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Biologic reconstruction after bone tumor resections in children and adolescents

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Introduction
The bone sarcomas are very frequent in small children and adolescents. The osteosarcoma and de tumors of the Ewing's family are the most common. In this age, we have to consider the growing of the bone, the distance from the tumor to the growth plate and the intense activity of the children. We do not have many options of reconstruction and the amputation, most of the times, are the indicated technique. The purpose of this study is to present our solutions when we decide do not indicate an amputation.

Material and Method
We will present in patients with open epiphyseal plates the biologic techniques of limb preservation. We indicated the reconstruction with non-vascularized fibulae, vascularized fibulae and bone elongation with Ilizarov. The patients, a few days after the surgeries resumed the chemotherapy protocol, without interrpiution. In some Ewing's family tumor patients, we indicated irradiation of the site.

Results
Most of the patients were submitted to non-vascularized and vascularized fibulae reconstruction in humerus, femur and tibia tumors. The fibula was secured in to the bone with screws, special custom-made plates or Ilizarov. The time until consolidation was long but the consolidation occurred in all patients. In most of the patients there was not necessary other surgeries to get consolidation but in some, the consolidation was obtained just after additional minor surgeries, for example, grafting techniques. In others, to get the consolidation, it was necessary to change the synthesis or to use an Ilizarov. As complications, we had some fractures of the grafts but in none of them, we had infection or local recurrence.

Conclusion
Before to indicate an amputation, we have to consider a biological limb salvage procedure.

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