Spaces of the Head & Neck: Differentiation of Pathology on Imaging

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Excluding the orbits, sinonasal & oral cavities, the extracranial head & neck can be subdivided into two regions by the hyoid bone: the supra- and infrahyoid regions. The hyoid bone is the central fascial attachment for the three layers of the deep cervical fascia that form various distinct & functional neck spaces. As these spaces contain unique contents, a space specific differential diagnostic approach can be applied whenever the radiologist faces a neck mass of initially uncertain provenance.

In this lecture, we will review the contents & extents of the main deep fascial spaces of the neck i.e. the parapharyngeal (PPS), pharyngeal mucosal (PMS), masticator (MS), parotid (PS), carotid (CS) and retropharyngeal (RPS) spaces. Patterns of displacement of surrounding structures pointing to the locality of a particular mass will be shown. Important differential diagnoses in each space will be presented, together with relevant typical imaging findings and potential pitfalls. A short quiz will also be shown to consolidate vital information.

Imaging of Sensorineural Hearing Loss

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Sensorineural hearing loss (SNHL) has a variety of causes, and imaging is often employed to ascertain a causative lesion. This lecture will consider this topic in both adults and children. The mainstay of imaging modalities in the investigation of SNHL is cross sectional i.e. temporal HRCT and MRI, though they are used with differing emphases in adults and children.

In adults, vestibular schwannomas constitute 90% of all lesions causing SNHL. This tumour, however, has many mimickers which may also cause SNHL. The imaging findings of various cerebellopontine angle lesions, and other inflammatory conditions (e.g. labyrinthitis ossificans) will be presented together with differentiating features. MRI with administered Gadolinium is the main modality of choice, with HRCT utilised in specific indications.

Children with congenital SNHL are approached differently. In our institution, a combination of temporal HRCT and heavily T2 weighted three dimensional MRI sequences are used for a through inner ear phenotyping. Exquisite neural anatomy is now routinely available by high resolution MR imaging (CISS 3D), providing vital pre-operative planning capabilities to our cochlear implant candidacy programme. The categorisation system of inner ear anomalies used in HCTM will be presented. A short quiz will also be shown.