Free-Freezing Reconstruction Assisted by 3D Model for Right Proximal Tibia Osteosarcoma

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Introduction

This video demonstrates a liquid nitrogen surgical procedure. For the free-freezing method, the affected bone is resected using a wide margin and returned to the body after liquid nitrogen management. Currently, three-dimensional models are used for difficult clinical cases, resulting in a patient-specific and accurate image. The authors of this video performed free-freezing reconstruction assisted by a three-dimensional model for right proximal tibia osteosarcoma.

Case

This video discusses the case presentation of a 16-year-old girl. The surgical time was 5 hours and 48 minutes, and intraoperative bleeding volume was 100 mL. Radiographs obtained 6 months postoperatively revealed a bridging callus at the proximal tibia. Full–weight bearing was permitted, and excellent function was achieved.

Discussion

Three-dimensional printing technology is a new technique that recently has been introduced in clinical orthopaedics. Some studies have reported that three-dimensional printing-assisted surgery aids in shortening surgical time and decreasing intraoperative blood loss. Preoperative planning, intraoperative decision making, and visualization of the surgical plan for the treatment team and patients have been reported as additional advantages.

Conclusions

This video demonstrates free-freezing reconstruction assisted by a three-dimensional model for right proximal tibia osteosarcoma. A three-dimensional model is a helpful tool for the surgical team and patients.