CURRENT POSTGRADUATE STUDENT

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Pathophysiology of oropharyngeal dysphagia in post-irradiated nasopharyngeal carcinoma patients in relation to penetration-aspiration		
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ULTRASONOGRAPHIC EXAMINATION OF THE GENIOHYOID MUSCLE AS A SWALLOWING SCREENING

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Background: The suprahyoid muscles are important swallowing muscles responsible for the anterior and superior displacement of the hyoid bone, which then causes other physiological changes to allow safe bolus transfer. Head and neck cancer patients who have undergone radiotherapy often suffer from dysphagia and aspiration as a result of muscle dysfunction secondary to post-irradiation fibrosis. Compared to videofluoroscopy and fiberoptic endoscopy, the use of ultrasonography as a swallowing examination has the advantages of being radiation-free, non-intrusive, and less expensive.

Objective: To assess the relationship between the contraction of the geniohyoid muscle and 1) the displacement of hyoid bone during swallowing and 2) penetration-aspiration status in irradiated NPC patients.

Method: This was a cross-sectional study. Fourty NPC patients, previously treated with radiotherapy, were recruited from the ENT Out-patient Clinic at Prince of Wales Hospital. Each patient underwent videofluoroscopy, fiberoptic endoscopy and ultrasonography. Hyoid bone movement, geniohyoid activity and penetration-aspiration status during swallowing were measured quantitatively.

Results: The increase in cross-sectional area of the geniohyoid correlated positively with both anterior and superior displacement of the hyoid bone during thin fluid swallows ($p<.05$). However, it did not correlate well with penetration-aspiration status.

Conclusion: Ultrasound imaging as a clinical screening tool, although not being able to replace other swallowing examinations, allows direct visualisation and measurement of individual swallowing muscles. This is part of a larger pathophysiological study of oro-pharyngeal dysphagia in this patient group.