TITLE: Prevalence and diagnostic significance of fluid/fluid levels in soft tissue neoplasms

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ABSTRACT:

Background/purpose: To describe the prevalence of fluid/fluid levels (FFLs) on MRI in soft tissue tumours and the diagnostic relevance of this finding.

Materials and methods: 726 patients (361 females, 356 males, mean age 47.6 years +/-20.1[S.D.]) presenting with a soft tissue mass over a 7-year period were included. All underwent MRI and histological diagnosis by biopsy/surgical resection. The patients were divided according to presence of FFLs (absent/present) and histology (non-neoplastic, neoplastic benign, neoplastic malignant). Cases with FFLs were sub-categorised depending upon the portion of tumour containing FFLs: <1/3, 1/3-2/3 and >2/3.

Results: 24/726 (3.3%) soft tissue masses contained FFLs. 1/24 (4%) was non-neoplastic lesion (1 ganglion); 12/24 (54.2%) were benign neoplasms (9 haemangiomas, 2 schwannomas,1 hamartoma); 11/24 (45.8%) were malignant neoplasms (1 leiomyosarcoma, 1 liposarcoma, 1 MFH, 1 mxyofibrosarcoma, 2 PNET, 2 synovial sarcomas, 1 spindle cell sarcoma and 2 sarcomas NOS). The presence of FFLs did not help differentiate benign from malignant neoplasms.
Of the 12 benign neoplasms 25% had <1/3, 8.3% had 1/3-2/3 and 66.7% > 2/3 FFLs filling the lesion. Of the 10 malignant neoplasms 20% had <1/3 FFL, 80% had 1/3-2/3 and 0% had > 2/3 FFLs filling the lesion.

Conclusions: The prevalence of FFLs in soft tissue tumours is 3.3%. The presence of FFLs does not reliably distinguish benign from malignant neoplasms, but all lesions with >2/3 FFLs were benign.