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Comparision of mri and ultrasound in the diagnosis of peripheral nerve pathologies

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"Comparision of mri and ultrasound in the diagnosis of peripheral nerve pathologies"

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ABSTRACT:
Objective:
> To determine the diagnostic accuracy of MRI and ultrasound in detecting peripheral nerve pathologies comparing the results with surgical/histopathological/ clinical/electrophysiological evaluation.

Materials and Methods:

Ultrasound and MRI were performed prospectively for 43 consented patients with suspected peripheral nerve pathologies. Plain MRI sequences were acquired using 1.5 Tesla MRI . Later, Ultrasound correlation was done using high frequency probe (12-15MHz) by an examiner blinded to the results of MRI. Ultrasound and MRI results were compared to diagnosis determined by surgical, histopathological, electrodiagnostic or clinical evaluation.

Results:

MRI had sensitivity of 86.84%, Specificity of 100%, Positive Predictive Value of 100%, Negative Predictive Value of 50% and Diagnostic accuracy of 88.37%.
USG had sensitivity of 84.21%, Specificity of 100%, Positive Predictive Value of 100%, Negative Predictive Value of 45.45% and Diagnostic accuracy of 86.05%.
Hence from the study MRI had better Diagnostic accuracy compared to USG in diagnosis of Nerve pathologies.
In the study 97.7% had correlation between MRI and USG.
90.7% had correlation between MRI & Gold standard and USG & Gold Standard respectively.

Conclusion:

Imaging frequently detects peripheral nerve pathology and provides information regarding the morphology of the nerves. However, muscle denervation changes were better identified in MRI and multifocal lesions in USG than MRI. Ultrasound is the preferred as the initial imaging modality for morphological evaluation of suspected peripheral nerve lesions. USG has the added advantage of dynamic imaging and easier imaging of long segment lesions in cases where the part of pathology is outside the MRI field of view.

Key words: Peripheral nerve,ultrasound,fascicular pattern,nerve pathology,tumours.