

Current state of spinal robotics –an AO Spine survey [Abstract]

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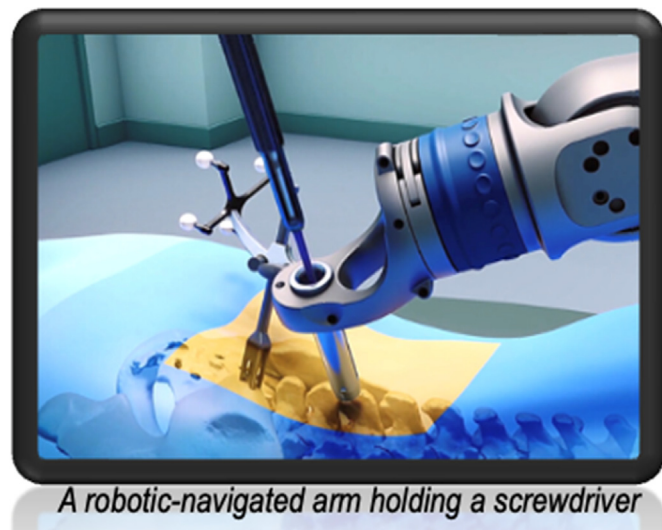
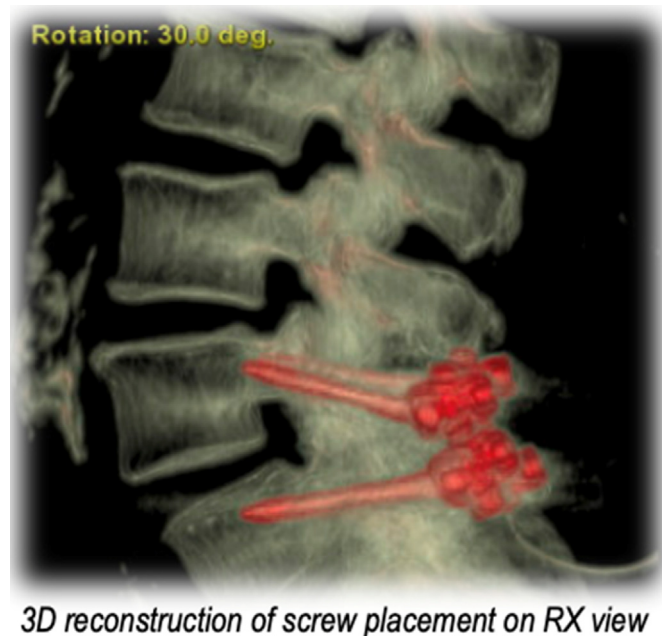
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'spine robot'. Further prospective studies are warranted to validate these findings and explore the long-term benefits of robotic-assisted spine surgery. But at this moment, everything seems to indicate that robotic-navigation will become an indispensable evolution in the spine surgery world within a few years.



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000630

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Rate of unexpected malignancy in patients with vertebral compression fracture undergoing percutaneous vertebroplasty – six years after implementation of a new magnetic resonance imaging scanning protocol

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Introduction: Discrimination between benign and malign vertebral compression fracture (VCF) can be difficult. However, early diagnosis of malignant VCF is crucial to further treatment and prognosis. An earlier study at an orthopaedic department reported a rate of unsuspected malignancy of 4.9% in patients with

VCF who underwent percutaneous vertebroplasty (PVP) when standard biopsies were obtained during the procedure. Independent of the previous study, the magnetic resonance imaging (MRI) scanning protocol was changed after this period, adding a diffusion-weighted whole-body imaging with body-signal suppression (DWIBS) modality to the protocol.

Thus, our objective was to investigate if the rate of unsuspected malignancy in biopsies in patients with VCF who underwent PVP at the same orthopaedic department changed after implementation of a new MRI scanning protocol.

Materials and methods: We performed a retrospective quality improvement study based on data from a national spine registry and subsequently, individual clinical information (MRI description, biopsy results e.g.) from medical records compared to data from the earlier study at the orthopaedic department.

427 patients with assumed osteoporotic vertebral compression fracture undergoing PVP from 28th of April 2017 to 28th of April 2022 were eligible for analysis.

Our outcome was the rate of unsuspected malignancy (%).

Results: The rate of unsuspected malignancy was 0.9% (4/427) and the over-estimation of malignant VCF was 50% (16/32).

Conclusion: During the last 5 years after implementation of a new MRI scanning protocol, the rate of unsuspected malignancy in patients with VCF undergoing PVP has improved considerably from 4.9% to 0.9%. Furthermore, MRI is over-diagnosing malignancies. Thus, the new scanning procedure is effective in differentiating between benign and malign VCFs.

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000669

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Current state of spinal robotics – An AO Spine survey

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Introduction: Robotics in spine surgery has gained popularity in recent years since the indications and implementation tremendously expanded. We designed a survey to provide a landscape assessment regarding the adoption of robotics in spine surgery through the AO Spine regions.

Materials and methods: AO spine members were invited to fill out a 27-question online questionnaire regarding the utilization of navigation and spinal robotics in practice between October 25th and November 13th, 2023. The survey was created using the SurveyMonkey platform (<https://www.surveymonkey.com>; SurveyMonkey Inc., San Mateo, CA, USA) and distributed by the AO Spine email platform and further promoted via social networks. All statistical analyses (descriptive statistics, Pearson Chi-Square tests) and generation of all graphs were performed using SPSS Version 29.0.1.0 (IBM SPSS Statistic).

Results: We received 424 responses from AO Spine members (response rate = 9.9 %). The participants were on average 43 ± 10 years old mostly board-certified orthopedic surgeons (46 %, n=195) or board-certified neurosurgeons (32%, n=136). Respondents from all continents and primarily university hospitals (49.5 %, n=210) took part. Only 16 % (n=68) indicated the use of robotic assistance for pedicle screw placement. 21 % (n=89) of all participants stated they had used a robot during a real patient procedure in their departments with a significant difference based on the geographic origin of the respondents as most of the robotic users came from Europe, Asia & Arab countries, or North America (p=0.006). Further assessment revealed that only 11 % (n=47) of all surgeons use a spinal robot frequently (1-2x/week) while 5% (n=23) possess one but don't use it at all. Although 35 % (n=150) plan to acquire a robotic system in the future, a similar number of participants (36 %, n=153) stated they don't want/need one from a current perspective. On the question of why they have not implemented a spinal robot in their department yet, most participants (77%, n=301) stated that high acquisition costs are a major issue.

Conclusion: Although the hype for robotics recently increased, it still appears that robotic systems are not standard equipment for spine surgeons due to high acquisition costs and limited usability. Further developments appear to be mandatory to justify a broader utilization.

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