

Should magnetic resonance imaging for tumours of the musculoskeletal system be performed in a sarcoma-designated health care center?

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Introduction: Tumours of the musculoskeletal system are rare entities, and imaging these lesions can be challenging. Reports of magnetic resonance imaging (MRI) findings are crucial in the management of these tumours; reports dictate patterns of referral, guide treatment decisions and aid in pre-operative planning. The objective of this study is to evaluate the adequacy of MRIs of musculoskeletal tumours reported outside of a high volume sarcoma center.

Methods: A retrospective review identified 184 consecutive surgical referrals to a high volume multi-disciplinary sarcoma centre from July 2010 to June 2011. Sixty patients (33 females; 27 males) met the inclusion criteria, and had an initial MRI performed in a referring institution. Primary bone tumours were present in 12 patients (20%), whereas 48 patients, or (80%), had soft tissue lesions. An adjudication panel of two musculoskeletal-trained radiologists and two orthopedic oncologists evaluated all diagnostic imaging studies. Four categories were assessed: 1) technical details, 2) descriptive characteristics, 3) interpretative characteristics and 4) probabilistic parameters, whereby a correlation of descriptors to percentage likelihood of diagnosis was sought.

Results: Thirty-nine of sixty MRI reports (65%) showed discordance between the initial report and secondary interpretations. The major discrepancies observed were inadequate tumour descriptors in 20 reports (51%), and errors in interpretation and differential diagnoses in 17 reports (43%). Inappropriate recommendations were observed in 11 MRI interpretations (28%), and technical sequencing errors occurred in 6 studies (15%) which limited the quality of the interpretation or required repeat scans for contrast enhancement.

Conclusions: This study identified a significant proportion (65%) of discordance in MRI interpretation between referring centres and sarcoma-designated units. Our findings suggest that more accurate reporting for suspected musculoskeletal neoplasia may be achieved by disseminated guidelines and synoptic reporting, or by referral to a centre with expertise in musculoskeletal neoplasia.

Figure 1: Reason for discrepancies in reporting of qualitative characteristics in magnetic resonance imaging performed in non-sarcoma designated centres

