Letter to the Editor

Does 3D-measurement of a lung tumor come up to our standard?

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We read with interest the editorials written by Wu *et al.*, and would like to express our sincere and deep gratitude for all the authors.

Three-dimensional (3D) imaging techniques in surgical simulation have come a long way since its introduction in the field of thoracic surgery. Since then, with the development of 3D visualization of organs, blood vessels, and tumors, we, surgeons who usually have no expert knowledge in synthetic imaging, gradually come to use it not only for surgical simulation but also for possible prediction of the pathobiological features of a lung tumor and prognostic outcomes (1-3). Since we have used 3D lung modeling using the Synapse Vincent system (Fujifilm corporation, Tokyo, Japan) routinely for approximately 10 years, every surgeon in our team can easily use the techniques to construct 3D images of each patient with thoracic tumors as well as to semi-automatically quantify the volume of tumor by connecting the end-to-end dimensions of a target tumor with a straight line in an axial plane. Wu *et al.* pointed out the potential data overlap between the patient population in the current study and that in our previous report, and that is intelligible. We have accumulated more than 2,000 patients' data so far in the 3D workstation and made all databased. We retrieved data available to work on some clinical studies from the database. That is why the potential overlap in terms of the patient population existed.

Our study demonstrated very excellent interobserver reproducibility with the intra-class correlation coefficient in the measurement of the solid-part volume of 0.977 among three physicians (4). This would be our reply to address another their concern. Whoever in our team handle the 3D construction of lung anatomical structures or the quantification of tumor volume, overall results are supposed to be consistent. Once we delineate the end-to-end line, whole tumor volume, solid-, and nonsolid-part volume were separately generated. As far as we know, the Synapse Vincent system is the only product by which we can measure the solid-part volume and the nonsolid-part volume separately as of April 2019. However, advances in medical imaging technology is faster than we imagine. We are sure that the integration of novel 3D workstations and artificial intelligence make great strides in the qualitative interpretations of lung cancer imaging in the not-too-distant future.

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Footnote

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