

Morning Seminar 2 (MS-2-1)

Application of computer technology in pediatric orthopaedics

Date

June 11 (Fri) 8:45 - 9:45

On-site

502

5 th Floor, Kobe International Conference Center

Streaming

You will be able to attend the meeting either on-site or online.

Moderator

Tetsuya Jinno, MD

Dokkyo Medical University Saitama Medical Center, Japan

Speaker

Yutaka Inaba, MD

Yokohama City University, Japan

Registration

Please register from the congress website.

<http://www.congre.co.jp/apss-apos2021/contents/registration.html>



日整会教育研修講演単位認定番号：21-0528-004

必須分野：[03] 小児整形外科疾患 [11] 骨盤・股関節疾患

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APSS-APPOS 2021

MS-2-1**Application of computer technology in pediatric orthopaedics**

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Abstract

In the field of pediatric orthopaedics, deformity correction of limb is important procedure. In general, bony deformity is three-dimensional (3D) and detailed preoperative planning is important for precise correction of limb deformity. Recently, computed tomography (CT)-based 3D modeling can be easily performed using computer software and this technique is used for preoperative planning. The advances in computer assistance technology have allowed detailed 3D preoperative planning and simulation of preoperative plans. And the use of a computer navigation system as an intraoperative assistance tool allows more accurate execution of the preoperative plan compared to manual operation without assistance of the navigation system.

Corrective osteotomy is performed as a surgical treatment for several pediatric disorders; however, this procedure requires advanced surgical techniques. In hip osteotomy using a CT-based navigation, the navigation allows 3D preoperative planning, intraoperative confirmation of osteotomy sites, safe performance of osteotomy even under poor visual conditions, and a reduction in exposure doses from intraoperative fluoroscopy. For small patients in whom a CT-based navigation cannot be used, a 3D bone model and patientspecific guide by segmenting patient's CT data using 3D slicer software are useful for precise execution of preoperative planning.

Although computer assistance technology is useful for corrective osteotomy, this technology is still in the development stage and has not been adopted widely. We have been using computer assistance technology to prepare 3D preoperative plans for hip osteotomy, both pelvic and femoral osteotomies. In addition, in order to execute the preoperative plans, we use a CT-based computer-assisted navigation. And we have also used a 3D bone model and patients-specific guide for patients who cannot undergo CT-based navigated surgery.

In this presentation, we describe the status of corrective osteotomy with the use of computer-assisted navigation, which we perform at our department, and discuss the future prospects of these techniques.

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