

**Does The Early Development Of Metastases Carry The Same
Significance As Metastases At Diagnosis?**

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Abstract

Background: It is common practice in cancer registries, to consider patients who develop metastases within four months of diagnosis with those who have present with metastases.

Purpose: To establish whether survivorship is affected by early metastases for patients presenting with a sarcoma.

Methods: Retrospective analysis of a prospectively compiled database identifying 6330 patients with a newly diagnosed osseous (3318) or soft tissue sarcoma (3012) including information on prognostic demographic and tumour related factors.

Results: 867 patients presented with metastases (13.7%), 134 developed metastases within 4 months of diagnosis (2.1%) and 11 developed metastases within 6 months (1.7%). Early metastases were associated with high tumour grade and large size and occurred as frequently in bone and soft tissue sarcoma. A strong risk for early metastases was secondary sarcoma, radiation induced sarcoma and dedifferentiated chondrosarcoma. 5-year survival was 13% with metastases at diagnosis and 5% for early metastases ($p < 0.001$). Relapse at 6 and 12 months was associated with a poor prognosis regardless of tumour type, when compared to those with metastases at diagnosis. Relapse was an independent risk factor for prognosis at 4-months (HR 8.9) which compared to a HR of 5.3 for those with metastases at diagnosis. A common risk for relapse was a poor response to chemotherapy whilst those surviving beyond 5-years had metastases that could be surgically removed.

Conclusion: The development of metastases within 4-months of diagnosis is a poor prognostic indicator when compared to patients presenting with metastases. This may represent a failure to respond to first line therapy.