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EDITORIAL

Update on Imaging and Interventional Approach to Head and Neck Lesions

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Thyroid nodules are very common in clinical practice. It is important to distinguish malignant and benign thyroid nodules. Baig et al[1] give a detailed description together with superb pictorial illustrations of various malignant features of thyroid nodules on grey-scale ultrasonography. This serves as a good educational review for radiologists and sonographers. The article also discusses the enhanced diagnostic value of colour / power Doppler ultrasonography and ultrasound elastography as an adjunct to conventional grey-scale ultrasonography in differentiating malignant and benign thyroid nodules. A few new recent advances in ultrasound technology are also discussed, and include an automated computer-aided approach to objectively assess the vascularity index between central and peripheral region of a thyroid nodule; the efficacy of superb microvascular imaging (AngioPLUS) and the objective, less operator-dependent, and highly reproducible technique of shear-wave elastography.

Wahab and Abmad[2] conduct a qualitative sonoelastographic assessment of thyroid nodules, using histopathological diagnosis as the gold standard. They have classified their elastography results into six classes according to the colour pattern on the elastography map. The study gives our readers several practical tips on qualitative elastography that include: Class 1 and Class 3 nodules can be safely assumed to be benign and can be followed by sonoelastography without straightaway opting for fine-needle aspiration for cytology (FNAC); sonoelastography is of high utility in multinodular goitre as it can select the nodule for FNAC and this may reduce false-negative FNAC as well as repetitive FNAC; sonoelastography can also help select the hardest part of a solitary nodule to sample.

Bano et al[3] conduct a comprehensive literature review of ultrasound-guided tissue sampling techniques for parotid neoplasm. Core biopsy is the recommended first-line technique compared with fine-needle aspiration. This is supported by evidence that core biopsy has a higher sensitivity for malignancy and lymphoma as well as a lower non-diagnostic rate. The risk of damage to neurovascular structures, haematoma formation, and tumour seeding is minimal.

The head and neck region has a complex radiological anatomy. Tang et al[4] review the imaging features in some common lesions around the parapharyngeal space with illustrative examples of infectious lesion and different kinds of tumoural mass lesions such as salivary gland tumour, glomus tumour, lipoma, and nasopharyngeal angiofibroma. Chu[5] demonstrate the important role of nuclear imaging in detection of ectopic thyroid tissue that shows equally high tracer uptake to the orthotopic thyroid. This article reminds readers that residual ectopic thyroid tissue following total thyroidectomy may jeopardise treatment outcome and cause monitoring conflict.

Vascular malformations are also relatively common in the head and neck region. They usually present at birth and may continue to expand with time resulting in physical disfigurement, profuse haemorrhage, or complications related to associated mass effect. Chiang et al[6] describe their institutional experience of single-stage embolisation with n-butyl cyanoacrylate (n-BCA) followed by surgical resection for vascular malformations at the head and neck region by a multidisciplinary team inside the endovascular operating room. The choice of vascular access to the lesion (direct approach vs intra-arterial route) is discussed relative to the lesion type, site, and vessel characteristic. The choice of n-BCA as the embolisation agent is justified by its ability to form a 'cast' for easy demarcation of the vascular malformations and normal tissue, hence facilitating surgical excision. In addition, n-BCA causes minimal inflammation and is not associated with discolouration of skin or combustion with diathermy. The single-stage embolisation followed by surgical

excision approach is proven to be effective and safe with little complications for vascular malformation. The setting of an endovascular operating room enables radiologists and surgeons to work simultaneously and allows multiple episodes of embolisation following surgical exposure. The availability of digital subtraction angiography in the operating theatre enables intra-operative fluoroscopy and dynamic computed tomography to assess the residual glue cast and guide further resection of the vascular lesion. The above approach increases the efficacy of total or subtotal removal of vascular malformation in a single general anaesthesia session.

In summary, radiologists play a pivotal role in making the correct diagnosis for head and neck tumours, aided by advanced imaging techniques and image-guided biopsy. Furthermore, interventional radiologists are actively involved in the treatment of vascular malformations of the head and neck region. These include ultrasound-guided sclerotherapy for lymphatic malformation and preoperative embolisation of hypervascular lesions. The latter procedure significantly reduces intra-operative blood loss and enables a bloodless operative field for resection and reconstruction.

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