



## Correction to: Stiffness of tongue squamous cell carcinoma measured using strain elastography correlates with the amount of collagen fibers in the tumor

Mari Shibata<sup>1,3</sup> · Ayataka Ishikawa<sup>2</sup> · Junichi Ishii<sup>1</sup> · Eri Anzai<sup>3</sup> · Hisao Yagishita<sup>2</sup> · Toshiyuki Izumo<sup>2</sup> · Jun Sumino<sup>1</sup> · Miki Katsurano<sup>1</sup> · Yusoon Kim<sup>1</sup> · Hiroaki Kanda<sup>2</sup> · Masaru Ushijima<sup>4</sup> · Kazuhiro Yagihara<sup>1</sup> · Tetsuya Yoda<sup>3</sup>

Published online: 21 February 2023

© The Author(s), under exclusive licence to Japanese Society for Oral and Maxillofacial Radiology and Springer Nature Singapore Pte Ltd. 2023

### Correction to: Oral Radiology (2022) 38:278–287 <https://doi.org/10.1007/s11282-021-00556-0>

In the original publication of the article, in Methods section of Abstract, the sentence that reads as “Each patient’s tumor stiffness was semi-quantified according to the ratio of cancer to tongue muscle strain measured using ultrasound strain elastography (the strain ratio).” should read as “Each patient’s tumor stiffness was semi-quantified according to the ratio of normal tongue muscle to the tumor strain measured using ultrasound strain elastography (the strain ratio).” In Results section of Abstract, the sentence that reads as “Log (strain ratio) by ultrasound strain elastography was positively correlated with %CFC ( $r_s = 0.379$ ,  $P = 0.024$ ).” should read as “Log (strain ratio) by ultrasound strain elastography was positively correlated with %CFC ( $r_s = 0.379$ ,  $P = 0.002$ ).”

In conclusion section of Abstract, the sentence that reads as “The strain ratio of the cancer to the strain of the tongue

muscle measured through ultrasound strain elastography positively correlates with the collagen fiber content of the tumor area.” should read as “The strain ratio of normal tongue muscle to the strain of the tumor measured through ultrasound strain elastography positively correlates with the collagen fiber content of the tumor area.”

Under the heading “Materials and methods”, in the Ethical approval section, the sentence that reads as “The study was approved by the Institutional Review Board at our institution (No. 722).” should read as “The study was approved by the Institutional Review Board at our institution (No. 772).”

Under the heading “Materials and methods”, in the “Evaluation of squamous cell carcinoma of the tongue using intra-oral ultrasound imaging” section the sentence that reads as “The strain ratio: the ROI strain value of the cancer (%) / the ROI strain value of the healthy tongue muscle (%)” should read as “The strain ratio: the ROI strain value of normal tongue muscle (%) / the ROI strain value of the tumor (%)”

In Fig. 1d caption the sentence that reads as “Ultrasound image plane using B-mode. ROI strain values for the tumor (yellow circles) and normal tongue muscle (red circles) In elastography quantification, the ROI strain value of a tumor is expressed as strain ratio. Strain ratio = the ROI strain value for the tumor (yellow circles) / the ROI strain value for normal tongue muscle (red circled regions).” should read as “Ultrasound image plane using B-mode. ROI strain values for the tumor (yellow circles) and normal tongue muscle (red circles) In elastography quantification, the ROI strain value of a tumor is expressed as strain ratio. Strain ratio = the ROI strain value for normal tongue muscle (red circled regions) / the ROI strain value for the tumor (yellow circles).”

Under the heading “Results”, in the “Strain ratio by ultrasound strain elastography and cut-of values” section, the sentence that reads as “We expressed the SR as the ROI

The original article can be found online at <https://doi.org/10.1007/s11282-021-00556-0>.

✉ Ayataka Ishikawa  
ayataka@cancer-c.pref.saitama.jp;  
marixoxonagoya@gmail.com

<sup>1</sup> Department of Oral Surgery, Saitama Cancer Center, Saitama, Japan

<sup>2</sup> Department of Pathology, Saitama Cancer Center, Saitama, Japan

<sup>3</sup> Department of Maxillofacial Surgery, Graduate School of Medical and Dental Sciences, Tokyo Medical and Dental University, Tokyo, Japan

<sup>4</sup> Clinical Research and Medical Development Center, Cancer Institute Hospital, Japanese Foundation for Cancer Research (JFCR), Tokyo, Japan

**Table 2** A. Correlation coefficients and their *P* values in histopathological factors. B. Partial correlation coefficients and their *P* values in histopathological factors

	logSR <sup>a</sup>	% CCC <sup>b</sup>	% CFC <sup>c</sup>	% TIIC <sup>d</sup>	DOI <sup>e</sup>
<b>A. Correlation coefficients and their <i>P</i> values in histopathological factors</b>					
<b>A-1: Correlation coefficients (<math>r_s</math>)</b>					
logSR <sup>a</sup>	1	-0.135	0.379	-0.149	0.250
% CCC <sup>b</sup>	-0.135	1	-0.174	0.081	-0.212
% CFC <sup>c</sup>	0.379	-0.174	1	-0.318	0.133
% TIIC <sup>d</sup>	-0.149	0.081	-0.318	1	-0.032
DOI <sup>e</sup>	0.250	-0.212	0.133	-0.032	1
<b>A-2: Correlation coefficients (<i>P</i> value)</b>					
logSR <sup>a</sup>	0	0.297	0.002*	0.247	0.049*
% CCC <sup>b</sup>	0.297	0	0.177	0.532	0.098
% CFC <sup>c</sup>	0.002*	0.177	0	0.012*	0.302
% TIIC <sup>d</sup>	0.247	0.532	0.012*	0	0.806
DOI <sup>e</sup>	0.049*	0.098	0.302	0.806	0
<b>B. Partial correlation coefficients and their <i>P</i> values in histopathological factors</b>					
<b>B-1: Partial correlation coefficients</b>					
logSR <sup>a</sup>	1	-0.034	0.328	-0.035	0.208
% CCC <sup>b</sup>	-0.034	1	-0.115	0.029	-0.182
% CFC <sup>c</sup>	0.328	-0.115	1	-0.281	0.024
% TIIC <sup>d</sup>	-0.035	0.029	-0.281	1	0.024
DOI <sup>e</sup>	0.208	-0.182	0.024	0.024	1
<b>B-2: Partial correlation coefficients (<i>P</i> value)</b>					
logSR <sup>a</sup>	0	0.799	0.011*	0.793	0.113
% CCC <sup>b</sup>	0.799	0	0.386	0.828	0.167
% CFC <sup>c</sup>	0.011*	0.386	0	0.031*	0.855
% TIIC <sup>d</sup>	0.793	0.828	0.031*	0	0.858
DOI <sup>e</sup>	0.113	0.167	0.855	0.858	0

<sup>a</sup>LogSR: log (Strain ratio)<sup>b</sup>% CCC: the percentage of cancer cell content in the tumor area<sup>c</sup>% CFC: the percentage of collagen fiber content in the tumor area<sup>d</sup>% TIIC: tumor-infiltrating inflammatory cells in the stromal compartment<sup>e</sup>DOI: depth of invasion\**P*<0.05

strain value (%) of cancer relative to the ROI strain value (%) of the tongue muscle.” should read as “We expressed the SR as the ROI strain value (%) of normal tongue muscle relative to the ROI strain value (%) of the tumor.”

Under the heading “Results”, in the “Correlation of each factor” section, the sentence that reads as “There was a positive correlation between % CFC and log (SR) ( $r_s = 0.379$ ,  $P = 0.024$ ).” should read as “There was a positive correlation between % CFC and log (SR) ( $r_s = 0.379$ ,  $P = 0.002$ ).”

In the original publication of the article, the Table 2 was published incorrectly, the correct Table 2 is given in this Correction.

**Publisher's Note** Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.