(R)evolution in spinal surgery

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Editorial

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Like in all fields of orthopedics, spinal surgery is in constant progression. However, after the first wave of technical achievements such as pedicle screws and modern vertebral instrumentation, the description and spread of vertebral osteotomies and the development of minimally invasive surgery, the pace of innovation has been slowing over the last few years. This has not been due to any decline in research: on the contrary, spinal surgery has reached maturity and recent technical developments have stimulated continuing research efforts. The present edition of OTSR thus testifies to an ongoing dynamic and constant progression in all the dimensions of spinal surgery.

Minimally invasive surgery has greatly advanced, and indications are now numerous. It plays an increasing role in the trend supported by the French health authorities toward enhanced recovery after surgery and day surgery [1]. The present edition provides an opportunity to set out the benefits of patient accompaniment programs and of certain recent innovations.

At the same time, extensive surgery, notably for spinal deformity, has also progressed. Analysis of sagittal balance is now central to planning in most spinal surgeries, and current studies are improving knowledge in this area, both in asymptomatic subjects and in patients with a variety of spinal pathologies. Made-to-measure and patient-specific instrumentation is under assessment and contributes perfectly to these developments [2,3].

Experimental research equally features in this special edition of OTSR. Spinal surgery in general is still a promising field of study, enhanced by digitization. Computerized solutions, shedding new light on spinal mechanics and also on variations in outcome, are of ever greater help in patient management.

And lastly, quality of life, rather than exclusively radiological data, is increasingly important in assessing postoperative results. It is now an essential aspect, assessed on patient-dedicated standardized clinical scales. This highlights a fundamental issue in functional surgery: that the prime aim is patient satisfaction.

In the coming decade, our work will further progress, with the spread of new technologies to every stage of the diagnostic process, surgical treatment and specific follow-up. Many health-care sectors are impacted by the digital revolution and advent of artificial intelligence, which is already playing an important role in spinal surgery [4,5]. Digital operative planning tools, navigation, robotics and gait analysis are becoming central, enabling "personalized" surgery, changing our understanding of complex mechanical phenomena, allowing "big data" analyses [6] and providing innovative solutions for training the spinal surgeons of tomorrow.

This edition of OTSR, dedicated to spinal surgery, highlights all of these points and demonstrates the vigor of the teams working in the field. We can expect many good things to come!

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