Case Report Paper

Adenocarcinoma of the mandible: Metastasis from the prostate- a case report

Karpal Singh Sohal\textsuperscript{1*} and Jeremiah Moshy\textsuperscript{2}

\textsuperscript{1}Department of Oral and Maxillofacial Surgery, MNH, Dar es Salaam, Tanzania.
\textsuperscript{2}Department of Oral and Maxillofacial Surgery, MUHAS, Dar es Salaam, Tanzania.

Accepted 10 July, 2015

Metastatic tumors to the oro-facial region are uncommon accounting for 1 - 3\% of all malignancies of the jaw and may occur in the oral soft tissues or jawbones. The clinical presentation of metastatic tumors can be variable, which may lead to erroneous diagnosis or may create diagnostic dilemma. We present the case of an 82 year-old man with metastatic adenocarcinoma of the prostate involving the mandible, and other body skeleton.

Key words: Metastatic tumours, jaw, prostate, evaluation criteria.

INTRODUCTION

Metastatic tumours to the maxillofacial region have been rare accounting for 1-3\% of all malignancies of the jaw (Irani, 2004; Kumar, 2013). The most common site for bone metastases in the head and neck region is the mandibular bone, comprising more than 70\% of all malignant metastatic tumors in the oral cavity (Irani, 2004), and the most frequent location is the molar region (Court, 2007; Gomez, 2009). Cancers that commonly metastasize to the oral cavity originate from the breast, the kidney, the lung and the prostate (Adebayo, 2004).

In the majority of patients who present an oral metastasis, the primary tumor has generally been well diagnosed and treated. However in a small number of patients the oral metastasis represents the initial finding which ultimately leads to the detection of a hidden malignant lesion (Court, 2007). Metastatic lesions may mimic odontogenic infections and other disease conditions in the oral cavity in presentation (Kumar, 2013; Adebayo, 2004) thus leading to late diagnosis by the unwary clinician, this can be attributed to metastasis to the jaw bones being uncommon.

The presentation of mandibular metastasis follows a clinical pattern characterized by irradiated dental pain in the third molar region, pain in the temporomandibular joint region, rapid development of swelling, pain and paresthesia, dental mobility and/ or trismus(Court 2007; Elahi 2014).

A number of primary malignancies particularly breast cancer, prostate cancer, lung cancer and renal cancer, spread to the bones during the metastatic process. Within the skeleton, bones with red marrow are the favored sites for metastatic deposits. In contrast, jawbones have a less active marrow, mainly in elderly persons. However, remnants of hematopoietic active marrow can be detected in the posterior areas of the mandible and sites with high hematopoietic activity attract metastatic tumor cells (Kumar, 2013).

The purpose of this article is to bring into attention of the dentists/ clinicians a case of a metastatic adenocarcinoma, and the evaluation criteria that can be helpful in determining the metastatic lesions.

CASE REPORT

An 82 year-old male presented to the dental department in Muhimbili National Hospital (MNH) in February 2015 with a progressive swelling on the lower Right jaw for almost 5 months. Prior to the swelling patient reported to have had mild to moderate localized pain in the lower
jaw. This had started spontaneously, and was continuous. Subsequently, he started to notice a swelling on the lower right jaw around the region of tooth 47 - 48. The swelling increased in size gradually in all directions and was associated with tooth mobility. Then, he started to experience numbness around the chin, which was more pronounced on the right side and was increasing progressively. The patient had been to several health centers prior to reporting to MNH, where he was diagnosed with Odontogenic infection and was given some medications which patient could not recall, however the problem did not respond to pharmacological therapy.

In 2012 he had a prostate biopsy which revealed adenocarcinoma, and He was treated by surgery (prostatectomy and orchidectomy). Following the surgery, the patient was reviewed by the urologist every 6 months, whereby PSA test was done in each follow-up visit to check the levels, which remained within normal range 0.77ng/m (for almost 2 years). However in early January 2015, the patient’s PSA levels raised to 62.74ng/mL.

On general examination, the patient seemed otherwise healthy, with normal skin, not anemic, not febrile, with normal breathing movements and no bone or joint pains or tenderness.

Extra oral physical examination revealed a right mandibular swelling which was firm, tender and fixed to underlying structures with otherwise normal overlying skin (Figure 1). The intraoral physical examination revealed a swelling on the right body of mandible, which extended from level of tooth 46 to the retro-molar region, with more of buccal bone expansion. On palpation, the lesion was firm, mildly tender and fixed to the underlying structures (Figure 2).

Several radiological and histological investigations were undertaken. Radiographically, an irregular ridge with osteolytic areas in region of ascending ramus to level of tooth 46 was seen in the Orthopantomograph, with tooth 47 appearing floating (Figure 3). Histopathological study of the lesion revealed a tumour with lobular pattern of growth containing epithelial cells which formed irregular glandular structure with occasional cribriform pattern. Cells were large cuboidal with mild nuclear pleomorphism, and rare mitotic figures, thus diagnosis of adenocarcinoma was made (Figure 4).

Full blood picture of the patient was almost normal and PSA levels had raise to 100 ng/mL. The chest X-ray showed multiple radio opacities on the Right lung signifying metastasis to the lungs (Figure 5). In the scintigram with 99m Tc MDP, the trace marker was intensively accumulated in the right mandible, sternum, thoracic vertebrae, pelvic wings, right ischium and left humeral head (Figure 6). In regard to treatment, because of the evidence of widespread disease, the patient was referred to the oncology department where he was to receive palliative chemo-radiotherapy.

Discussion

The metastatic process involves sequential progression of the primary tumor towards invasion and spreading of cancer cells through the lymphatic or blood vessels. Metastasis, which is potentially inherent in any malignant tumour, depending on histology, involves most often regional lymph nodes rather than distant organs (Scipio, 2001).

Metastatic tumours are those which originate from
Figure 3. OPG showing an osteolytic lesion on molar – retromolar region.

Figure 4. a. neoplastic cells in stroma of connective tissue, with formation of irregular glandular tissue and perineural invasion (X100) – Prostate.
b. neoplastic cells in stroma of connective tissue, with formation of irregular glandular tissue and perineural invasion (X400) – Prostate.
c. epithelial cells which formed irregular glandular structure with occasional cribriform pattern, mild nuclear pleomorphism, and rare mitotic figures (X100) – metastasis in mandible.
d. epithelial cells which formed irregular glandular structure with occasional cribriform pattern, mild nuclear pleomorphism, and rare mitotic figures (X400) – metastasis in mandible.

Figure 5. Bone scintigram with 99m Tc MDP revealing accumulated in the right mandible, sternum, thoracic vertebrae, pelvic wings, right ischium and left humeral head.

Figure 6. Chest x-ray of the patient revealing multiple radio opacities on the right lung.

distant body sites; lesions due to spread from adjacent sites or those due to local recurrence are not regarded as metastatic. Metastatic lesions are very noteworthy as their appearance may be the only symptom of an underlying malignancy and/or the first evidence of dissemination from the primary site (Adebayo, 2004).

More than 70% of all metastatic tumors of the oral cavity involve the body of the mandible and molar areas because this region contains a deposit of hematopoietic tissue, and the mode of spread is almost always hematogenous (Moorman, 1954; Kricum, 1985; Morgan 1990).

The important question a clinician should ask is where does the metastases originate from and what signs and symptoms that are presented prove the lesion observed is a secondary deposit. The answer to this question should be a matter of good clinical and physical evaluation of the patient together with clinical chemistry studies, radiological and histological evaluation to specify the organ of origin. In the case reported, the lungs and prostate were involved, but prostate was pointed as a specific organ from where the tumour originated because the clinical history showed that the patient had operation of similar tumour of the prostate. Moreover clinical chemistry study conducted showed the level of PSA was higher pointing that the metastasis originated from the prostate. Furthermore the histological evaluation of the current tumour showed characteristics of the previously operated tumour of the prostate, hence proving that prostate was origin of the tumour.

Oral metastasis is considered as a late complication and frequently associated with multiple organ metastases (Lakshmi, 2014). Oral metastases can grow rapidly causing pain, difficulty in chewing, dysphagia, disfigurement and intermittent bleeding thus leading to poor quality of life (Kumar, 2013; Adebayo, 2004).

The signs and symptoms a patient presents with are also very important in proving whether the lesion one is
dealing with is a primary or metastatic lesion. Our case presented with a swelling that was associated with localized pain, teeth mobility, and numbness around the chin. The swelling was firm with otherwise normal overlying skin and mucosa. It is important to note that secondary deposit in the jaw may give rise to symptoms while the primary growth still remains silent. It is necessary, therefore, to bear this possibility in mind when examining biopsy specimen from supposed primary tumour of the jaw. Although pain is the commonest symptom, it is not an invariable feature. Alteration of the sensation of lip, when it appears, is always a suspicious symptom as is loosening of teeth. Pathological fracture may occasionally occur. These signs and symptoms do transpire because the metastases are spread through blood and deposited in the cancellous bone causing nerve compression, loosening of the teeth and numbness of the lower lip.

In the case reported, the metastatic lesion in was located in the mandible. The primary tumour was in the prostate. Patient’s oral metastasis pointed to widespread disease and to a poor prognosis, since in such cases, effective treatment is impossible because of the difficulty of delivering drugs only to the specific location of the tumour, the resistance of the tumour cells to antineoplastic drugs and the toxicity of these drugs, which is exacerbated by the patient’s poor health. Palliative therapy remains to minimize suffering. Our patient received palliative treatment and till the time this article was written, has been in good health with minimum complains. However the prognosis for patient with metastatic carcinoma of the jaws is grave, with a dismal 10% five year survival and more than two thirds of the patient die within a year (Regezi, 2003).

Conclusion

Metastasis to the oral region is very rare, thus diagnosis of metastatic condition in the region is challenging to both the clinician and the pathologist. The prognosis of metastatic lesions to the oral cavity is very poor; combination therapy to alleviate the symptoms is the preferred therapeutic modality. The systemic treatment depends on the histology, for example, in prostate cancer, it is hormonal therapy. Moreover, since the metastasis is located in bone, a treatment by bisphosphonates or denosumab may be indicated. Hence, it is the sole responsibility of a clinician to take a detailed history from the patient and order appropriate investigations that will lead to definitive diagnosis of the metastatic lesion and its origin.

REFERENCES