Technical note

Intraoral ultrasonography with wrapped acoustic coupling medium

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Accepted 6 July 2016
Available online 21 October 2016

Keywords: Intraoral ultrasonography; Acoustic coupling medium; Tongue cancer

In patients with cancer of the tongue, the thickness and depth of the tumour are important independent prognostic factors for local recurrence, subclinical nodal metastasis, and survival. 1–3 Intraoral ultrasonography is useful for assessing both factors, 1–3 and intraoral colour Doppler sonography helps to predict delayed cervical lymph node metastases in early-stage cancer of the tongue. 2 Without the use of echo jelly, direct contact of the probe with an oral lesion can lead to poor quality images, (and can also cause discomfort), and repeated use of the probe may transmit pathogens if it is not cleaned properly. To address these issues we wrapped an acoustic coupling medium in fresh cling film for each examination.

In 2014, we used a mobile ultrasound system (Fujifilm Holdings Corporation, Tokyo, Japan) fitted with a 10.2 MHZ L-shaped “hockey stick” probe for intraoral assessment of more than 30 people with cancer of the tongue. We cut an acoustic coupling medium 3 mm thick (Sonagel®, Takiron Co Ltd, Tokyo, Japan) to fit the probe, (Fig. 1) and attached it using cling film (Fig. 2). We used it to measure the thickness of lesions and the depth of invasion in B-mode, (Fig. 3) where it reliably and repeatedly provided good quality images (Fig. 4). After each examination the film was replaced, which enabled the apparatus to be reused safely and easily.

To overcome the poor-quality images, transmission of infection, and discomfort to the patient, Shinozaki et al 1 previously reported using an ultrasound probe with echo jelly as the coupling agent, where it was attached to the probe using cling film. In our experience, the wrapped echo jelly does not function well because it moves around and sometimes loses contact. Our method can overcome these problems and provide good images in the oral cavity simply and comfortably.

Conflict of interest

We have no conflicts of interest.

Ethics statement/confirmation of patient’s permission

We obtained written consent for publication of the photograph. No ethical approval was required.

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http://dx.doi.org/10.1016/j.bjoms.2016.07.032
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Fig. 2. The acoustic coupling medium attached to the probe using cling film.

Fig. 3. Intraoral ultrasound examination using the wrapped L-shaped probe with the acoustic coupling medium to measure the thickness of the lesion.
Fig. 4. Intraoral ultrasound image acquired using the wrapped L-shaped probe with the acoustic coupling medium.

References

