

## Research Article

# INTRAOSSEOUS SQUAMOUS CELL CARCINOMA IN A NON HEALING EXTRACTION SOCKET, A DIAGNOSTIC CHALLENGE - CASE REPORT

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### ABSTRACT

Primary intraosseous squamous cell carcinoma (PIOSCC) is a rare malignant tumor that develops in the jaw. It is a type of squamous cell carcinoma (SCC) with no connection to the oral mucosa. Predominantly, it affects mandible, although both jaw bones may be involved. Generally, there is high chance of a tumor being overlooked and misdiagnosed in an extraction socket. Failure of healing in an extraction socket may be the initial presenting feature of insidious malignancies. This case report highlights the importance of prompt and early diagnosis of potential malignancies which are likely to be misdiagnosed post exodontia.

## INTRODUCTION

The extraction socket, like any other wound associated with tissue loss, heals by secondary intention. There is an orderly sequence of biological events, which restores the continuity of the alveolar mucosa and bone following exodontia.[1]

Healing of extraction sockets is generally a rapid and uncomplicated process. Failure of an extraction socket to exhibit satisfactory signs of healing in a timely manner within three to four weeks warrants potential pathological lesions that interfere with healing. The vast majority of cases are the result of innocuous, local factors such as dry socket or infection.[2]. However, the potentially life-threatening, malignant lesions complicating this phenomenon can be underestimated.

This report describes a 62 year old woman who was initially misdiagnosed as osteomyelitis in the left mandibular angle region and later the biopsy report confirmed it to be Moderately differentiated squamous cell carcinoma.

Primary intraosseous squamous cell carcinoma (PIOSCC) is an uncommon neoplasm, defined as a squamous cell carcinoma (SCC) that develops within the jaw bones and arises from remnants of odontogenic epithelium with no initial connection to the oral mucosa. PIOSCC is estimated to account for 12% of all cases of oral cancer.[3]

Commonly reported clinical features of PIOSCC include jaw swelling, pain, and sensory disturbances.[4] Before the diagnosis of PIOSCC, the existence of a primary tumor in another site must be ruled out. Histological findings are often not pathognomonic for the diagnosis of PIOSCC. This lesion commonly displays an osteolytic appearance with ill-defined irregular margins.[4]

Such potentially malignant lesions is a relatively rare encounter in general practice, it is therefore of the utmost importance that clinicians remain cognisant of the signs and symptoms suggestive of invasive malignancy of the oral cavity. Accurate knowledge and thorough investigation is needed to prevent delayed diagnosis.

## CASE REPORT

A 62 year old woman presented to the department of oral and maxillofacial surgery with the chief complaint of unhealed extraction socket and pain in the lower left jaw region since four months. history revealed that she underwent extraction of her lower left wisdom tooth in a private dental clinic 4 months back, post the extraction she experienced bleeding for about 15 days and later she consulted a different oral surgeon who performed laser surgery and placed sutures in the extraction site which led to the stoppage of bleeding, but the extraction socket did not heal. Patient also complained of pain which is throbbing type, continuous in nature, radiating to her neck region, aggravates upon opening of her mouth and gets transient relief upon taking analgesics.no other associated symptoms like fever, headache, nausea.

Patient gives history of diabetes since 20 years and is on insulin therapy for the same. Patient gives a history of hypertension since 4 years for which she is on Anti-Hypertensives. No relevant personal and habit history.

On general examination patient is conscious, oriented, moderately built and nourished having well co-ordinated gait. patient presented with palor, no signs of icterus, cyanosis or clubbing noted.

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On extraoral examination, inspection reveals mild facial asymmetry on left side Diffuse swelling measuring 4 x2cm in size noted on the left side, beneath the inferior border of the mandible, involving lower third of the face, skin over the swelling appears normal (Fig.1.) TMJ movements inassessable due to her restricted mouth opening, Extraocular movements are satisfactory, No extraoral sinus opening or pus discharge noted.



**Fig 1** Pre-operative frontal view

On palpation, inspectory findings confirmed.

The swelling is firm, hard in consistency, non fluctuant and tender Left solitary submandibular lymph node is palpable, tender and mobile, not fixed to the underlying structures.



**Fig 2** Restricted mouth opening noted

On intra-oral examination, Restricted mouth opening (25mm) noted,(Fig.2.) Large unhealed open cavity with bone exposure noted in the region of 37,38.(Fig.3.)



**Fig 3** Unhealed extraction socket and bone exposure seen in region of 38 with no ulceration or proliferative growth

Vestibular obliteration noted i.r.t 37, 38 region, Missing i.r.t 37,38, No pus discharge or foul smell noted No

ulceroproliferative growth noted, Tongue movements were normal Vestibular tenderness present in 37,38 region, Bleeding on probing present

#### Differential diagnosis

At presentation, the differential diagnosis included osteomyelitis, osteonecrosis of the jaw, and intra-oral malignancy

#### Investigations performed

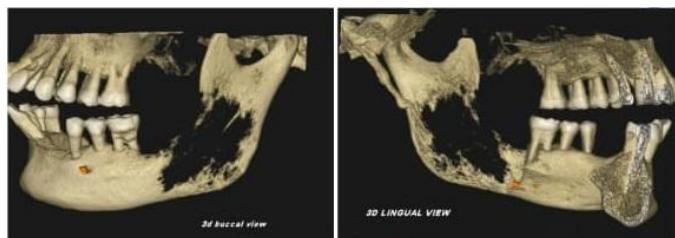
The non-healing extraction site was explored surgically and soft tissue curetted from the bony socket. This was sent for histopathological examination which gave a diagnosis of Moderately differentiated squamous cell carcinoma (Fig.4).

Imaging, which included positron emission tomography (PET) and computed tomography (CT) scanning, revealed a significant lesion within the left mandible.

CBCT revealed diffuse osteolytic lesion with infiltrating margin noted around the mandibular alveolus extending from the buccal aspect of 36, 37 region to ascending ramus of mandible around 8.5mm below the sigmoid notch, involvement of body and angle of the mandible with possible infiltration in inferior alveolar nerve canal. Lesion appeared to extend till lower border of mandible causing erosion and breach.(Fig.5)



**Fig 4** Histopathological examination revealed islands of malignant epithelium invading connective tissue suggestive of moderately differentiated squamous cell carcinoma



**Fig 5** 3D reconstruction shows diffuse osteolytic lesion with infiltrative margins noted along the left mandibular alveolus extending till the ascending ramus of the mandible. Lesion appears to extend till the lower border of mandible causing erosion and pin point areas of breach



**Fig 6** Wide local excision of lesion, Hemimandibulectomy and Modified radical neck dissection done



**Fig 7** Reconstruction done using Pectoralis Major Myocutaneous flap



**Fig 8** Postoperative frontal view

## MANAGEMENT

The cancer was managed in the first instance with surgical resection, left hemimandibulectomy with Modified radical neck dissection supplemented with radiation therapy post-operatively. The reconstructive phase of the surgery involved a Pectoralis Major Myocutaneous flap.(Fig.6,7,8)

### Surgical Steps are as follows

- General Anesthesia achieved via right nasal intubation
- Painting and Draping done following standard protocols
- Local Anaesthesia administered to proposed surgical site
- Schobinger incision placed, blunt dissection performed, planes identified and modified neck dissection performed
- Level I-IV lymph nodes identified and resected along with sternocleidomastoid muscle
- >facial artery, common facial vein, retromandibular vein, transverse cervical artery identified and ligated.
- >left hemimandibulectomy performed after dental extraction of 26,25,24 teeth and the involved structures of tumor were resected and the specimen sent for histopathology report
- >Skin markings were placed for pectoralis major myocutaneous flap, medial and lateral pedicles identified, raised, flap harvested and tunneled into position to reconstruct the left buccal mucosa and floor of the mouth.
- >closure of donor and recipient site achieved in layers post placement of four No.16 vacuum drains, 2 in the donor site and 2 in recipient site.
- >Patient extubated and shifted to recovery

The specimen sent for histopathology report suggested negative margins.

The post-operative period was uneventful. The patient was managed with IV antibiotics and Analgesics. The patient was discharged and underwent concurrent chemotherapy and radiotherapy postoperatively.

## DISCUSSION

This case report highlights the need for early detection of potential malignancies. A much less common manifestation of oral cancer is delayed healing of the extraction socket, as presented in this case report. PIOSCC is a rare malignant odontogenic tumor that accounts for approximately 1%–2.5% of all odontogenic tumors.[5]. PIOSCC displays a predilection for males (2: 1 male-to-female ratio). Although it can occur at any age, it most commonly occurs in the fifth decade of life. PIOSCC is more often found in the mandibular body and posterior mandible than in the maxilla.[5]. In our case, a 62-year-old female patient was affected, and the lesion in the present case involved the masticator space, lymph nodes level I,IIA and IIB. According to Thomas et al,[8] the radiolucency in PIOSC was described as poorly defined, ragged borders with permeate type of destruction that are seen in rapidly expanding lesions. Degree of raggedness of the border may reflect the aggressiveness of the lesion.[6]

The reported case showed poorly defined, ragged borders with permeate type of destruction. In comparison to the oral SCC, the prognosis in cases of PIOSC is poor and usually associated with high recurrence rate. Out of 12 cases of de novo PIOSC reported by Elzay, a 40% two-year survival rate was observed.[7] Similarly in a study by Thomas et al[8] out of 28 cases of de novo carcinoma, 46% of the patients survived for a period varying from 6 months to 5 years.[6]. The treatment of choice is aggressive surgical treatment comprising segmental mandibulectomy with reconstruction by vascularized fibula free flap either singly or in combination with radiotherapy or chemotherapy. Other reconstructive options include bridging plates and distraction osteogenesis and reconstruction by

pectoralis major myocutaneous flap done in our case. The tumor may metastasize to the cervical lymph nodes. Hence prophylactic neck dissection should be recommended even in no neck.[7]

The pectoralis major myocutaneous flap (PMMF) introduced by Ariyan in 1979 has been used as a workhorse flap for the reconstruction of the head and neck defects in the following three decades.[8]. Advantages of this flap include its easy harvest, abundant soft tissue volume, large skin paddle, relative versatility, considerable reliability, and short operating time. Disadvantages of the PMMF include excessive bulk in some situations, deformity of the thoracic wall, function impairment of the neck and shoulder, high incidence of complications and partial necrosis of its skin paddle, and possibly poor function outcome of the recipient site[9]. However, we found in our practice that the role of the PMMF is irreplaceable, even though free flaps are our main armamentarium for the reconstruction of head and neck defects. It can safely be used not only as a "salvage flap" in cases with flap failure or complications (e.g. fistula and carotid rupture) but also as a primary procedure in patients who were predictably high risk candidates for a free flap, in situations where bulky flaps are needed (e.g. total glossectomy reconstruction).[10].

PMMFs has been reported to be an appropriate option for reconstruction of extensive neck soft tissue defects resulting from ablative surgery for cervical metastasis involving the overlying skin, since it allows both large volume soft tissue coverage and protection of the carotid artery[11]. Further studies are needed to verify these propositions.

## CONCLUSION

Delayed or impaired wound healing in the oral cavity should alert the clinician to the possibility of an insidious, underlying malignancy. Complete investigation, thorough evaluation of signs and symptoms, prompt treatment and early diagnosis, will correlate with a better outcome for the patient.

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