

Differentiation of soft tissue benign and malignant peripheral nerve sheath tumors with magnetic resonance imaging

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摘要

Abstract

PURPOSE: The objective of this study was to differentiate the magnetic resonance (MR) imaging appearance of benign peripheral nerve sheath tumors (PNSTs) from that of malignant PNSTs. **MATERIALS AND METHODS:** Twenty-six patients who underwent MR imaging and had a histologic diagnosis of benign (schwannoma, n=16; neurofibroma, n=1) or malignant (n=9) PNST were retrospectively reviewed. The size, location, shape, margin, and signal intensities of the tumors on precontrast and gadolinium-enhanced MR imaging were analyzed. In each patient, the presence or absence of split fat, target, and fascicular signs was determined. **RESULTS:** The mean size of the benign PNSTs (3.4 cm, S.D.=2.5 cm) was significantly smaller than that of the malignant tumors (8.2 cm, S.D.=3.1 cm) ($P<.001$). Seventeen (65.4%) of the 26 tumors were spindle shaped or ovoid (12 benign and 5 malignant tumors). Contiguity with specific nerves was identified in 15 (88.2%) of the 17 benign PNSTs but in none of the malignant tumors ($P<.05$). Well-defined margins were noted in all 17 benign PNSTs but in only 3 (33.3%) of the 9 malignant tumors ($P<.001$). Five (55.6%) of the 9 malignant PNSTs but none of the benign tumors showed signal intensity change in adjacent soft tissue ($P<.05$). There was no significant difference in signal intensity between the benign and malignant tumors on T(1)-weighted, T(2)-weighted, and contrast-enhanced MR images. The split fat and target signs were present more frequently in the benign PNSTs than in the malignant PNSTs ($P<.05$). **Conclusions:** Benign and malignant PNSTs are often spindle shaped. Recognition of contiguity with adjacent nerves, a well-defined margin, and the presence of the split fat sign may suggest benignity. Imaging features suggestive of malignancy can be a larger size and an infiltrative margin