

原文題目(出處)：	Relationship between the appearance of tongue carcinoma on intraoral ultrasonography and neck metastasis. Oral Radiol 2011;27:1-7
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內文：

Introduction

- SCC of the tongue:
 1. usually very aggressive
 2. great propensity to metastasize to cervical lymph nodes
 3. even worse prognosis when associated with metastatic cervical nodes
 4. the metastatic potential should be graded preoperatively to help determine the requirement for neck dissection
- One of the most important factors associated with the development of nodal metastases: the thickness of the lesion
 1. thickness of SCC directly related to the presence of nodal metastasis
 2. procedures routinely performed preoperatively: digital palpation, computed tomography (CT), magnetic resonance imaging (MRI), and biopsies for histopathological examination
 3. Ultrasonography is a noninvasive, rapid, easily repeatable, and inexpensive examination.
- Purpose of this study:
 1. examining the usefulness of intraoral ultrasonography (IOUS) as a tool for predicting neck metastasis
 2. delineating the extent of the tumor based on a comparison with the histopathological findings

Materials and methods

- 19 patients (11 men, 8 women) between 36 and 79 years of age (mean age 60 years) with T1 to T4a TNM-stage tongue carcinomas were evaluated preoperatively by IOUS between February 2006 and January 2009
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Table 1 Data and staging of the cases studied

Case	Age (years)	Gender	US thickness (cm)	Histological thickness (cm)	Ultrasound margins ^a	Type	Grade	Depth of lesion	Inflammatory ^b	Lymph node
1	38	F	0.78	0.6	2	Exophytic	I	Muscle	3	-
2	75	F	1.2	1.1	2	-	II	-	2	+
3	44	F	1.2	1.2	2	-	I	Muscle	2	+
4	47	M	2.4	2	3	Endophytic	II	Muscle	2	+
5	74	M	1.2	1	3	Exophytic	I	Muscle	2	-
6	57	M	1.1	0.7	3	-	I	Muscle	1	-
7	36	M	2.1	2.4	3	-	II	Muscle	2	+
8	49	M	1.8	1.8	1	-	I	Muscle	-	+
9	68	M	3	2	1	-	I	Muscle	-	+
10	49	M	2.8	1.5	3	-	I	Other structures	2	+
11	48	M	0.9	0.6	3	-	I	Muscle	2	-
12	74	F	1.1	1.1	1	-	-	-	-	-
13	64	M	1.58	1	3	-	I	Muscle	-	-
14	79	F	0.54	0.5	2	-	I	Muscle	-	-
15	75	M	3.5	3.5	2	-	II	Other structures	1	+
16	66	F	1.28	1.2	3	-	I	Muscle	2	-
17	70	F	0.75	1	1	-	I	-	3	-
18	56	M	2	0.7	2	Endophytic	II	Other structures	1	-
19	71	F	0.7	0.9	-	-	III	Muscle	-	-

US ultrasonography, F female, m male

^a 1, Well-circumscribed margin; 2, moderately clear margin; 3, diffuse and unclear margins

^b 1, Minimal lymphoplasmacytic infiltration with very few or small groups of lymphocytes at the periphery; 2, moderate lymphoplasmacytic infiltration with multiple, but scattered foci, at the edge and beneath the tumor nest; 3, marked lymphoplasmacytic infiltration occasionally forming band-like confluence

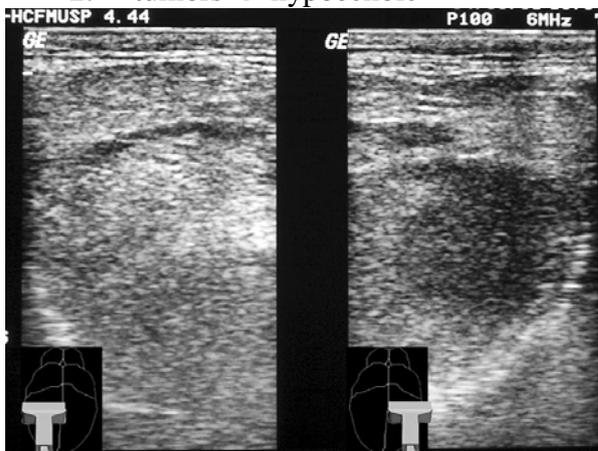
● Sonographic technique



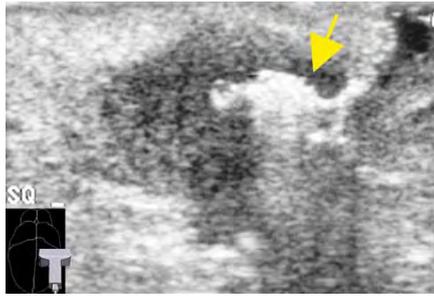
1. B-mode intraoral scanning was performed using a grayscale US system
2. High-frequency T-type linear array probe with lateral field-of view coated with sterile gel and covered with a rubber sheath

Results

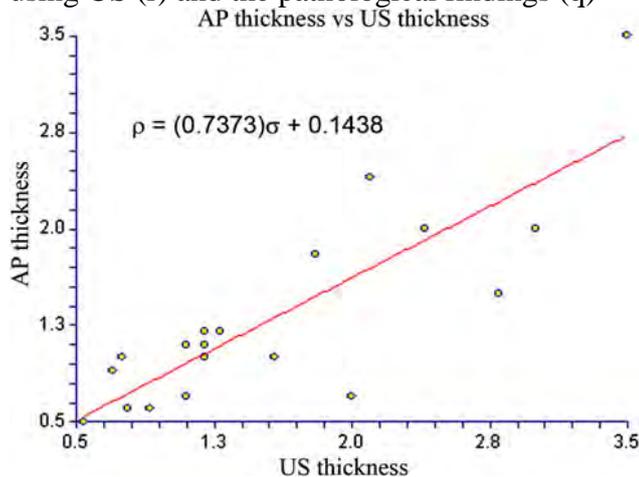
- Intraoral sonography identified all of the tongue lesions.
- Close examination of the findings revealed the sonographic pattern of
 1. normal tongue → homogeneous echogenic tissue
 2. tumors → hypochoic



- When an ulcerated area was present, a hyperechoic image was visualized with posterior sonography attenuation due to air interpositioning



- A significant correlation was observed between the tumor thicknesses measured using US (r) and the pathological findings (q)



- Using the maximum accuracy, the cutoff points for the US and histological tumor thickness for predicting neck metastasis → 1.8 and 1.1 cm, respectively

Table 2 Thickness of the tumor measured by intraoral ultrasonography as a function of sensitivity, specificity, and accuracy at predicting metastasis

Cutoff value (cm)	Ultrasound thickness		
	Sensitivity	Specificity	Accuracy
0.54	1.00	0.00	0.42
0.7	1.00	0.09	0.47
0.75	1.00	0.18	0.53
0.78	1.00	0.27	0.58
0.9	1.00	0.36	0.63
1.1	1.00	0.45	0.68
1.2	1.00	0.64	0.79
1.28	0.75	0.73	0.74
1.58	0.75	0.82	0.79
1.8 ^a	0.75	0.91	0.84
2	0.63	0.91	0.79
2.1	0.63	1.00	0.84
2.4	0.50	1.00	0.79
2.8	0.38	1.00	0.74
3	0.25	1.00	0.68
3.5	0.13	1.00	0.63

^a Cutoff for tumor thickness determined by intraoral ultrasonography (IOUS) for predicting neck metastasis

Table 3 Histological thickness of the tumor as a function of sensitivity, specificity, and accuracy at predicting metastasis

Cutoff value (cm)	Histological thickness		
	Sensitivity	Specificity	Accuracy
0.5	1.00	0.00	0.42
0.6	1.00	0.09	0.47
0.7	1.00	0.27	0.58
0.9	1.00	0.45	0.68
1	1.00	0.55	0.74
1.1 ^a	1.00	0.82	0.89
1.2	0.88	0.91	0.89
1.5	0.75	1.00	0.89
1.8	0.63	1.00	0.84
2	0.50	1.00	0.79
2.4	0.25	1.00	0.68
3.5	0.13	1.00	0.63

^a Cutoff for tumor thickness determined by the histological procedure for predicting neck metastasis

- Of the 19 (42.1%) patients, eight had metastatic lymph nodes
- A tumor with a thickness > 1.8 cm measured by IOUS and 1.1 cm measured in the histological sections had a higher probability of metastatic cervical lymph nodes.
- Among the histopathological parameters: only tumor thickness was a significant predictor of metastasis

- Muscle invasion, histological grade, inflammatory cell infiltration, and desmoplasia were not correlated with neck metastasis ($p > 0.05$)

Table 4 Pathological parameters, neck metastasis, and their univariate and multivariate analyses

Pathologic parameters	Neck metastasis						Univariate analysis <i>p</i> value	Multivariate analysis <i>p</i> value
	Positive lymph nodes (<i>n</i> = 8)		Negative lymph nodes (<i>n</i> = 11)		Total (<i>n</i> = 19)			
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%		
AP tumor thickness							<0.001	NS
≥1.1 cm	8	100.0	2	18.2	10	52.6		
<1.1 cm	0	0.0	9	81.8	9	47.4		
Muscle invasion							0.3747	NS
Present	5	62.5	8	72.7	13	68.4		
Absent	3	37.5	3	27.3	6	31.6		
Inflammatory cell infiltration							0.2499	NS
Type 1	1	16.7	2	28.6	3	23.1		
Type 2	5	83.3	3	42.8	8	61.5		
Type 3	0	0.0	2	28.6	2	15.4		
Histological grade							0.1381	NS
Grade I	4	50.0	8	80.0	12	66.7		
Grade II	4	50.0	1	10.0	5	27.8		
Grade III	0	0.0	1	10.0	1	5.6		

NS not significant: $p > 0.05$

Discussion

- A knowledge of the factors may influence neck metastasis would help to avoid unnecessary surgical intervention for N0 patients
- There is a significant correlation between neck metastasis and tumor thickness→can help in planning the treatment regimen and indicate the disease prognosis
- US images reflect the actual tumor thickness more precisely than the measurements obtained using histological sections
- The main technical limitation of IOUS was apparent when large or posterior lesions were present, primarily due to:
 1. difficulty in accessing the posterior tongue with the probe
 2. induction of vomiting

Conclusion

- Intraoral ultrasonography is useful tool for identifying tongue tumors and measuring their thickness
- Thickness measured by IOUS showing a very good correlation with histological measurements
- IOUS provides prognostic information prior to surgical treatment since tumor thickness can predict the chance of recognizing metastatic cervical nodes

題號	題目
1	下列關於 Squamous cell carcinoma 的敘述何者錯誤? (A) Oral SCC has a varied clinical presentation, including: exophytic, endophytic, leukoplakic, erythroplakic and erythroleukoplakic. (B) The surface of the lesion is often ulcerated and indurated on palpation (C) Destruction of underlying bone appears on radiographs as a “moth-eaten”with ill-defined margins (D) There is severe pain in the early growth phase
答案(D)	出處：Oral and Maxillary Pathology, third edition. P.412~14

題號	題目
2	下列關於 metastasis of Squamous cell carcinoma 之敘述何者正確？
	(A) Metastatic spread of oral SCC is largely through the lymphatics to the ipsilateral cervical lymph nodes (B) Carcinoma of the lower lip and oral floor tends to travel to the submandibular nodes (C) The most common sites of distant metastasis are the brain, liver and muscles. (D) In TNM staging, N0 means no evidence of distant metastasis
答案(A)	出處：Oral and Maxillary Pathology, third edition. P.417~8