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Diffusion weighted imaging of the liver

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DWI is integrated increasingly in liver MR protocols given the recent technologic advances in image quality. Liver DWI adds useful qualitative and quantitative information to conventional imaging sequences. It also plays a role in the assessment of focal and diffuse liver diseases due to its high contrast resolution. It is fast non-contrast technique not requiring considerations for patients having contrast media allergy or renal impairment. International consensus on DWI recommends the use for focal liver lesion detection and characterization particularly in patients who cannot receive intravenous Gadolinium based contrast agents. Advanced diffusion methods have potential for staging and evaluation of the progression of liver fibrosis. DWI increases significantly the conspicuity of intra and extra hepatic lesions however; it still a not robust technique with many pitfalls. For the GI specialist, oncologist, radiologist and radiographer who are using liver DWI technique in their clinical practice, it is important to understand a few key principles of diffusion imaging in order to understand the image and the inherent artefacts. This lecture will try to simplify the physics of water diffusion and will provide a practical approach in acquisition and interpretation of liver DWI.

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An atypical case of viral thyroiditis culminating into Grave's thyrotoxicosis

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Statement of the Problem: Grave's disease is an autoimmune condition, characterized by features of hyperthyroidism, such as palpitations, sweating, disturbed sleep pattern, anxiety and atrial fibrillation, to name a few. This disease displays a strong link to both hereditary inheritance and smoking, amongst other factors. The abnormal immune response is characterized by the presence of antibodies directed against thyroid tissue antigens, including antibodies that react with the thyrotrophin receptor by binding to the receptor. Subacute/viral thyroiditis is a form of thyroiditis that can be a causative factor for both hyper/hypothyroidism. The most common form of this condition is De Quervain's thyroiditis, which manifests as a painful enlargement of thyroid gland accompanied by fever and a sore throat.

Methodology & Theoretical Orientation: Information for the case was compiled via GP records, online ICE reporting system, discharge letters and clinic attendance letters on MEDWAY software. Further information was sought out from the endocrinology team based at QEH, Gateshead.

Findings: In summary, this was a case with a learning curve from the endocrine point of view, for two main reasons; one the fact that, this gentleman initially presented with evidence of viral thyroiditis, with TRAB antibodies-negative, following which the inflammatory nature of subacute/viral thyroiditis may have led to the activation of an autoimmune response in susceptible subjects, resulting in the onset of Grave's disease.

Conclusion & Significance: The cause of Grave's disease following subacute thyroiditis is still not known. It is believed however, that the inflammatory nature of subacute thyroiditis, may lead to the activation of the autoimmune response, thus leading to the development of Grave's disease.

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