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Congenital Medullar Canal and Multi Foraminal Stenosis in a patient With Achondroplasia: Case report and adjuvant use of 3D mould for surgical programming

Breno Nery¹, Rivero L R², Camporeze B¹, Costa R A F¹, Pereira L C¹, Quaggio E¹, Ferreira J P U¹ and Nery C S A¹

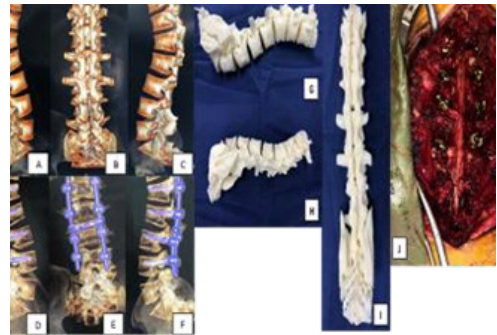
¹Beneficencia Portuguesa Hospital, Brazil

²University of Bristol, UK

Background: The use of 3D printing in the treatment of Spinal Pathologies has given rise to the investigation of its utility as a practical and anatomically precise method. In this investigation, we review the utility of three-dimensional moulds for surgical planning and pathological comprehension in the neurosurgical field.

Case Series And Methods: Case report based on the retrospective analysis of the medical record and complementary exams of the patient associated with a literature review of indexed databases MEDLINE, LILACS, SciELO, BIREME, Scopus, PubMed, Cochrane Library.

Case Report: Clinical History: Patient with Achondroplasia (Dwarfism) that over past 2 years has had developing chronic and progressive neurogenic lameness associated with severe bilateral L2 to S1 Multiradiculopathy due to congenital medullary stenosis of the Lumbar Spine and severe foraminal stenosis from levels L1 to S1 (bilateral). Primary Surgical Procedure: Partial central laminectomy without foraminal decompression undergone in another institution which evolved into progressive worsening of ambulation. Primary Postoperative: At initial consultation after the primary operation had grade II lower limb reflexes, generalized lower limb weakness, and grade II crural paraparesis. Secondary Surgical Procedure: Lumbar Spinal Fusion with electrophysiological monitoring during surgery showing internal fixation site plates, screws, and rods (assist in holding the lumbar vertebra still).



Three-Dimensional Lumbosacral Impressions: To increase safety and decrease the possibility of a lesion to the spinal cord and intraoperative nerves, a 3D cast of the patient's lumbosacral spine was made for pathological evaluation and surgical planning of the second surgical procedure.

Conclusion: The use of three-dimensional impressions in cases with Spinal Pathologies has exceptional potential to improve surgical planning and provide an alternate mode of visualization to assist surgeons with pathological comprehension, overall enhancing surgical procedures to assist surgeons with pathological comprehension, overall enhancing surgical procedures.

Biography

Breno Nery is a Neurosurgeon at Beneficencia Portuguesa Hospital (Ribeirão Preto – Brazil) and PhD student at the Medical School of Ribeirão Preto (Ribeirão Preto – Brazil). He received his M.D. from Universidade Federal de Goiás (Goiânia – Brazil) and did his residency program at Heliópolis Hospital (São Paulo – Brazil). He is interested in General Neurosurgery and especially in Skull Base and Vascular Surgery. Breno had the opportunity to travel the world to learn with the most skilled surgeons in the field. He did his visiting Fellowship in Skull Base Surgery with Professor Madjid Samii (Hannover – Germany) and his Observership focused on Skull Base Surgery and Vascular Surgery with Professor Saleem Abdulrauf (Saint Louis – USA). He also did an observership focused on Endoscopic Surgery at Brigham and Women's Hospital (Harvard Medical School) under the guidance and orientation of Professor Edward Laws, as with Professor Ossama Al-Mefty focused on skull base pathologies. Breno Nery M.D. was honored with first place at the Brazilians' Board Exam (Brazilian Neurosurgical Society). Breno Nery authored and co-authored 13 book chapters and 17 peer-reviewed articles. He is currently a member of the Brazilian Neurosurgical Society and the Walter and Dandy Neurosurgical Society.

e: brenonery84@gmail.com