Multisystem Imaging Spectrum of Tuberous Sclerosis Complex: A Three-Case Series

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Abstract

Background: Tuberous Sclerosis Complex (TSC) is a multisystem autosomal dominant phakomatosis characterized by hamartomatous lesions involving the central nervous system and various extracranial organs. Radiological evaluation plays a central role in diagnosis, phenotypic characterization, and longitudinal surveillance due to the wide spectrum of organ involvement and potential for morbidity.

Case Series Description: We present a descriptive case series of three clinically diagnosed patients with TSC who presented to the Department of Radiodiagnosis, Government Medical College, Thiruvananthapuram and underwent comprehensive imaging evaluation. All patients underwent MRI brain, with additional abdominal imaging for systemic assessment.

Neuroimaging across all three cases demonstrated classical features including multiple cortical and subcortical tubers, subependymal nodules, and radial white matter migration lines. No significant obstructive hydrocephalus or definite subependymal giant cell astrocytoma was identified. Abdominal imaging revealed bilateral renal angiomyolipomas in all patients, confirming multisystem involvement.

Discussion: The imaging findings correlated well with established diagnostic criteria for TSC. This series underscores the importance of MRI as the modality of choice for intracranial evaluation and highlights the necessity of systematic extracranial screening, particularly for renal manifestations, which carry potential complications.

Conclusion: Recognition of the characteristic imaging constellation of TSC enables confident diagnosis and facilitates appropriate surveillance strategies. Comprehensive radiologic assessment remains pivotal in reducing disease-related morbidity through early detection of complications.

Index Terms

Tuberous Sclerosis Complex, Cortical Tubers, Subependymal Nodules, Renal Angiomyolipoma, Multisystem Imaging