

## **ORIGINAL ARTICLE**

### **Report of six cases of metastatic jaw tumours in Nigerians**

**E. T. Adebayo and S. O. Ajike**

Maxillofacial Unit, Department of Dental Surgery, Ahmadu Bello University Teaching Hospital, Kaduna  
Reprint requests to: Dr. E. T. Adebayo, Department of Dental Surgery, Military Hospital, P. M. B. 5127, Port  
Harcourt 500001. E-mail: [taiwo\\_adebayo@yahoo.com](mailto:taiwo_adebayo@yahoo.com)

#### **Abstract**

**Background:** Metastatic tumours make up approximately one per cent of all oral malignancies. Such tumours may present in the jawbones and oral soft tissues. The commonest oral site is the mandible. Nigerian reports of metastatic tumours to the jaws are very rare.

**Method:** This is a retrospective study of six cases of metastatic tumours to the jaws seen at the Maxillofacial Unit, Ahmadu Bello University Hospital, Kaduna from 1979-1998, representing 1% of all histologically confirmed malignant jaw tumours in the hospital.

**Results:** Unlike in other reports, most (three of our six cases) originated from the thyroid gland while the rest were from the breast, uterus and the nasopharynx. More of our lesions occurred in the mandible (4) than the maxilla (2) and almost all patients presented with oral complaints oblivious of the primary malignancy. These complaints resemble those from odontogenic infections and benign neoplasms. The most common histological type of metastatic tumours in this study was the adenocarcinoma (50%).

**Conclusion:** In view of the similarity in presentation of metastatic lesions to the jaws and other odontogenic tumours and even infections, a high index of clinical suspicion is advocated to ensure early, multidisciplinary care of patients.

**Key words:** Metastatic tumours, jaw, thyroid, Nigerians

#### **Introduction**

Bone secondaries commonly occur following primary malignancies but metastases to the jaws are very rare. Red marrow believed to be necessary for the establishment and proliferation of metastases is scanty in the mature jaws; hence instances of tumour metastases to the jaws are very few.<sup>1</sup> It is estimated that only one percent of all oral malignancies occur due to primary malignancies elsewhere.<sup>2-6, 7</sup> While almost any types of malignancy can metastasise to the mouth, some are found more often than others.<sup>7</sup> Cancers that commonly metastasize to the oral cavity originate from the breast, kidney, lung and the prostate.<sup>7-9</sup>

Metastatic lesions may mimic odontogenic infections and other disease conditions in the oral cavity in presentation leading to late diagnosis by the unwary clinician. In Nigeria, reports on jaw tumours from metastasis elsewhere are quite scarce. This report presents a series of histologically verified metastatic tumours to the jaws collected over 20-years in a Nigerian tertiary oral and maxillofacial care center highlighting the problems associated with late diagnosis and the multidisciplinary implications of the disease.

#### **Materials and Methods**

The materials for this study were collected from records of malignant diseases of the jaws seen at the Maxillofacial Unit, Ahmadu Bello University Hospital, Kaduna, Nigeria between 1979 and 1998. Records inspected were case notes, histology reports and operation notes. Jaw malignancy of histologically verifiable metastatic origin was selected out for analyses of age at diagnosis, gender, presenting complaints, clinical features, histological diagnosis and treatment. Follow-up records of referred cases was not available, also the only patient treated by us did not return for follow-up reviews.

#### **Results**

Out of 415 malignant tumours of the oral cavity seen between 1979-1998, six cases (1.4%) were of metastatic origin. The age range of the patients was from 13 to 60 years, median age 46.5 years 4 patients were above the 4<sup>th</sup> decade of life and there 4 females and 2 males. Five patients presented with complaints of jaw swellings and other features localized to the oral cavity. Only one case was managed at our clinic before referral; two were referred to other specialists while 2 patients were deemed inoperable. One patient

Discharged himself from hospital after tumour diagnosis. Clinical details of six cases of metastatic jaw tumours are in Table 1. A 60years old woman deemed inoperable due to tumour extent at secondary site was given palliative analgesics until she

succumbed two months later at home. No post-mortem examination was done. The patient treated by jaw resection did not return for follow-up, also no record of the entire referred patients was available.

Table 1. Clinical details of six cases of metastatic tumours to the jaws

Patient	Symptoms	Histology	Primary site	Affected jaw	Treatment
1	Facial swelling, pain	Metastatic carcinoma	Breast	Maxilla	Discharged self from hospital
2	Facial swelling, oral mucosal ulceration, ulcerated anterior neck swelling	Adenocarcinoma	Thyroid	Mandible	Radiotherapy
3	Facial swelling, pain, oral bleeding/mucosal ulcer	Metastatic choriocarcinoma	Uterus	Mandible	Referred to obstetrician
4	Facial swelling, nasal obstruction, epistaxis	Papillary adenocarcinoma	Thyroid	Maxilla	Inoperable
5	Facial swelling, tooth ache/exfoliation, exophytic oral ulceration	Follicular adenocarcinoma	Thyroid	Mandible	Jaw resection
6	Facial swelling, pain, tooth exfoliation	Undifferentiated carcinoma	Nasopharynx	Mandible	Inoperable

Patient No. 4 died 2 months after diagnosis.

## Discussion

Metastatic jaw tumours originate from distant body sites and exclude lesions due to spread from adjacent sites or those due to local recurrence. Metastatic lesions are very significant as their appearance may be the only symptom of an underlying malignancy and or the first evidence of dissemination from the primary site.<sup>7, 10</sup> The exact incidence of secondary malignancies in the jaws is difficult to ascertain, as skeletal radiographic surveys are not routinely done in Nigeria. Even when such scans are performed, the jaws are usually excluded. Also for religious and cultural factors, consent for post mortem examinations is difficult to obtain in Northern Nigeria. In the opinion of several authors, only 1% of all oral malignant neoplasm are of metastatic origin.<sup>2-6, 7</sup> The relative frequency of 1% obtained in this series agreed with this view.

The age and sex distribution of metastatic tumours to the jaws are determined by the source. In a review of 110 cases of metastases to the maxilla, patients' ages ranged from 3 months to 81 years while the overall male to female ratio was 1.5:1.<sup>11</sup> Also, malignant tumours with a sex predilection are more likely to metastasise to mouth of persons of that sex.<sup>7</sup> In a recent Dutch study, all cases of oral metastatic tumour originating from the lungs were men while all

whose primary site was in the breast were women. Cases of oral metastatic carcinoma of renal origin however, were equally distributed among the sexes.<sup>7</sup> From our study, more cases in this relatively smaller sample were females (4) than males (2) giving a sex ratio of 2:1. The age range was 13 to 60 years with most cases (4 of 6) above the 4<sup>th</sup> decade of life. This tallies with the fact that cancer is uncommon in children. All but one of the Dutch samples was above 40 years (range 8-90 years, median 60 years) with an equal sex distribution.<sup>7</sup>

According to Batsakis,<sup>5</sup> only 6.1% of 115 metastasizing jaw tumours originate from the thyroid while a review<sup>11</sup> of 110 cases of upper jaw metastases found most (44%) to originate from the kidneys and the bronchus (13%). Fewer came from the breast (9%), testicles (7%), uterus (6%), thyroid (5%), colon and rectum (5%), stomach (5%) and the prostate (3%). Also, out of the 24 cases of oral metastatic carcinoma reported by van der Waal et al,<sup>7</sup> primary tumour sites were the breast (n=6, 25%), lung (n=5, 21%), kidney ((n=4,17%), prostate (n=3, 13%) and unknown (13%). A case (4%) each originated from the cerebellum, colon and the oesophagus. Our results (Table 1) show most (50%) cases were of thyroid gland origin. The rest came from the uterus, breast and the nasopharynx. The surprisingly large frequency of thyroid metastases to the jaws is

suspicious and warrants further study of high rate of occult thyroid malignancy among Nigerians. As in the recent Dutch study,<sup>7</sup> the most common histological type of metastatic tumour in our report (Table 1) was the adenocarcinoma.

Hanahan and Weinberg,<sup>12</sup> have brilliantly described the processes involved in the detachment of tumour cells from the primary cancer site, its transport through the lymphatics or blood stream and establishment of a metastatic tumour site. The literature indicates that metastases are more frequent in the mandible than the maxilla due to paucity of active red marrow in the latter.<sup>1,4,6,13</sup> Apart from the jawbones, other oral sites of metastatic tumour are the gingiva, buccal mucosa, soft palate and the tongue.<sup>7</sup> Tumour metastases to the jaws occur via the blood stream by embolization as the jawbones lack lymphatics.<sup>6</sup> Among 18 metastases to the jawbones, more were to the mandible (n=15, 83%) than the maxilla (17%).<sup>7</sup> In Table 1 there were more mandibular (4) than maxillary (2) sites further demonstrating this predilection. Soft tissue sites also affected were the oral mucosa, which ulcerated and bled due to tumour invasion

Oral metastases may present in various forms: as pain, cheek swelling, tooth loosening, paraesthesia, epistaxis and cervical lymphadenopathy<sup>7,11</sup> or rarely as a pathological fracture in the mandible.<sup>14</sup> It may also occur as a solitary radiolucency of the jawbone.<sup>10</sup> Features in the jaws may be observed before those of the primary site or even after surgical extirpation of the primary malignancy.<sup>7,10,15,16</sup> Metastases to the jaws may be the only evidence of tumour dissemination or part of generalized spread.<sup>7,10,11</sup>

In this report, five of six patients presented with oral features such as jaw swelling, pain and mucosal ulceration. In our study, only one case of adenocarcinoma of the thyroid came with complaint of neck swelling which later ulcerated related to the primary malignancy. In a Greek report,<sup>6</sup> 80% of seven cases presented with features attributable to the primary malignancy. Also, in a recent Dutch study, 16 of 24 patients (67%) knew the site of primary malignancy before the diagnosis of the oral metastatic lesion while the rest (33%) presented with manifestation of metastatic tumour, the primary site was later diagnosed or never found out<sup>7</sup>. This is indicative of the early presentation of cases in the economically advanced countries of Western Europe due to improved health awareness of the population and availability of sophisticated diagnostic facilities. Most of our cases (4 of 6 in Table 1) came oblivious of the primary problem. Also all patients we studied came after a considerable delay period, as reports of previous extractions of mobile teeth, incision and drainage and antibiotic therapy at outlying care centers were common among patients. Since the complaints and features of metastases to the jaws are similar to those of odontogenic infections and other benign tumours in the jaws, a high index of clinical suspicion is necessary to allow for early diagnosis.

The presence of malignant tumour outside its organ of origin indicates spread that portends a poor

outcome hence some authors advocate palliative treatment such as radiotherapy to the affected jawbone for pain relief.<sup>6,13-15</sup> The poor prognosis associated with the appearance of metastasis is exemplified by the fact that 19 of 24 cases (79%) of oral metastatic tumours died within 12 months of diagnosis on follow-up.<sup>7</sup> Curative treatment of an oral metastatic tumour site is considered only if extensive search for other metastases reveal only the oral site combined with an identified primary tumour that is controlled or treated successfully.<sup>7</sup>

The optimal therapy for differentiated thyroid cancer includes thyroidectomy and radiotherapy.<sup>10</sup> Of three cases of metastatic jaw tumours of thyroid origin, one each was managed by mandibular resection, referral for radiotherapy and palliative analgesics for inoperable tumour respectively. It is difficult to speculate on the benefit of the jaw resection performed, as patient did not return for follow-up reviews. It is also doubtful if the patient referred for radiotherapy actually traveled to the University College hospital, Ibadan, Nigeria for the treatment. The cases sent to other specialists for multidisciplinary management did not return to us while two patients absconded after diagnosis.

In conclusion, metastases to the oral cavity are quite uncommon among Nigerians. They may present with features similar to odontogenic infections and benign tumours. Late presentation in our environment limits treatment options. Careful examination and high index of clinical suspicion would facilitate selection for investigations and multidisciplinary treatment.

## References

1. Batsakis JG, McBurney TA. Metastatic neoplasms of the head and neck. *Surg Gynecol Obstet* 1971; 133:673-677.
2. Meyer HL, Shklar G. Malignant tumours metastatic to the mouth and jaw. *Oral Surg* 1965; 20: 350-352.
3. Bernstein JM, Montgomery WW, Balogh K. Metastatic tumours to the maxilla, nose and paranasal sinuses. *Laryngoscope* 1966; 76: 621-650.
4. McDaniel RK, Luna MA, Stimson PG. Metastatic tumours of the jaws. *Oral Surg* 1971; 31:380.
5. Batsakis JG. *Tumours of head and neck*. William and Wilkins, Baltimore. 1979.
6. Zachariades N, Kumoura F, Vairaktaris E, Mezitis M. Metastatic tumours of the jaw; a report of seven cases. *J Oral Maxillofac Surg* 1989; 47:991-6.
7. van der Waal RIF, Buter J, van der Waal I. Oral metastases: report of 24 cases. *Br J Oral Maxillofac Surg* 2003; 41:3-6.
8. Verbin RS, Bouquet JE, Guggenheimer J, Barnes L, Peal RL. Cancer of the oral cavity and oropharynx. In: Barnes L (ed). *Surgical pathology of the head and neck*. Marcel Dekker, New York. 1985:333-360.

9. Bhaskar SN. Synopsis of oral pathology. Mosby, St Louis. 1986:330-360.
  10. Anil S, Lal PM, Gill DS, Beena VT. Metastasis of thyroid carcinoma to the mandible case report. Aust Dent J 1999; 44:56-57.
  11. Harrison D, Lund VJ. Tumours of the upper jaw. Churchill Livingstone, Longmans 1993; 673-677.
  12. Hanahan D, Weinberg RA. The hallmarks of cancer. Cell 2000; 100:57-70.
  13. Zachariades N, Papanicolaou S. Breast cancer metastatic to the mandible. J Oral Surg 1982; 40:813.
  14. Gerhards F, Kuffner H.-L., Wagner W. Pathological fractures of the mandible. A review of the etiology and treatment. Int J Oral Maxillofac Surg 1998; 27:186-190.
  15. Achar MVR. Metastatic hypernephroma occurring in nasal septum. Arch Otorhinolaryngol 1955; 62:644-648.
  16. Edwards WG. Epistaxis from renal carcinoma. J Laryngol Otol 1964; 78:96-102.
-