

Locoregional invasion of buccal squamous cell carcinoma into the maxillary, palatal and mandibular bones, a case report

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Squamous cell carcinoma (SCC) of the buccal mucosa accounts for 23% to 37% of all intraoral cancers, the prognosis is generally poor. we reported a case of Local invasion of buccal squamous cell carcinoma. A 32-year-old man referred to the clinic with a chief complaint of swelling in the right cheek region that initiated from 6 months ago and rapidly grow from one month ago. History of the patient revealed that he was undergoing a surgery for buccal Squamous cell carcinoma (SCC) lesion 2 years ago. Computed tomography (CT) and Magnetic resonance(MRI) images showed a heterogenous mass in the right maxillary, palate and mandibular regions that was histopathologically diagnosed as recurrence with locoregional invasion of SCC.

Key words: Buccal mucosa, maxilla, squamous cell carcinoma

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INTRODUCTION

Squamous cell carcinoma (SCC) of the buccal mucosa accounts for 23% to 37% of all intraoral cancers.^[1] SCC is the most prevalent cancer of the mouth. The highest incidence rate is observed in India, Australia, Brazil, France and South Africa.^[1] A male to female ratio is about 2:1 with the largest number of Oral SCCs developing in the fourth and fifth decades of life.^[2]

Because of the high recurrence rate and invasive behavior of this tumor, the prognosis is generally poor.^[3] Diaz *et al's* showed that buccal Squamous cell carcinoma (SCC) is an aggressive cancer, with a tendency to recur locoregionally.^[4] Strome *et al's* revealed that 80% of patients had evidence of recurrence by 5 years,^[5] while Lin CS *et al's* found that recurrence rate was 34% by 5 years.^[6] According to our search in Pubmed medical data bases there was no similar reported case about the locoregional invasion and recurrence of buccal SCC in Iran.

Patient case presentation

In March 2012, a 32-year-old admitted in alzahra hospital medical center of Isfahan, Iran due to the swelling in the right cheek region that initiated from 6 months ago but rapidly grow during one month ago. He had a history of right cheek surgery with cervical lymph node dissection 2 years ago that was histopathologically

diagnosed as Squamous cell carcinoma (SCC) at stage II (T2N0M0)^[7] that justified no lymph node involvement in examination. Extra oral examination, revealed a swelling of 3 × 2 cm in the right cheek region with a firm consistency. There was no fever, redness and secretion in the region. Themouth opening was limited due to the trismus. There were no palpable lymph node in the submandibular and cervical region and facial muscle paralysis was not existed. Intraoral examination revealed an erythematous mass in the buccal region without bleeding or necrosis. Also the scar of the previous surgery was visible in the buccal mucosa.

Physical examination of lung, heart, and abdomen were normal. Chest x-ray was normal. Brain CT scan had no finding for metastasis. Liver-ultrasonography was normal. Head and neck CT with soft tissue windowing in 2010, February showed a lesion in the right buccal region with dimensions of z 3.1 × 2.7 [Figure 1]. that was surgically excised with all the involved surrounding tissues under the general anesthesia at that time.

In March 2012, CT images showed a soft tissue mass lesion with dimension of 2.5 × 3.64 in the right cheek region with erosive involvement of right zygomatic bone(body and anterior portion of the arc), palatal bone, ramus of the mandible and involvement of infra temporal fossa and pterygoid muscles [Figure 2].

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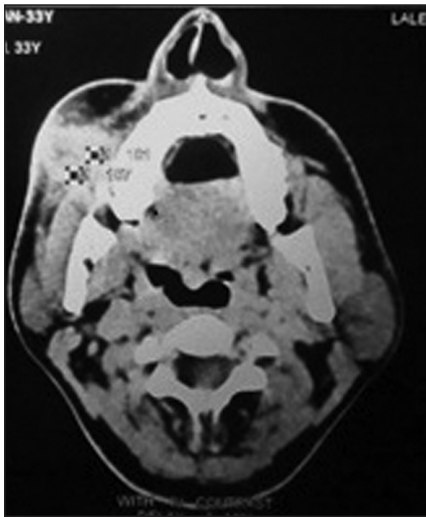


Figure 1: CT image, Axial view, soft tissue windowing, shows a soft tissue mass lesion with dimension of 3.1 × 2.7 in the right buccal mucosa. (January 2010)

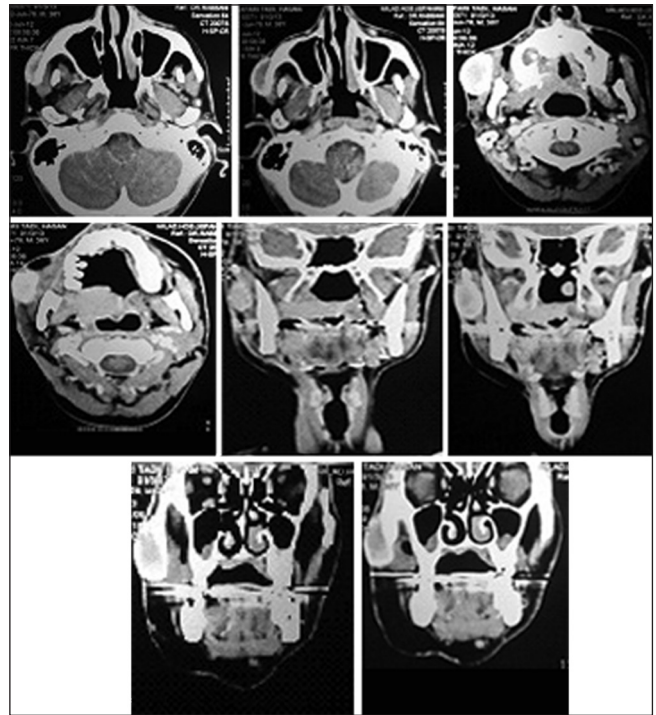


Figure 2: CT image, Axial view, soft tissue windowing, shows a soft tissue mass lesion with dimension of 2.5 × 3.64 in the right cheek region with erosive involvement of right zygomatic bone (body and anterior portion of the arc), palatal bone, ramus of the mandible and involvement of infra temporal fossa and pterygoid muscles. (March 2012)

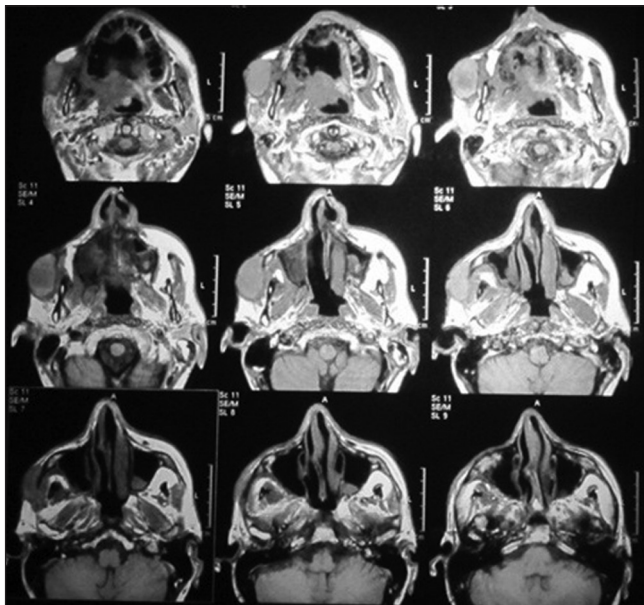


Figure 3: MRI, a lobulated heterogeneous non enhancing mass lesion in the right buccal mucosa with extension to the right masticatory muscles, right soft palate, uvula and also involving the right palatine tonsil, which may represent a neoplastic recurrence, also note to the non enhancing mass with diameters of 32 × 31mm in the buccal mucosa representing the scar tissue in the previous surgical site (arrow). (March 2012)

Magnetic resonance imaging (MRI) of face showed a lobulated heterogeneous non enhancing mass lesion that was 2.5 cm in diameter in the right buccal mucosa with extension to the right masticatory muscles, right soft palate, uvula and also involving the right palatine tonsil, which may represent a neoplastic recurrence. There was a large non enhancing mass with diameters of 32 × 31mm with low signal intensity in T₁ images in the buccal mucosa representing the scar tissue in the previous surgical site. There is a fatty degeneration of the medial and lateral pterygoid muscles and right sided

tongue muscles which may represent muscle denervation due to the peripheral spread of the neoplastic process, involving the maxillary and mandibular branches of the trigeminal nerve [Figure 3].

Pathological examination revealed a neoplastic proliferation of squamous epithelial cells with cellular nests. These cells had a high nucleus to cytoplasm ratio with atypism and pleomorphism. Also keratin pearl and desmosomal adhesion was seen. The histopathological examination revealed a diagnosis of a well differentiated SCC in the all affected tissues [Figure 4].

Finally the complete excision of the mass in the right buccal mucosa and all affected tissues including right masticatory muscles, partial resection of the right maxillary and palatal bones and upper affected portion of mandibular ramus and zygomatic bone was done. Due to the local invasion to the surrounding structures including adjacent bones and masticatory muscles and absence of lymph node involvement and distant metastasis,^[7] the stage of lesion was finally 4a (T4aN0M0) after surgery. Excisional surgery was followed by chemotherapy and radiotherapy. Unfortunately, the patient did not refer to follow up after completion of the first chemotherapeutic duration. And finally he died due to the massive pulmonary emboli in October 2012.

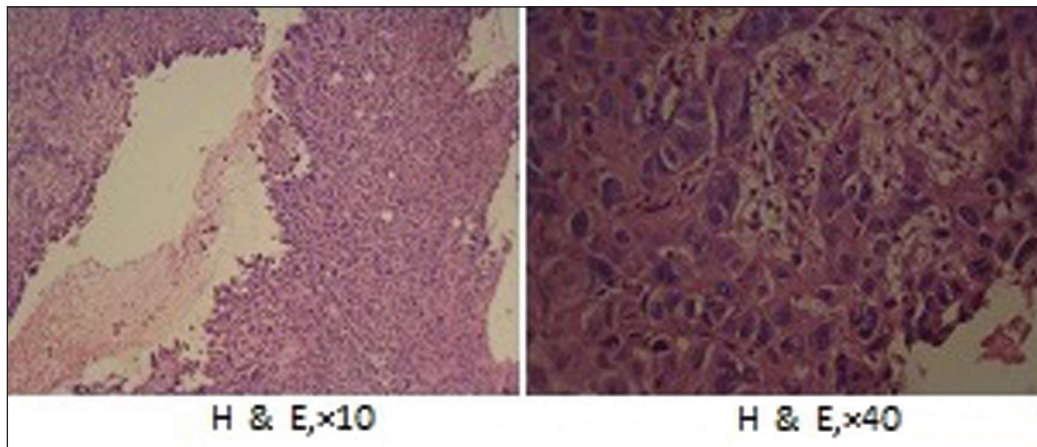


Figure 4: Histopathological views

DISCUSSION

Buccal SCC is an important cause of morbidity and mortality worldwide with an incidence rate that varies widely by geographic location, sex, age and habit. Buccal SCC is an aggressive cancer with a high tendency to recur.^[1]

The incidence of buccal carcinoma is much higher in Asia. In India, buccal carcinoma is the most common cancer in men.^[1] Sharma *et al* revealed a male to female ratio of 2.2:1 with the largest number of SCCs developing in the fourth and fifth decades of life.^[2] Most of the reported cases of SCC have a history of alcoholism and/or nicotine addiction,^[8] while our case didn't have any history of nicotine and alcohol consumption. Squamous cell carcinoma (SCC) of the buccal mucosa is a rare, but especially aggressive form of oral cavity cancer, associated with a high rate of recurrence. In contrast other oral cancer, buccal SCC has a worse stage that affects the survival and become poor prognosis.^[4]

SCC of buccal mucosa has a failure rate even in patient with T1, 2 N0 stage that can be due to inadequate therapy and aggressive nature. There was a 100% overall incidence of local disease recurrence in patients with stage I and II tumors treated with wide local excision alone and followed up for more than 2 years.^[5]

Patients with T1- or T2-sized tumors had only a 78% and 66% 5-year survival, respectively. Surgical salvage for patients with locoregional recurrence after radiation therapy has been rarely successful.^[4] Postoperative radiotherapy was effective in decreasing locoregional failure in patients with close surgical margins, tumor thicker than 10 mm, high-grade tumors, positive node, and bone invasion.^[9] Intra-arterial chemotherapy followed by radiotherapy is to be considered in advanced cases.^[3] Similar to the presented case. The treatment of buccal

carcinoma requires a multidisciplinary team approach because most of the patients are elderly and present with an advanced stage.

Nearly one-third of patients have localized disease, that is, T1 or T2 (stage I or stage II) lesions without detectable lymph node involvement or distant metastases, These lesions are treated with curative intent by either surgery or radiation therapy.^[10] In CS *et al* showed that SCC of the buccal mucosa is an aggressive cancer with a high locoregional failure rate even in patients with T1-2N0 disease,^[6] so Postoperative radiotherapy could led to a better locoregional control rate for patients and should be recommended for patients with T1-2N0 disease.

The 5-year actuarial survival rates were 80% after surgery and 82% after surgery and postoperative radiation therapy.^[7] Pop *et al*, showed a local recurrence rate of 45%, while schiza *et al* found the frequency as 56% in their research. Postoperative radiotherapy has resulted in a better locoregional control rate for patients and should also be considered for patients with the T1-2N0 disease^[10] for whom adjuvant therapy after radical surgery currently is not recommended by most guidelines.^[6] In the head and neck cancer, the most important prognostic factor is the presence or absence of neck metastasis.^[11]

Deconde *et al* found that Performance of neck dissection may decrease the risk of recurrence in primary SCC of the buccal mucosa.^[12]

Finally the search in a procedure that diminishes recurrence may open the window of knowledge in treatment and increase survival. Because of low survival and high recurrence, more research needs to perform to understanding the pathogenesis of the disease that led to new therapeutic strategies.^[12]

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