

Clinical Paper  
Head and Neck Oncology

# Metastatic tumours to the jaws and oral soft tissues: a retrospective analysis of 41 Korean patients

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**Abstract.** This article describes a pooled analysis of 41 Korean patients with metastatic oral tumours. The data reviewed are from Korean dental and medical case reports published between 1983 and 2004. The mean age was 55.2 years, and the male-to-female ratio was 1.9:1. There were more metastases in the jawbone than in oral soft tissues. The lung was the most common primary site for jawbone metastases, whereas the liver was for those of oral soft tissues. In contrast to reports in Western literature of the breast being the most common primary site, the liver was the most common primary site, followed by the lung and thyroid. These differences may be caused by a relatively high incidence rate of hepatocellular carcinoma in Korea.

Key words: metastasis; jawbone; oral soft tissue; Korean.

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Metastatic tumours in the oral region account for about 1% of oral malignant tumours. They are mostly located in the mandible, where a majority occur in the molar region. According to the Western literature, metastatic tumours in the oral region mainly originate from the breast, followed by the lung, kidney, thyroid gland, intestine, prostate gland, stomach, testis and bladder<sup>7,10,11,33,35</sup>.

Recent improvements in the diagnosis and treatment of malignant tumours have increased the average patient survival time. Early detection of metastasis is very

important, especially in oral metastasis where prognosis is usually poor; most patients die within 1 year of diagnosis of oral metastasis, while the 4-year survival rate is estimated to be 10%<sup>2,35</sup>. A general practitioner's role must be emphasized as the first encounter with patients who may have metastatic oral tumours with malignancies elsewhere or with known primaries.

Despite a considerable volume of published studies on metastatic oral tumours from different countries, these tumours have not been thoroughly analysed in

Koreans. This study presents a pooled analysis of patients with metastatic oral tumours, retrieved from the Korean dental and medical literature.

## Patients and methods

Well-documented case reports of metastatic oral tumours published between 1983 and 2004 were collected from the Korean dental and medical literature using Korea Medline and cross-referencing. The search was made using the keywords 'metastatic oral tumour', 'metastatic jaw

tumour' and 'oral metastatic tumour'. A total of 48 cases were selected, including those registered at the Oral Biology Research Institute, School of Dentistry, Chosun University during 1990 and 2004<sup>1,3-6,8,9,13-28,32,34</sup>. Seven cases were excluded from the current study because the reports did not present any clinical, radiographic and histological evidence that could confirm the diagnosis as well as primary sites. The remaining 41 histopathologically confirmed cases were reviewed regarding the primary sites, metastatic region, clinical presentation and histopathological features.

## Results

### Age and gender

Age of patients ranged from 23 to 70 years with a mean of 55.2 years. The mean age for women was 50.2 years and for men was 57.8 years. Twenty-eight patients (68%) were in their 50s and 60s. With the exception of 1 case in which gender was not mentioned, this review consisted of 26 males and 14 females with a male-to-female ratio of 1.9:1. Metastasis to the jawbone occurred more frequently than to soft tissues in both genders. Jawbone metastasis was 2.3 times higher in males (Table 1).

### Primary site

There were 11 oral metastatic cases originating from the liver (26.8%), which was the most common primary site in this analysis, followed by the lung (9 cases, 22%), thyroid (6 cases, 14.6%), female genital organs (4 cases, 9.8%) and colo-rectum (3 cases, 7.3%). There was 1 case each related to the kidney, breast, urinary bladder, stomach, gall bladder, pancreas, oesophagus and lower extremities. Of the 41 cases, 32 had one metastatic lesion, when the oral metastasis was diagnosed, and 9 cases had more than 2 lesions.

Table 2. Histopathological findings for metastatic oral tumours

Primary site	Histological type	Cases
Liver	Hepatocellular carcinoma	11
Lung	Adenocarcinoma	3
	Squamous cell carcinoma	2
	Small cell carcinoma	2
	Giant cell carcinoma	1
	Undifferentiated carcinoma	1
Thyroid	Follicular carcinoma	5
	Papillary carcinoma	1
Female genital organs	Leiomyosarcoma	1
	Choriocarcinoma	1
	Germ cell tumour	1
	Malignant melanoma	1
Colo-rectum	Adenocarcinoma	3
Kidney	Renal cell carcinoma	1
Breast	Ductal carcinoma	1
Urinary bladder	Transition cell carcinoma	1
Stomach	Adenocarcinoma	1
Gall bladder	Adenocarcinoma	1
Pancreas	Pleomorphic carcinoma	1
Oesophagus	Squamous cell carcinoma	1
Lower extremity	Myxoid liposarcoma	1
Total		41

Jawbone metastases (23 cases) were more frequently reported than metastases in oral soft tissues (18 cases). Eight out of 9 lung tumours metastasized to the jaws, the lung being the most common primary site for jawbone metastases, followed by the liver (6 cases) and thyroid (4 cases). The colon, uterus, ovary, urinary bladder and oesophagus also showed jaw metastasis. For soft-tissue tumours, the liver was the most common primary site, followed by female genital organs and the thyroid. The lung, kidney, breast, stomach, gall bladder, pancreas and lower extremities also showed soft-tissue metastasis.

There was a gender difference in the most common primary site: for women, it was the thyroid followed by female genital organs; for men, the lung and liver were the most common. It is interesting that all lung tumour metastases to the oral region

(9 cases) were reported in men, whereas all those from the thyroid (6 cases) were reported in women.

Histopathological findings are shown in Table 2. Hepatocellular carcinoma (HCC, 11 cases) showed the highest rate of metastasis; adenocarcinoma (8 cases) from the lung, female genital organs, colo-rectum, stomach and gall bladder was the next most frequent type, and follicular carcinoma (5 cases) was the third. Most cases were of carcinoma. Two sarcomas were found, which illustrated an extremely rare occurrence in oral metastasis. In 11 (26.8%) cases, metastasis to the oral region was the first indication of the existence of a primary elsewhere. The tumour types of these 11 cases were HCC (5), small cell carcinoma (2), follicular carcinoma (2), choriocarcinoma (1) and germ cell tumour (1).

Table 1. Comparison between metastatic tumours to the jawbone and oral soft tissues

	M:F ratio	Mean age (range)		Most common primary site	Most common oral site
		M	F		
All (n = 41)	1.9:1	57.8 (35-0)	50.2 (23-0)	Liver (11, 26.8%) Lung (9, 22.0%) Thyroid (6, 14.6%)	
Jawbone (n = 23)	2.3:1	55.7 (35-0)	50.3 (29-9)	Lung (8, 34.8%) Liver (6, 26.1%) Thyroid (4, 17.4%)	Mandible (20)
OST (n = 18)	1.1:1	61.1 (50-0)	48.3 (23-0)	Liver (5, 27.8%) Female genital organs (3, 16.7%) Thyroid (2, 11.1%)	Gingiva (10)

M: male; F: female; OST: oral soft tissues; female genital organs: uterus, ovary and vagina.

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