Form 3

Abstract of Thesis

Name （Mazen Aldosimani）	
Title	Relationship Between Lymph Node Metastasis and Image Findings of the Primary Lesion in Gingival Cancer (歯肉癌原発巣の画像診断所見と所属リンパ節転移の関係)

Abstract of Thesis

Objectives: The aim of this study was to evaluate whether computed tomography (CT) or magnetic resonance (MR) image findings of primary gingival carcinoma could improve the accuracy of diagnosis of its lymph node (LN) metastasis.

Methods: I retrospectively reviewed the data retrieved from our hospital database between 2009 and 2013 of 112 gingival squamous cell carcinoma patients who were treated at Osaka University Dental hospital. CT images were obtained using a 64-row multidetector CT scanner, and MRI images were acquired using a 1.5T MR imaging scanner.

Firstly, LNs were classified into positive and negative LN metastasis groups, using previous CT and MRI criteria for LN metastasis. I then evaluated the following five aspects of the primary gingival tumor: tumor size on CT and MRI, tumor signal intensity on MRI, tumor homogeneity on CT and MRI, tumor invasion into neighboring structures on MRI, and tumor invasion into bone on CT.

Tumor size was measured in three directions: bucco-lingual width, antero-superior length, and supero-inferior depth. Tumor signal intensity was evaluated in comparison to the masseter muscle on both T1w and T2w images. Regarding tumor homogeneity, all tumors were classified as either homogenous or heterogeneous. Tumor invasion was subjectively evaluated using previous criteria.

Differences between continuous variables between each of the two groups were evaluated using the Mann-Whitney U test and Student's t-test. The relationship between, and independence among discrete variable

of the ordinal scale between two and more groups were evaluated using the Chi-Square test.

Results: One hundred and seven patients (52 females) were included in this study. Based on CT and MR images of these 107 patients, 43 (40%) patients were diagnosed as positive for LN metastasis and 64 (60%) were negative when conventional image criteria were applied. Image diagnosis showed an accuracy, sensitivity and specificity of 64%, 57% and 68%, respectively.

The superior-inferior tumor depth of the primary tumor of patients with LN metastasis was statistically significantly greater than that of patients without LN metastasis, although no other relationships or differences were found.

In an ROC curve for detection of LN metastasis that was based on change in the tumor depth, the Youden index was found to be a tumor depth of 30 mm. When the cut-off value for tumor depth was set at 30 mm, the accuracy became 69% and the sensitivity was 80%. These values were higher than those for conventional image criteria for LN metastasis.

Conclusion: This study showed that image diagnosis of LN metastasis had an accuracy of 64% and a sensitivity of 57%, when the previous criteria regarding LN metastasis was adopted for gingival carcinoma patients. The supero-inferior tumor depth of patients with LN metastasis was significantly greater than that of patients without LN metastasis. Furthermore, when a cut-off value of 30 mm was applied, longer tumor depth could predict LN metastasis with an accuracy of 69% and a sensitivity of 80%. If clinicians appended tumor depth data to their clinical findings, LN metastasis, including occult metastasis, would be predicted in gingival carcinoma patients.

様式７

論文審査の結果の要旨及び担当者

氏　名　（　Mazen Aldosimani　）		
論文審査担当者	（職）	氏　名
	主 査　准教授	村上　秀明
	副 査　教　授	豊澤　悟
	副 査　教　授	阪井　丘芳
	副 査　准教授	大倉　正也
	副 査　講　師	中澤　光博

論文審査の結果の要旨

本論文は、歯肉癌症例において、頸部リンパ節転移の存在や後発転移の有無と、CT や MRI による原発巣の画像所見との関連を明らかにしようとしたものである。

その結果、原発巣の頭尾径（深さ）がリンパ節転移の有無と関連し、原発巣の頭尾径を 30 mm 以上とそれ未満としたときに、従来の画像診断基準を用いたリンパ節転移診断の正診率や特異度が向上することが明らかとなり、歯肉癌症例における臨床病期の把握を向上させることができると示唆された。

よって、博士（歯学）の学位論文として価値のあるものと認める。