [7, 9]. In this case, the patient experienced toothache, for which he underwent tooth extraction. The patient's condition then gradually deteriorated, and he presented with lower lip numbness and jaw pain. This indicated a high probability of misdiagnosis. Studies have shown that the prognosis of PIOSCC is related to the status of positive lymph nodes and histological grade of the tumor [10–11]. This patient did not receive radiotherapy postoperatively but received local radiotherapy after local invasion. There is no consensus on whether concurrent chemoradiation or preoperative induction chemotherapy followed by local radiotherapy is better.

In conclusion, early diagnosis of PIOSCC is extremely important. For middle-aged men with toothache, facial numbness, and no remission of symptoms after tooth extraction, CT and biopsy should be performed at initial presentation. The treatment of this disease primarily involves extensive surgical excision of the tumor. In addition, neck dissection could be performed in combination with postoperative radiotherapy and chemotherapy for patients who are suspected to have lymph node metastasis. Postoperative chemoradiation may be more effective than chemoradiation alone. This may improve the survival rate of patients.

Conflicts of interest

The authors declare no potential conflicts of interest.

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DOI 10.1007/s10330-019-0359-9
Cite this article as: Cheng L, Li QY, Du GB, *et al*. Condylar invasion after postoperative chemotherapy for primary intraosseous squamous cell carcinoma of the mandible: a case report. Oncol Transl Med, 2019, 5: 192–194.