

PAPER 53

Clinical impact of whole-body MRI in the staging and surveillance of patients with myxoid liposarcoma: a 14-year single-center experience

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Background: Myxoid liposarcoma (MLS) is the second most common variety of liposarcoma, with a risk of metastasis ranging from 14 to 32%(1). Unlike other soft tissue sarcomas, MLS has a propensity for extrapulmonary metastases(2). Computed tomography (CT), bone scans and Positron-emission tomography (PET) have proven to be of limited use in the screening and surveillance of these patients. In addition, current recommendations for staging and surveillance of MLS also remain unclear and potentially inadequate(3). Whole-body MRI (WBMRI) has been proven a helpful adjunct in detecting extrapulmonary metastases and has also demonstrated usefulness in identifying occult and asymptomatic extrapulmonary metastases(4). However, there are no studies in current literature that have depicted the clinical impact of WBMRI and how the detection of these occult metastases influences the patient's management.

Questions/Purposes:

1. To assess the overall clinical impact of whole-body MRI (WBMRI) in the staging and surveillance of patients with myxoid liposarcoma (MLS).
2. To assess how many instances of lesions detected on WBMRI influenced the patient's treatment.

Patients and Methods:

A retrospective review of the imaging findings and clinical charts of all MLS patients who underwent at least one WBMRI at our institution between Oct 2006 and Dec 2020 was performed. Fifty-six patients (62.5% male, average age: 47.1 years) who underwent a total of 345 WBMRI scans were included. The effects of WBMRI on clinical management, namely treatment modification or additional diagnostic investigations, were studied. Regular biannual WBMRI surveillance was instituted for all metastatic cases in 2015. We also compared the frequency and duration of WBMRI follow-up as well as the patient outcomes for the metastatic group, including survival and development of diffuse or symptomatic metastatic disease, before and after the implementation of regular WBMRI surveillance.

Results:

Seventeen patients (30.3%) had metastases, and 168 WBMRIs were performed for this group. The mean WBMRI follow-up for the entire cohort was 53 months, while the metastatic group had a mean follow-up of 81 months. WBMRI findings led to a change in clinical management in 13 (76.5%) metastatic patients, with 33 instances of treatment modification over 13 years. Out of the 35 lesions labelled 'indeterminate' on WBMRI,

16 had additional investigations/interventions, and 4 of these were confirmed to be metastatic. Twenty-one metastatic lesions were missed initially, later confirmed on subsequent WBMRI scans. Upon confirmation, five of these missed lesions were considered to be of therapeutic significance. Additionally, amongst the metastatic patients, the average survival was longer in the patients who had regular biannual surveillance (defined as biannual WBMRI scans for at least three consecutive years) as compared to those who did not (114.5 months in the former group as compared to 78.9 months in the latter) with a lower proportion of patients developing symptomatic metastases in the biannual surveillance group (37.5% compared to 88.9% in those not having regular biannual surveillance).

Conclusions:

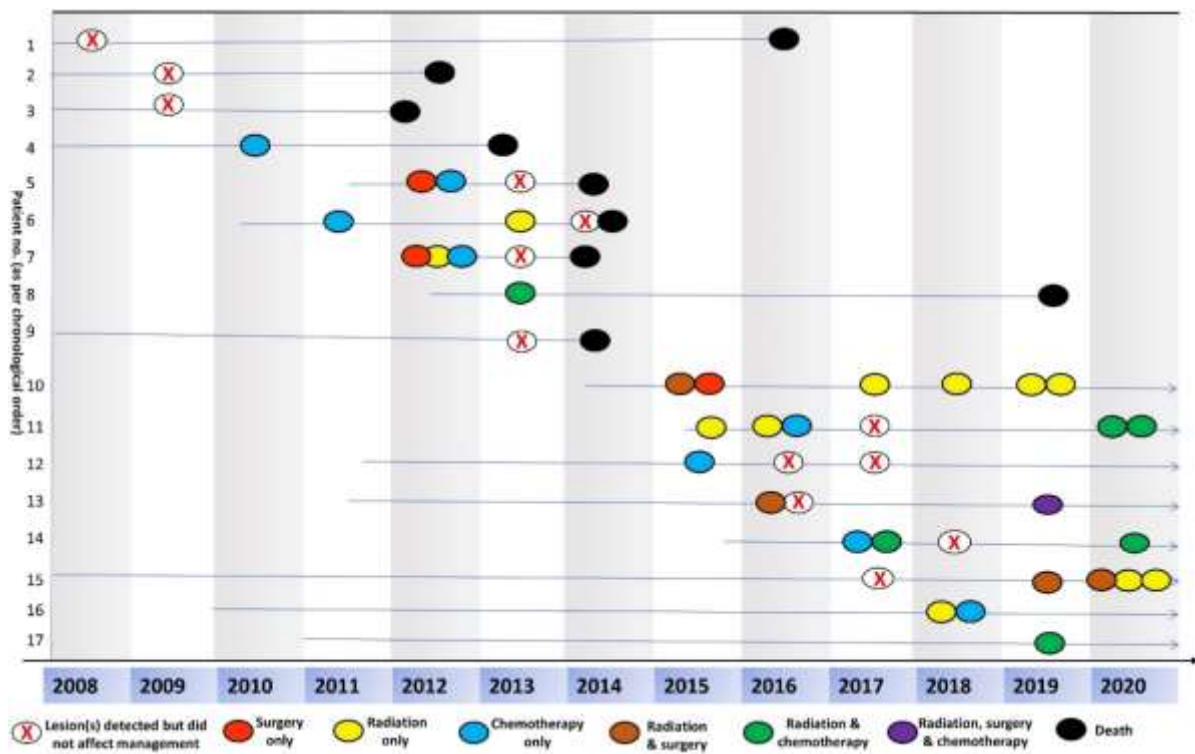
Routine use of WBMRI for staging and surveillance of patients with myxoid liposarcoma considerably impacts clinical management by frequently influencing treatment decisions.

Table -1 Demographic data for metastatic patients

	Metastatic patients not having regular biannual WBMRI surveillance	Metastatic patients having regular biannual WBMRI scans for ≥3 consecutive years
Number of patients	9	8
Total no. of WBMRI scans	45	123
Male:Female	6:3	7:1
Average age at diagnosis of primary (Range), in years	45.9 (33-73)	51.8 (27-63)
Mean duration in months between the date of diagnosis of primary and first metastasis (Range)	46.9(0-100)	33.3(1-149.9)
Total Patients alive (Percentage of total cases)	2 (22.2%)	6 (75%)
Average duration of survival in months (Range) [From the diagnosis of primary]	78.9 (22.9-137.3)	114.5 (63.6-194.1)
Average duration of survival in months (Range) [From the diagnosis of metastasis]	44.4 (2.2-98.6)	62.7 (39.6-87.6)
No. of patients developing diffuse metastases* (percentage of total)	3 (33.3%)	3 (37.5%)
Location of primary tumor (Superficial:Deep)	1:8	1:7
Grade of primary tumor (Low:High)	3:6	1:7
Round cell component absent or <5%	3	1
Round cell component >5%	5	4
Round cell component present but % not mentioned	1	3
Average primary tumor size (cm³)	499.7	649.7
No. of patients undergone neo-adjuvant radiotherapy	6 (66.7%)	8 (100%)
No. of cases with positive surgical margins	2(22.2%)- 1 patient was operated outside- surgical margins N/A	3(37.5%)- 1 contaminated margin
No. of cases post-surgical radiotherapy	4 (44.4%)	1 (12.5%)
No. of patients symptomatic for metastasis	8 (88.9%)	3(37.5%)
No. of patients where the treatment was modified at any point of time following WBMRI	5 (55.6%)	8 (100%)

* Diffuse metastases are defined as multiple (>10) metastatic lesions on a single WBMRI scan.

Figure 1: Timeline showing patient-wise distribution of the instances where findings were detected on WBMRI and the type of therapeutic intervention performed



References:

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