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30-year experience with biological reconstruction at Kanazawa University

Hiroyuki Tsuchiya[1]

[1)] Graduate School of Medical Science, Kanazawa University, Japan

The progress of musculoskeletal sarcoma treatment has been providing the improvement of limb-saving surgery and survival rate in patients with those tumors. Recently, limb-saving tumor surgery, which is not limited for merely saving, aims at much better functional results. The goal of limb-saving tumor surgery is normalization of the affected limbs in function and appearance.

Biological reconstruction after tumor resection is classified into two sub-types. One is reconstruction with living bone such as vascularized bone transfer and distraction osteogenesis. The other one is reconstruction with devitalized bone such as allograft, irradiated autogarft, autoclaved autograft and frozen autograft treated by liquid nitrogen. Each reconstruction method has both advantages and disadvantages. Living bone can provide structure, cells, proteins and blood supply while most of devitalized bones can provide only structure and proteins. Biological healing of bone and excellent attachment between bone and soft-tissue can be specifically expected in biological reconstruction.

In this lecture, I would like to introduce reconstruction methods with distraction osteogenesis, massive frozen autograft and vascularized fibular graft, and also talk about tips how to make the best use of those methods based on our experience of 30 years.

E-mail (main author): tsuchi@med.kanazawa-u.ac.jp