

DECISION MAKING IN ACQUIRED ADOLESCENT DEFORMITY: CASE DISCUSSIONS IN THE LIGHT OF KFMC EXPERIENCE AND ROLE OF THE O-ARM® AND NEURONAVIGATION IN THEIR MANAGEMENT

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Introduction: The type and extent of surgeries carried out in the management of adolescent spine deformities still lacks evidence-based medicine proof. It is up to the health care provider's sound judgement and expertise to do what is needed for the patient. Management challenges include yet not limited to; decompression near vital vascular or neural structures, decompression at a blind angle, difficult deformities corrections and difficult trajectories for instrumentation. The use of intraoperative CT quality O-arm and neuronavigation are still tested as aiding tools in such operative modalities.

Methods: Among our 600 + cases operated with guidance of O-arm and Neuronavigation since 2008 , we randomly selected 3 cases of complex spine modalities that were operated upon in our institute by the first two authors to be included in this retrospective study. Cases include traumatic spinal fractures, infective, inflammatory, benign and malignant neoplasms affecting different parts of the spinal column. All of them had technical challenges regards adequacy of decompression or safety of instrumentation. All had undergone a combination of decompression deformity correction, and instrumentation of different modalities and/or bone grafting. In all cases the Medtronic O-arm® and Medtronic StealthStation® were used as intraoperative mapping tools. Discussions are intended to be of interactive nature.

Results: Intraoperative navigation tools were so useful in securing adequate neural decompression, neural and vascular tissue safety together with tough bony purchases of the hardware from the first and only trial of application. Intraoperative CT taken by the o-arm was a useful confirmatory intraoperative test of proper hardware placement.

Conclusion: The intraoperative use of the O-arm and stealthStation is very useful in different modalities of complex spine surgeries. Intraoperative confirmation of the proper hardware placement by intraoperative CT is of utmost value in completing the procedure.

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