

Ultrasound-Guided Thyroid Fine Needle Aspiration Biopsy—The Way Forward

Dear Editor,

I read with great interest the recent article published in the *Annals of Academy of Medicine Singapore* entitled, 'Surgeon-Performed Ultrasound-Guided Fine Needle Aspiration Cytology (SP-US-FNAC) Shortens Time for Diagnosis of Thyroid Nodules, *Ann Acad Med Singapore* 2014;43:320-4'. Indeed, ultrasound-guided fine-needle aspiration (US-FNA) is an exceptionally valuable and simple approach for the diagnosis of thyroid nodules, and has a much higher sensitivity and specificity compared to conventional palpation-directed biopsy techniques. Non-radiologists (surgeons, endocrinologists or sonographers) are also increasingly involved in US assessment and US-FNA of thyroid nodules, which translates into shorter waiting time for the patient and greater patient satisfaction. Many recent epidemiological studies have shown the rapidly rising incidence of thyroid cancers despite stable low mortality rates of such cancers.^{1,2} Most of the increase was contributed by the rise in the diagnosis of small papillary thyroid cancers, which generally have an indolent course and a favourable long-term prognosis.

Intriguingly, Brito et al¹ have recently proposed that overzealous use of imaging and biopsies by clinicians contributed to this trend. Hence, many professional bodies have strived to produce guidelines to aid clinical decisions in the selection of thyroid nodules for US-FNA, recommending only nodules with suspicious ultrasound characteristics be biopsied.³ Although no single ultrasound characteristic can confidently predict malignancy in the assessment of thyroid nodules, the presence of several suspicious ultrasound features generally provides excellent accuracy in such predictions. The authors in the paper quoted a non-diagnostic rate of 30% in their institution, which was partly attributed to the initial lack of experience in this procedure. In our experience, the presence of a cytotechnologist on-site examining the specimen have been shown to improve diagnostic adequacy through improved sampling, and have largely contributed to a consistent non-diagnostic rate of below 10%. One of the main advantages of on-site assessment is that it allows additional material to be aspirated if the sample is insufficient or if material is needed for ancillary tests.⁴ Furthermore, the presence of a trained biomedical scientist enables good quality preparations to be made. The sampling of nodules with

large cystic components could have also accounted for the authors' higher non-diagnostic rates. The cystic component of the thyroid nodule has been shown to be an independent predictive factor for non-diagnostic specimens.⁵ However, repeat US-FNA often provides an adequate specimen and should be the standard approach to such nodules, given their potential risk of malignancy.

In summary, US-FNA is an excellent modality for the assessment of thyroid nodules. However, clinicians should be aware of the pitfalls of over-diagnoses of such nodules. Non-diagnostic FNAs remain a significant challenge in the evaluation of thyroid nodules and should be communicated with the patient, especially if the nodule in question is particularly cystic. Lastly, the presence of ancillary on-site support has been shown to increase sampling adequacy and should be employed whenever possible.

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Chiaw Ling Chng,^{1,2} MBBS(S'pore), MRCP(UK), FAMS

¹Department of Endocrinology, Singapore General Hospital, Singapore

²Division of Medicine, DUKE-NUS Graduate Medical School, Singapore

Address for Correspondence: Dr Chng Chiaw Ling, Department of Endocrinology, Singapore General Hospital, Level 3, The Academia, 20 College Road, Singapore 169856.

Email: chng.chiaw.ling@sgh.com.sg