Transcript

0:39 Simulation Model. Craniosynostosis is a premature fusion of cranial sutures and requires surgery to decrease cranial pressure and remodel the affected areas. However, mastering these procedures requires years of supervised training. To shorten the training time, surgical simulation can be used. Several neurosurgical training simulators have been created to shorten the learning curve. Laboratory training is fundamental for acquiring familiarity with the necessary techniques and skills to properly handle instruments. The main goal of this video is to present a novel simulator for training on the endoscopic treatment for scaphocephaly and trigonocephaly, covering all aspects of the procedure, from patient positioning to performing osteotomies.

The video can be found here: https://vimeo.com/512526147
https://thejns.org/doi/abs/10.3171/2021.1.FOCVID20135

KEYWORDS craniosynostosis; surgical training; simulation; endoscopy
a bipolar forceps. This step may reduce the blood loss. This is an endoscopic view of the model showing the superior sagittal sinus just below the sagittal suture. The scaphocephaly model has a real good representation of this sinus. Trainees can try to push down the dura and take out the overlying bone.

4:06 Metopic Approach.

4:09 Demonstration of Placement and Skin Incision. The model is placed in supine position. The skin incision is drawn as low as possible just behind the hair line, which is sometimes difficult to establish in small babies. A W-shaped skin incision will allow to progress a safe subgaleal dissection and bone resection. The model presents skin consistency quite similar to human skin, allowing trainees to experience the difficulties of the technique.

4:48 Endoscopic Technique. In the first step, skin is dissected from the bone. Then, the trainee can enter the endoscope to perform epidural dissection and bone removal. It is very important that the bone resection is progressively following the contour of the bone to avoid too much dura and brain compression. Rongeurs, heavy bone scissors, and chisels can be used to perform the osteotomy up to the frontonasal suture.

References

Disclosures
The authors report no conflict of interest concerning the materials or methods used in this study or the findings specified in this publication.

Author Contributions
Primary surgeon: Coelho, Hinojosa. Assistant surgeon: Delye. Editing and drafting the video and abstract: Coelho, Vieira, Delye. Critically revising the work: all authors. Reviewed submitted version of the work: all authors. Approved the final version of the work on behalf of all authors: Coelho. Supervision: Coelho. Defining video content/format together with corresponding author: Delye.

Correspondence
Giselle Coelho: Santa Marcelina Hospital, São Paulo, Brazil. gigicoelho7@hotmail.com.