Diagnosis and different types of treatment and management of osteosarcoma, ewing sarcoma, chondrosarcoma.

Arvind Rajwanshi*

Department of Cytology and Gynecologic Pathology, Postgraduate Institute of Medical Education and Research, Chandigarh, India

Abstract

Osteosarcoma, Ewing sarcoma, and chondrosarcoma are three forms of bone malignancies. Despite the fact that these diseases account for less than 1% of all cancers diagnosed each year, their morbidity and mortality are significant. Osteosarcoma is considered to develop when malignant primitive mesenchymal cells transition into osteoblasts, which then produce a malignant osteoid matrix. Osteosarcomas can develop in any bone, but they're most commonly found in the metaphyses of long bones. The distal femur, proximal tibia, and proximal humerus account for about 60% of all cases. 3 The growth plate, which is responsible for active bone production and elongation, is found in the metaphysis of a bone. As a result, osteosarcomas tend to develop at the age and site when bone growth is most vigorous and cells are most susceptible to alterations. Osteosarcomas can spread throughout the body. By spreading intraosseously within the same bone or transarticularly across a joint, such as the tibia and femur, primary cancers can develop "skip lesions." The lungs are the most common site of systemic osteosarcoma metastases. The second most common place for metastases is the bones of another extremity.

Keywords: Osteosarcoma, Ewing sarcoma, Chondrosarcoma, Diagnosis.

Introduction

Ewing sarcoma is the second most prevalent kind of bone cancer in the United States, accounting for around one-third of all occurrences. It is believed that one in 100,000 people aged 10 to 19 are affected. It affects whites and Asians more than blacks. Ewing sarcoma has an unknown cell origin. These tumours are thought to be formed by undifferentiated, primordial neuroectodermal or neural crest cells. Ewing sarcoma is thought to arise from primitive stem cells, with the degree of malignancy varying depending on the stage of stem cell arrest during differentiation. Based on their microscopic appearances, Ewing sarcoma belongs to a category of cancers known as tiny blue round cell tumours.

Chondrosarcoma is a cancerous bone tumour that produces cartilage. With an estimated frequency of one in 200,000 people, it is the least common bone cancer. Chondrosarcoma, unlike osteosarcoma and Ewing sarcoma, usually develops in individuals aged 40 to 75. It is more prevalent in the central skeleton, with the pelvic girdle, vertebrae, and proximal long bones being the most common sites [1]. For identifying malignant bone tumours, plain radiography is the preferable imaging modality. Initial symptoms are frequently associated with minor trauma, and primary care physicians frequently order radiography of the affected limb with a clinical suspicion of fracture rather than bone cancer. Laboratory tests (urinalysis, erythrocyte sedimentation rate, liver function testing, blood urea nitrogen, and creatinine level) should be conducted when radiographic results raise suspicion for bone cancer.

The goal of neoadjuvant chemotherapy is to trigger tumour necrosis and shrink the main tumour, as well as the quantity and size of pulmonary metastases. It has made limb-salvage surgery more feasible by lowering the amount of tissue required to create broad margins. Adjuvant chemotherapy has been shown to reduce postoperative metastases. High-dose methotrexate, doxorubicin (Adriamycin), and cisplatin are three chemotherapy medicines that have been shown to be effective against osteosarcoma.

The most common way for osteosarcoma to spread to the lungs is through blood; 20% of patients first have indications of lung metastases on computed tomography. 16 Chemotherapy is used to treat metastases, just as it is for primary tumours. Induction chemotherapy, on the other hand, does not always completely eliminate metastases. If the location or volume of affected tissue renders surgery clinically impossible, surgical excision of metastatic lung lesions is advised.

The final treatment for osteosarcoma is surgical excision. Resection aims to remove primary tumours with clear margins in order to prevent recurrence and metastasis. With effective limb-sparing resections, 90 percent to 95 percent of patients

***Correspondence to**: Arvind Rajwanshi, Department of Cytology and Gynecologic Pathology, Postgraduate Institute of Medical Education and Research, Chandigarh, India; E-mail: Arvindraj@gmail.com

***Received**: 04-Apr-2022, Manuscript No. AACOCR-22-109; **Editor assigned**: 06-Apr-2022, PreQC No. AACOCR-22-109(PQ); **Reviewed**: 20-Apr-2022, QC No. AACOCR-22-109; **Revised**: 22-Apr-2022, Manuscript No. AACOCR-22-109(R); **Published**: 29-Arp-2022, DOI:10.35841/aacocr-5.2.109*

***Citation:** Rajwanshi A. Diagnosis and different types of treatment and management of osteosarcoma, ewing sarcoma, chondrosarcoma. Allied J Clin Oncol Cancer Res. 2022;5(2):109*

with extremities osteosarcoma avoid amputation. Improved preoperative planning with magnetic resonance imaging, innovations in soft tissue and vascular surgery procedures, and improved fabrication and expansion of endoprostheses has all contributed to the success of limb-salvage surgery. Some big tumours, cases in which essential vascular structures are affected and poor response or tumour development after chemotherapy still necessitate limb amputations [3].

For both local and metastatic disease, disease-specific chemotherapy is standard before and after surgical resection. The use of radiation therapy as an alternative to surgery is a significant difference in the treatment of Ewing sarcoma compared to osteosarcoma. Primary Ewing lesions that are not amenable to surgical resection due to tumour location or size, when surgical margins are positive for residual tumour, when neurologic compromise is present from spinal tumours and for lung metastases are treated with radiation therapy. Surgery is usually preferable when possible because clear-margin excisions increase Ewing sarcoma survival rates. Radiation is also linked to the formation of subsequent neoplasms and is thought to cause increased long-term morbidity by slowing childhood bone growth.

Chondrosarcoma, unlike osteosarcoma and Ewing sarcoma, is usually resistant to chemotherapy. Malignant cartilage cells are assumed to have weak circulatory connections, rendering chemotherapeutic drug delivery ineffective. The primary treatment for primary and metastatic chondrosarcoma is surgical resection. Radiation therapy is reserved for cases where sufficient surgical margins cannot be established, similar to Ewing sarcoma treatment [4].

References

1. Lieberman JR. In: AAOS Comprehensive Orthopaedic Review. American Academy of Orthopaedic Surgeons. 2009;417-42.
2. Marina N. Malignant bone tumors. In: Lanzkowsky P, ed. Manual of Pediatric Hematology and Oncology. 5th ed London, UK: Academic Press. 2010;739-57.
3. Wittig JC, Bickels J, Priebat D, et al. Osteosarcoma: a multidisciplinary approach to diagnosis and treatment. Am Fam Physician. 2002;65(6):1123-32.
4. Rajwanshi A, Srinivas R, Upasana G. Malignant small round cell tumors. J Cytol. 2009;26(1):1-10.

Citation: *Rajwanshi A. Diagnosis and different types of treatment and management of osteosarcoma, ewing sarcoma, chondrosarcoma. Allied J Clin Oncol Cancer Res. 2022;5(2):109*