



Ewing's sarcoma treatment methods

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Dear Editor

Ewing's sarcoma (ES) is a malignant small, round tumor. It is the second most common primary bone tumor in childhood and adolescence after osteosarcoma (1). ES and primitive neuroectodermal tumor (PNET) have the specific t (11;22) (q24;q12) chromosomal translocation. Although there are debates, many now believe that ES arises from mesenchymal stem cells and can also occur extraosseously. Usually, this type of tumor is observed during the first or second decades of life (2).

The most common areas in which it occurs are the pelvis, the femur and the humerus. In the hand, ES is very rare. Kissane JM (3), in a series of 303 cases of ES, identified only one lesion in the hand. Occasionally, the metacarpals are involved, and more rarely, the phalanges are affected. The review of the literature found 17 cases of ES of the fingers that showed the tumor was located at the proximal phalanx in 53% of cases. The thumb (28%) and the long finger (28%) were the most commonly affected fingers (4).

Although, treatment for ES may include surgery, chemotherapy, radiation therapy or a combination of these therapies, radiation therapy is not indicated when the digits are involved because of a high rate of complications (5). For ES of the finger, different surgical treatment modalities have been applied based on tumor location and surgical staging. Most of the literature has emphasized the benefit of tumor resection, not necessarily amputation, as the most important stage in the management of ES of the finger because of the accessibility of the hand. Regardless of the treatment modality, the location of the tumor in the hand is an important factor of prognosis because the

high survival rate in lesions of the distal bone of the extremities (6).

In order to avoid a hand deformation, Kinsella et al. (7) suggested the combination of chemotherapy and radiation therapy without surgery, although the long-term results remain uncertain.

Almost all patients need multidrug chemotherapy as well as local control of the tumor.

Treatment for ES of the short tubular bones as well as other bone and soft tissue areas consists of neo-adjuvant chemotherapy, which often kills the cancer cells and reduces the volume of the tumor mass. After about 3 months, the shrinkage the tumor mass usually enables the surgeon to resect the lesion with appropriate margin. In addition, the histological findings of the specimen determine the usefulness of the induction chemotherapy. To summarize, ES of the short tubular bones of the hand is a rare entity and when it occurs, neo-adjuvant chemotherapy can be of great value in preventing unnecessary amputation (8).

Reference

1. Sherman RS, Soong KY. Ewing's sarcoma: its Roentgen classification and diagnosis. *Radiology*. 1956; 66(4):529-39.
2. Turc-Carel C, Aurias A, Mugneret F, Lizard S, Sidaner I, Volk C, et al. Chromosomes in Ewing's sarcoma. I. An evaluation of 85 cases of remarkable consistency of t (11;22)(q24;q12). *Cancer Genet Cytogenet*. 1988; 32(2):229-238.
3. Kissane JM, Askin FB, Foulkes M, Stratton LB, Shirley SF. Ewing's sarcoma of bone: clinicopathologic aspects of 303 cases from the Intergroup Ewing's Sarcoma Study. *Hum Pathol*. 1983; 14(9):773-779.
4. Baccari S, Hamdi MF, Mabrouki Z, Daghfous M, Tarhouni L. Ewing's sarcoma of the finger: Report of two cases and literature review

.Orthopaedics & Traumatology; Surgery & Research. 2012; 98:233-7.

5. Jerome TJ, Varghese M, Sankaran B. Ewing's sarcoma of the distal phalanx of the little finger. J Hand Surg Eur. 2008; 33(1):81-82.

6. Euler E, Wilhelm K, Permanetter W, Kreusser T. Ewing's sarcoma of the hand: localization and treatment. J Hand Surg [Am]. 1990; 15(4):659-662.

7. Kinsella TJ, Loeffler JS, Fraass BA, Tepper J. Extremity preservation by combined modality therapy in sarcomas of the hand and foot: an analysis of local control, disease free survival and functional result. Int J Radiat Oncol Biol Phys. 1983; 9(8):1115-

1119.

8. Jamshidi Kh, Najd Mazhar F, Moghimi J, Ewing sarcoma of the distal part of the thumb allograft reconstruction to preserve function. JBJS Case Connector 2013; 3 (3): 1-6.

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