

RETROSPECTIVE DESCRIPTIVE ANALYSIS OF MRI FINDINGS IN SOFT TISSUE SARCOMA OF THE EXTREMITY

Ho WS¹, Nor Hazla MH¹, Sharifah M²

¹Department of Orthopaedics, Pusat Perubatan Universiti Kebangsaan Malaysia

²Department of Radiology, Pusat Perubatan Universiti Kebangsaan Malaysia

INTRODUCTION:

Soft tissue sarcomas (STS) are a heterogeneous group of rare tumors that involve the connective tissue of the body. The paucity of data especially in Asia Pacific region and the heterogeneity of the Magnetic Resonance Imaging (MRI) findings makes it difficult to accurately diagnose STS¹. We evaluate the interobserver reliability (IOR) between MRI findings and histopathology of STS.

METHODS:

Twenty eight patients with histologically confirmed diagnosis of STS of the extremities under our follow up in Hospital Canselor Tuanku Muhriz Universiti Kebangsaan Malaysia were selected into this study from January 2010 to December 2017. The MRI films were traced from local picture archiving and communications system (PACS) server and reviewed by a single radiologist which includes the heterogeneity, margin, presence of necrotic centre, invasion of adjacent structures, and presence of internal hemorrhage. These were compared to the histopathological features and kappa analysis was done to obtain IOR.

RESULTS AND DISCUSSIONS:

Our result showed moderate IOR for STS size ($k=0.46$) and heterogeneity ($k=0.44$) (Tab. 1).

FEATURES	COHEN'S KAPPA VALUE
SIZE	0.46
HETEROGENECITY	0.44
NECROTIC AREA	0.27
INVASION TO STRUCTURES	0.25
MARGIN/CAPSULE	0.10
INTERNAL HEMORRHAGE	0.

Table 1: Cohen's Kappa value to assess IOR between MRI and histopathological analysis. k values ≤ 0 as indicating no agreement and 0.01–0.20 as none to slight, 0.21–0.40 as fair, 0.41–0.60 as moderate agreement.

Signal heterogeneity was ranked highest by Chung et al followed by size and the depth of the tumor to differentiate between a benign or a malignant lesion on MRI. When combined these could have sensitivity of 64 per cent specificity of 85 per cent in differentiating between a benign and a malignant lesion². Both these features had a moderate IOR when compared in our study. Internal hemorrhage showed poor IOR as MRI is not sensitive enough for minute hemorrhages.

CONCLUSION:

Correlation of MRI findings of STS to its histopathological diagnosis remains fair to moderate at most. We recommend that tissue biopsy is still the gold standard to diagnosis STS.

REFERENCES:

1. Wang et. al. Ann Acad Med Singapore 2010;39:771-777.
2. Chung et. al, The British Journal of Radiology 2012;85:831-836.