

Secondary Osteosarcoma – Radiation-induced Osteosarcoma

One of the most malignant forms of osteosarcoma (OGS) is the secondary type induced by radiation therapy (usually over 3,000 rads) for a benign or malignant disease process in the past. Radiation-induced OGS in patients with breast cancer who receive local radiation following radical mastectomy and then develop a subadjacent OGS in the shoulder girdle area is one of the most common types. Other malignant diseases that can result in OGS after radiation therapy include Ewing's sarcoma and lymphomas. Benign diseases that can result in OGS following radiation therapy include giant cell tumor, aneurysmal bone cyst, and fibrous dysplasia. The average delay before the occurrence of secondary OGS is 15 years, with a range from 3 to 55 years. The prognosis for this variant is extremely poor, similar to pagetoid OGS. It has a very high rate of metastasis to the lung for which chemotherapy is not effective.