

AOSpine Newsletter Issue 22

August 2019

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S Rajasekaran
Chairperson, AOSpine International

Welcome

Editorial

Dear Reader

The first half of 2019 has already passed and I would like to reach out to you with some exciting news from AOSpine.

I am glad to share the good news that there are some exciting and impactful initiatives for our members very soon. The 'AOSpine Global Diploma Project' will be launched in early 2020 with the oral exams being planned during the Global Spine Congress in Rio. This will allow surgeons worldwide an opportunity to have a formal certification for their knowledge in spine surgery from an international society like AOSpine. I would like to thank our education commission led by Bryan Ashman for working out the curriculum and the details of the examination.

The second project is the initiation of 'Expert Clinical Guidance Forums'. These international clinical forums will bring together regional experts to condense and provide their experience in demanding clinical situations often faced in daily practice. The summary of their collective experience and opinion will be very valuable to all our members. More details of these two programs will be available soon.

The Global Spine Congress 2019, which took place in May in Toronto, Canada again set new standards and is growing exponentially. A record 1,501 abstracts were submitted for poster presentation, and 210 expert speakers from countries around the world presented their research. This newsletter reports about the highlights of the Global Spine Congress—the AOSpine Member Representative Election, a report about the Fellows Alumni gathering, the launch of the new Minimally Invasive Spine Surgery curriculum and the women in spine networking event.

Furthermore, lifelong learning is extremely important for any surgeon to keep current and abreast of all knowledge and development in the field. My colleague Satish Rudrappa, a remarkable neurosurgeon from India and the neuro education member of the AOSpine Asia Pacific regional board stresses the importance of lifelong learning, both for individual surgeons and the profession as a whole.

AOSpine continues to be at the forefront of research: AOSpine Knowledge Forum (KF) Tumor has created a multicenter international prospective registry for the management and outcome of metastatic spine tumors, referred to as "M-TRON". The aim is

to establish a global network of spine oncology centers that contributes to a common clinical database.

AOSpine Knowledge Forum (KF) Deformity has launched a study to better understand and interpret neuro-monitoring alerts during complex high-risk corrective spinal deformity surgery. The AOSpine Spinal Deformity Intraoperative Neuro-Monitoring (SDIM*) study is an international collaboration with neurophysiologists, anesthesiologists, and surgeons and will add considerable new knowledge in the field.

I am sure that you will find this issue interesting and informative and look forward to sharing more news with you in early fall.

Yours in AOSpine

S Rajasekaran
Chairperson
AOSpine International



Lifelong learning

Satish Rudrappa shares the positive changes he has witnessed in spine surgery and stresses the importance of lifelong learning, both for individual surgeons and the profession as a whole.

Is this there where you thought you would end up? If you had it to do it all over again, would you still choose to become a spine surgeon?

There has been a noticeable paradigm shift since my career as a spine surgeon began, with many positive changes. I was always minded to work in a field that holds the praise and appreciation of my peers, where co-operative learning takes place, and contributions to future generations is monumental. Despite my career still having a long way to go, I believe I have achieved what I envisioned for myself. However, I'm continuously learning & believe there is still much to contribute. Spine surgery is a field with a lot of challenges especially with cases involving degenerative spine requiring significant refinement in the field.

Why did you choose spine surgery?

35–40% of work in any busy neurological center is related to spine surgery, including cases of intradural and intermedullary work. During my time as a resident doctor, most spine disorders were treated with laminectomies and foraminotomies, irrespective of the type of disorder. While this did provide short-term relief, it was highly unstable in the long run. This shortcut solution perturbed me a

great deal and inspired me to be well versed in spine diseases as a whole. To achieve this, I took a clinical fellowship in the USA. This helped me to reinvent myself as a spine surgeon, and the spectrum of patients we have in India made me reasonably well versed in any type of spine surgery.

What achievement you are most proud of?

Spine surgery was considered a domain of orthopedic surgery in most of the Asian countries, but I've always considered it to be a separate specialty. During the creation of AOSpine India, we introduced separate positions for education officers in orthopedics and neurosurgery. This created a harmonious culture of spine education, which was patient-centric, and yielded greater levels of co-operation between the specialties. In fact, over 90% of fellows who have graduated under me are orthopedic-trained specialists.

Spine surgery was considered a domain of orthopedic surgery in most of the Asian countries, but I've always considered it to be a separate specialty. During the creation of AOSpine India, we introduced separate positions for education officers in orthopedics and neurosurgery. This created a harmonious culture of spine education, which was patient-centric, and yielded greater levels of co-operation between the specialties.

I have great belief that spine surgery should not be restricted just to spine, but also to intradural and intramedullary procedures. I perform and teach spine and spinal cord surgeries, including scoliosis, and have trained all of

my fellows to learn these procedures too. During combined spine and spinal cord procedures, the barrier between orthopedic and neurosurgical disappears. I have propagated this message to my fellow peers and hope to see this concept present worldwide.

Another achievement of which I am proud, is inculcating ethics in the practice of spine surgery every step of the way. It is my vision to see every fellow follow these principles throughout not just their careers, but also through life.

Who has had the greatest influence on your career? Who was the most inspiring person in your life, and why?

My parents and Mahatma Gandhi are the most inspiring people in the world for me.

My mother—the most intelligent person I have encountered in my life—taught me that 'knowledge is enlightenment', and this always reverberates in my mind. She put wonderful discipline in me during my formative years. On the other hand, my father was a great soul who could help anyone in need at any time. I learned "micro philanthropy" through his selfless acts. Today, I teach my residents and fellows the principles of "Individual Social Responsibility" (ISR).

Mahatma Gandhi is a leader I always looked up to—a stubborn leader who worked with great conviction, which was both futuristic and inclusive. I always followed his principle of honesty and to work for the society

we live in.

My wife and our two children are positive enforcers to me. Their immense encouragement and adaptability to my schedule has contributed significantly to my work.

How does a typical work day look like for you? How many surgeries do you perform and what is your most frequent operation?

Most working days begin around 8am. I typically operate five days a week, and run an outpatient clinic every day from the early hours of the evening to past 9pm. I teach fellows and residents every day during in-patient rounds. Once a week we have resident teaching sessions, Journal clubs. On a yearly basis, I operate close to 600 surgeries, 60% of which are spine-related. The remaining 40% are brain surgeries.

“There has been a drastic improvement in the quality and skill of spine surgeries in India and Asia, in the last three decades. Crediting to the large Asiatic population and economic growth in the region, spine surgery has taken a great leap.”

With regards to spine surgeries, I typically perform degenerative cases, CVJ (Cranio-Vertebral Junction) pathologies and tumor surgeries. I have formed a team that is efficiently capable of performing a great number of surgeries, in an effective manner. ‘Team Work’ is a motto that radiates amongst all the members of the team and is the key for success in our department.

What do you consider your biggest learning as a surgeon?

Learning to perfection is key to any surgeon—more so with spine surgery as a small error can lead to disaster. With keen learning we speak less about complications to patients, which indirectly improves patient and community confidence in spine surgery.

How would you characterize spine surgery in India today?

There has been a drastic improvement in the quality and skill of spine surgeries in India and Asia, in the last three decades. Crediting

to the large Asiatic population and economic growth in the region, spine surgery has taken a great leap. There are a good number of trained spine surgeons practicing in every major center in the country. There are vibrant spine societies propagating standardized care. I should credit AOSpine for taking an active part in collaborating with many spine surgeons in the country and helping to teach excellent principles of spine surgeries, especially to budding spine specialists.

What do you believe to be the emerging challenges and developments coming in the next five years?

The biggest challenges we face are the lack of uniformity in training programs, and an over reliance on minimally invasive surgeries. Minimally invasive word is being misconstrued and over advertised, which can confuse patients and even lead to medicolegal problems. I think we have to be cautious when advising available options to patients, depending on their disease pattern, instead of stressing MISS procedures alone.

“My advice to every young spine surgeon is to learn the procedure to the finest details under good teachers and mentors, and to remain patient-centric, rather than radiology-centric.”

In the next five years I believe spine surgery will evolve as a separate specialty, with new training programs which will involve every aspect of spine surgery, including the Intradural pathology. In addition, navigation and robotic surgery will refine, further improving accuracy and patient safety.

What is the biggest change you have faced in spinal surgery over your career?

Spine navigation techniques and neuromonitoring techniques have increased surgeons accuracy and confidence, especially in deformity and intramedullary surgeries.

Outside of your own research, what has been the most interesting paper that you have seen in the past twelve months?

It was a paper concerning the use of robotics & Artificial intelligence (AI) techniques for rehabilitation of para- and quadriplegics to improve their quality of life.

What advice do you give to your young spine surgeons?

My advice to every young spine surgeon is to learn the procedure to the finest details under good teachers and mentors, and to remain patient-centric, rather than radiology-centric.

How do you inspire and mentor your fellows? In your opinion what makes a good leader?

I stress the concept of lifelong learning, mental and physical fitness and a mental attitude towards positivity are the ingredients to remain as active leaders in spine surgery. Propagating what we imbibed from others and keeping an innovative and open mind are some other crucial elements of the leaders in spine surgery.

How did you get involved in AOSPINE?

In 2004, AOSpine came to India, just as spine surgery was evolving as a new specialty. I got actively involved in the education programs across India, conducting seminars and recruiting new members. It was a turning point, with excellent feedback on our teaching modules and many new surgeons enrolled. With increased membership we developed a governance module and AOSpine India became the first registered organization in the world.

“AOSpine is an excellent platform to teach and learn simultaneously. It is the only education organization which remains transparent and gives equal opportunity to every member. It is an organization which refined me as a good teacher and a leader. I would recommend other surgeons to join this AOSpine family, not just to learn but also develop as leaders of the future.”

When for the first time the AOSpine convention was conducted away from Davos, I introduced the first specimen course at Kuala Lumpur. In the last 15 years I have contributed to various new and innovative programs in the Asia pacific region. I thank AOSpine for giving me this opportunity.

What does being a member of AOSpine mean to you personally? Why would you recommend becoming a member?

AOSpine is an excellent platform to teach and learn simultaneously. It is the only education organization which remains transparent and gives equal opportunity to every member. It is an organization which refined me as a good teacher and a leader. I would recommend other surgeons to join this AOSpine family, not just to learn but also develop as leaders of the future. It is the only worldwide organization which invests in developing its members, something that remains unique to AOSpine.

BIOGRAPHY

Dr Satish Rudrappa is a well-known and distinguished Senior Neurosurgeon in India. An M.B.B.S graduate from Karnataka Medical College, Hubli (1990), he pursued his M.Ch in Neurosurgery from the prestigious National Institute of Mental Health and Neurosciences (NIMHANS, 1995) and was awarded the Gold Medal for graduating as the "Best Outgoing Student". Since, he has successfully performed over 13,500 cases in the fields of both Neurosurgery as well as Spine Surgery.

He has numerous fellowships namely,

- Fellow of Complex Spine Surgery (Detroit Medical Centre, Detroit, Michigan, USA).
- Fellow of Thoracoscopic Spine Training (Barrow Neurological Institute, Phoenix, USA).
- Fellow of Microvascular Anastomosis (Henry Ford Hospital, USA).

Furthermore, he is a visiting professor in universities such as the University of Hokkaido, Japan; as well as a history of teaching with the Louisiana State University, Shreveport, USA. His expertise lie in Spine Surgeries instrumentation, Spinal Cord tumors, Skull-Base surgery and Cadaver Dissection Techniques which have been key topics of choice and extensively taught through the timeline of his career.

He has presented in multiple national and international forums on topics related to both Spine Surgery as well as Neurosurgery and frequently conducts video-based live surgeries as well as demonstrations for international spine organizations such as AOSpine, of many others.

His repute as a skilled Neurosurgeon and Spine Surgeon has paved the way for many young surgeons to learn from him

both Spine & Skull Base Surgery techniques. Dr Satish was twice Education officer (Neuro) of AOSpine India and elected as the Education Officer of Neurosurgery, AOSpine Asia Pacific and has since educated many young Fellows as well as students worldwide. Till recently he was an active member of AOSpine education commission.

His areas of interest include Complex Spine Surgeries of junctional pathologies, especially Craniovertebral Junction, Spine & Spinal cord Tumors, in addition to various Skull base Tumors.

The other Key Achievements are:

- 1st Indian to perform Image Guided Spine & Brain Surgeries.
- Over 200 presentations at various national and international medical forums.
- Multiple publications in peer reviewed International Journals.
- Trustee, Sukriya: An NGO targeted at offering medical assistance to the bread winners of the economically weaker sections patients suffering from curable illnesses. Various number of patients have benefitted through the help provided by his NGO Sukriya since its inception in 2007.
- Awarded the "Lee Foundation Award" from Singapore.
- Awarded the "Distinguished Rotarian" award in 2013 and "Navarathna of Rotary International District #3190" for excellence in the field of community service.
- Recognized "Paul Harris Fellow" from Rotary International, Chicago.

He currently serves as the Director—Institute of Neurosciences and as the Head—Department of Spine Surgery at Sakra World Hospital, Bengaluru, Karnataka, India.



Global Spine Congress
Rio de Janeiro, Brazil | May 20–23, 2020

#GSCRio



Global Spine Congress—looking ahead to GSC 2020 in Rio de Janeiro

The Global Spine Congress (GSC) just wrapped up another successful congress in which 1,800 spine care professionals attended this three-day event in Toronto. This marked the GSC's 10-year anniversary and included many new additions. Robert McGuire, AO Foundation President attended the congress as well.

“For the first time, the GSC featured a theater in the exhibition hall where innovative sessions took place, such as augmented reality in spine care and virtual reality in medicine. Additionally, a new AOSpine initiative took place at the GSC featuring inspirational discussions on the topic: Women in Spine.”

With the vision to create a truly global spine congress—gathering international speakers and participants, the GSC has experienced exponential growth since its inception in 2009. AOSpine's annual event provides a unique approach to sharing knowledge and developing new approaches to the treatment of spinal disorders to help advance spinal care and improve patient care.

GSC Toronto in figures—Here's what you can expect from the GSC 2020:

GSC 2020

With another successful year behind us, we now turn our attention to the next Global Spine Congress taking place in the beautiful city of Rio de Janeiro from May 20 – 23, 2020. The venue is in Barra da Tijuca, a vibrant, contemporary and modern city, located only 45 minutes from Rio de Janeiro International Airport. Don't miss this opportunity to submit your abstract and a chance to present your research to hundreds of spine specialists from all over the world.

“Abstracts can be presented in Spanish, Portuguese and English. Accepted abstracts will appear in a special supplement to the Global Spine Journal—a great opportunity

for you to have your work viewed world-wide in an internationally renowned spine publication.”

[The call to submit an abstract is open until September 16, 2019.](#)

Watch the video to see why S Rajasekaran, AOSpine Chairperson believes you should submit an abstract.

It's never too early to start planning your next trip—take advantage of early bird savings by registering before December 20, 2019. [Register Now](#)

For more information about GSC 2020, visit our [official GSC website](#).

We look forward to seeing you in Rio de Janeiro!





AOSpine's new MISS curriculum was officially launched at the Global Spine Congress 2019, May 15–18, in Toronto, Canada. The curriculum creates a pathway for surgeons into MISS and aims to guide them from simple to complex procedures, and is independent of surgeon's background, training level, and accessible resources a surgeon has access such as surgical tools. The goal of the development process was to create an applicable and practicable curriculum for all surgeons practicing MISS worldwide.

The MISS Task Force, led by Roger Härtl (United States), consisted of specialists from around the globe: Richard Assaker (France), Mohammed Assous (Jordan), Christoph Hofstetter (United States), JinSung Kim (Korea), Avelino Parajon (Spain), Néstor Taboada (Colombia) and Paul Taylor (Australia). In developing the new curriculum, the task force focused on key objectives in the following focus areas and competencies:

MISS curriculum launch at the Global Spine Congress Toronto.

Focus areas

Target: optimized patient selection

Technology: optimal combination of access, visualization, navigation, instrumentation, and biologic augmentation techniques including microsurgery, neural protection, decompression, and stabilization

Training: simulation, observation, mentorship

Testing the boundaries: MISS for deformity and robotics

Technique: Microsurgery, neural protection, decompression, stabilization

Competencies

1. Diagnose the patient problem correlating the clinical findings with imaging and workup.

2. Recognize appropriate indications based on your skill set and case experience and outcomes.
3. Select the appropriate MISS procedure for the pathology and indication and recognize when MISS is not the appropriate option.
4. Correctly set up the technology, operating room (OR), and the team for the procedure.
5. Perform microscopic MISS procedures: posterior cervical foraminotomy, interlaminar lumbar discectomy, lumbar extraforaminal discectomy, and unilateral laminotomy for bilateral decompression.
6. Perform endoscopic MISS procedures: interlaminar lumbar discectomy, transforaminal lumbar foraminotomy and discectomy, and unilateral laminotomy for bilateral decompression.
7. Perform the fusion MISS procedures (percutaneous screw and rod placement, transforaminal lumbar interbody fusion [TLIF] and lateral lumbar interbody fusion [LLIF]) and apply strategies to optimize arthrodesis.
8. Manage complications and apply a backup plan.
9. Use MISS techniques for revision surgery.

Target audiences

- Surgeons doing open surgery but with little or no MISS experience.
- Surgeons with some experience with microscopes and tubes but not for complex MISS.
- Surgeons with experience in MISS who use microscope and burr.
- Surgeons of any level with no endoscopic experience.

The MISS Task Force aims for AOSpine to become the leading educator in minimally invasive techniques and procedures and to meet surgeons' needs for improved surgical outcomes and reduced morbidity.

Watch the interview with Roger Härtl, MISS Task Force Leader at AOSpine, in which he shares why AOSpine decided to introduce an minimally invasive spine surgery curriculum, what the content is and how the curriculum was developed.

Watch Facebook live video streaming from the launch and learn about the curriculum in greater detail:

[Roger Härtl](#)

[Christoph Hofstetter](#)

[Learn more](#)

Alexander Vaccaro: new AOSpine Member Representative-elect



The voting members of AOSpine that were present at the Global Spine Congress democratically elected Alexander Vaccaro as their member representative for 2020.

Vaccaro commented: “One of my greatest aspirations was to climb the ladder in the AO so I could contribute more to a society that made me who I am today. I am who I am because the AO taught me how to do research, how to operate, how to think about problems, and how to collect my results. And now I have the honor to be the member representative on the international Board, I couldn’t be happier, and I am going to serve it with 100% of my efforts.”

“One of my greatest aspirations was to climb the ladder in the AO so I could contribute more to a society that made me who I am today. I am who I am because the AO taught me how to do research, how to operate, how to think about problems, and how to collect my results.”

The Member Representative will serve for two years—one year with member elect status (guest without voting rights), and one year as a full member of the AOSpine International Board with voting rights.

In addition to being an outstanding, internationally recognized spine surgeon or spine researcher, the eligible candidates must already have shown their commitment to AOSpine, be passionate about developing AOSpine and willing to devote a significant amount of time and travel to this function.



Global Spine Journal— what your colleagues are reading

The middle of the year is now upon us, and it is time for a mid-year review of the top GSJ articles! These are the top downloaded and cited articles in different categories this year.

Top Downloaded from the last 2 years

The top downloaded articles in 2019, published in 2017 and 2018:

1. “Lumbar Interbody Fusions for Degenerative Spondylolisthesis: Review of Techniques, Indications, and Outcomes”
2. “Reliability and Validity of the AOSpine Thoracolumbar Injury Classification System: A Systematic Review”
3. “Degenerative Lumbar Spine Disease: Estimating Global Incidence and Worldwide Volume”
4. “Recurrent Lumbar Disc Herniation: A Review”
5. “Decompression Versus Fusion for Grade I Degenerative Spondylolisthesis: A Meta-Analysis”

Top Downloaded Articles this year

The top downloaded articles from 2019, published in 2019:

1. “Contact Sports as a Risk Factor for Amyotrophic Lateral Sclerosis: A Systematic Review”
2. “Measuring Academic Success: The Art and Science of Publication Metrics”
3. “Current Strategies in Prevention of Postoperative Infections in Spine Surgery”
4. “Screw-Related Complications After Instrumentation of the Osteoporotic Spine: A Systematic Literature Review With Meta-Analysis”
5. “Outcomes of Coccygectomy Using the “Z” Plasty Technique of Wound Closure”

Top Special Issue Downloads

The top downloaded articles from all special issues:

1. “A Clinical Practice Guideline for the Management of Acute

Spinal Cord Injury: Introduction, Rationale, and Scope”

From the Guidelines on DCM & tSCI

2. “Surgical Site Infections in Spine Surgery: Preoperative Prevention Strategies to Minimize Risk”
From the Special Issue on Spinal Infections

3. “Treatment of Fractures of the Thoracolumbar Spine: Recommendations of the Spine Section of the German Society for Orthopaedics and Trauma (DGOU)”
From the Special Issue on Spinal Trauma

4. “Cell Therapy with Human Dermal Fibroblasts Enhances Intervertebral Disk Repair and Decreases Inflammation in the Rabbit Model”
From the Special Issue from the Knowledge Forums

5. “Evaluation of Adverse Events in Total Disc Replacement: A Meta-Analysis of FDA Summary of Safety and Effectiveness Data”
From the Cervical Special Issue

Top Cited Regular Articles

The top cited articles from 2019, published in 2017-2018 from regular issues:

1. “Risk Factors for Delirium After Spine Surgery in Extremely Elderly Patients Aged 80 Years or Older and Review of the Literature: Japan Association of Spine Surgeons with Ambition Multicenter Study”
2. “Spine Stereotactic Body Radiotherapy: Indications, Outcomes, and Points of Caution”
3. “Thirty-Day Readmission Risk Factors Following Single-Level Transforaminal Lumbar Interbody Fusion (TLIF) for 4992 Patients

From the ACS-NSQIP Database”

4. “Impact of the Economic Downturn on Elective Lumbar Spine Surgery in the United States: A National Trend Analysis, 2003 to 2013”
5. “Spine Degenerative Conditions and Their Treatments: National Trends in the United States of America”

Top Cited Special Issue Articles

The top cited articles from special issues in 2019, published in 2017-2018 from special issues:

1. “Timing of Decompression in Patients With Acute Spinal Cord Injury: A Systematic Review”
From the Guidelines on DCM & tSCI
2. “Iatrogenic Spinal Cord Injury Resulting From Cervical Spine Surgery”
From the Cervical Special Issue
3. “Classification of Osteoporotic Thoracolumbar Spine Fractures: Recommendations of the Spine Section of the German Society for Orthopaedics and Trauma (DGOU)”
From the Special Issue on Spinal Trauma
4. “Spinal Tuberculosis: Current Concepts”
From the Special Issue on Spinal Infections

Don't forget you can access all special issues here on this page

You can also access all of our special collections on our special collections landing page:

For the most up-to-date news and article postings, follow us on Facebook and on Twitter



AOSpine Fellows Alumni meet at the Global Spine Congress Toronto

Since the Global Spine Congress in Dubai in 2016 the AOSpine Fellows Alumni have been holding networking and educational events across the world and the GSC in Toronto this May was no exception.

The activities started off with a hugely successful educational session entitled 'The Good, The Bad and The Ugly: The case that taught me the most' with exceptional faculty members Michael Fehlings, Darrel Brodke and Bryan Ashman. Each esteemed faculty presented a case to the audience leading to highly interactive discussions all successfully moderated by Harry Gebhard from the Fellows Alumni Steering Committee.

All Steering Committee members; Rick Bransford, Tarek ElHewala, Harry Gebhard, Kenny Kwan and Cordula Netzer were highly involved with the planning of all activities, and following the session led the group of alumni members to a networking dinner with the AOSpine Ambassadors.

The Ambassadors are a group of members that have been selected to show AOSpine's appreciation of their remarkable contribution, engagement and value to the organization. They include every distinguished surgeon in the spinal community. By inviting them to the dinner Fellow Alumni members are given the opportunity to meet their hero's in a relaxed environment.

Due to the huge success in Toronto the Fellows Alumni Steering Committee is once again planning educational and networking events in Rio at the Global Spine Congress 2020. We hope to see you all there!



Women in spine—networking event at the Global Spine Congress

AOSpine organized the first Women in Spine Networking Event at the Global Spine Congress in Toronto to celebrate extraordinary women in spine from around the globe.

Female and Male participants alike were invited to join this networking event focused on female leadership, maintaining balance, and tips for younger surgeons going into the spine profession.

Speakers included Serena S Hu, MD, Professor of Orthopaedic Surgery and, by courtesy, of Neurosurgery at the Stanford University Medical Center, MD, Christina Goldstein, MD, Assistant Professor of Orthopaedic Surgery (University of Missouri), and Yu-Mi Ryang, MD (Head of Department, Department of Neurosurgery, Helios Klinikum Berlin-Buch, Germany).



AOSpine Research and Outcomes Network—leading international registry for understanding metastatic spine tumors

AOSpine Knowledge Forum (KF) Tumor has created a multicenter international prospective registry for the management and outcome of metastatic spine tumors, referred to as “M-TRON”. The aim is to establish a global network of spine oncology centers that contributes to a common clinical database. The database serves as a research platform to enhance our understanding of metastatic spine tumors and its clinical management.

The Metastatic Tumor Research and Outcomes Network (MTRON) involves surgeons, medical and radiation oncologists, and pathologists. Principal Investigator (PI) and AOSpine KF Tumor Chairperson, Charles Fisher, explains that by having everyone collect the same demographic, clinical, diagnostic, and therapeutic variables, along with adverse events and health related quality of life outcomes, the network makes it possible to investigate prognostic factors and clinical outcomes. Due to the number of variables, you need to gather large volumes of data from hundreds of patients to draw meaningful conclusions.

MTRON is an open-ended registry allowing continuous data collection on metastatic spine tumor patients.

In just over a year’s time, over 500 patients from 27 centers across the world have been enrolled (*).

“We will have a contemporary cohort to inform treatment decisions in this new era of personalized cancer care.”

Fisher and Co-PI, Arjun Sahgal, are proud to say that MTRON will be the world’s largest international prospective registry collecting detailed information with respect to treatment outcomes for patients with spinal metastases. “These patients are very complex and non-uniform in terms of tumor, treatment, and patient characteristics,” Sahgal emphasizes. “Moreover, with all the advances in molecular profiles we will have a contemporary cohort to inform treatment decisions in this new era of personalized cancer care.”

At the frontiers of spine tumor research

Spine tumors pose difficult treatment decisions for oncologists and spine surgeons. Because of the complexity of oncology treatments and the advancements in the last decade, patients with tumors in the spinal column are starting to live longer. This makes it even more important to conduct prospective research that

evaluates patient outcomes such as health related quality of life.

AOSpine KF Tumor Steering Committee member, Ilya Laufer, says that the wealth of data will allow scientists to design prospective and retrospective studies in order to optimize treatment indications and methods. Continuous analysis of the MTRON data will allow the AOSpine KF Tumor to promote treatment strategies that work well and discourage outdated and sub-optimal practices. “The large volume of patients and the high quality of the data permit small- and large-scale analyses that may be adapted to the study question. Furthermore, we can identify challenging disease patterns in need of outcome improvement and propose treatment modifications in order to improve the outcome for these patients.”

“MTRON is AOSpine’s largest international research registry/study in terms of participating clinical centers.”

Ilya Laufer and Associate Member Jorrit-Jan Verlaan are among the highest recruiters. Verlaan reminds of a range of older but still burning questions on optimal treatment strategies that are waiting to be answered. “For example, who to decompress,

who to stabilize, who to irradiate? Furthermore, with a rising number of cases in MTRON, physicians may be able to refine their interventions to minimize patient demand.”

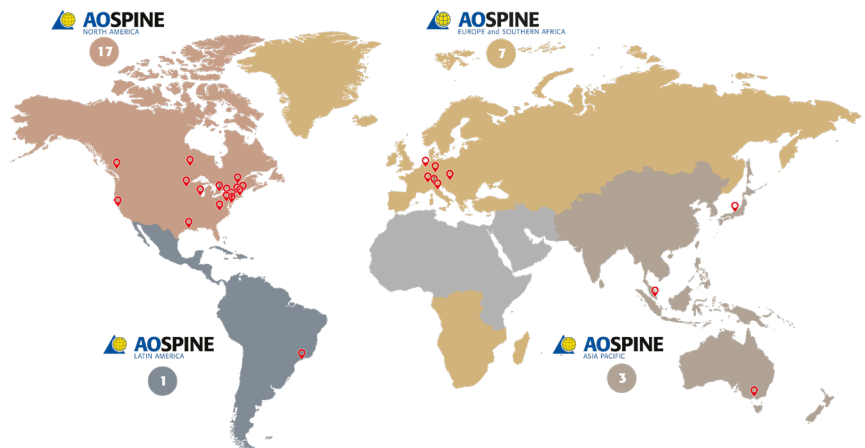
As more and more scientific questions are answered, MTRON will play an important role in improving and updating the AO Surgery Reference Spine Metastatic Tumor Module, published by authors Ilya Laufer, Jorrit-Jan Verlaan, and the AOSpine KF Tumor this year. “KF Tumor includes dynamic and dedicated physicians who contribute interesting and timely study questions. With MTRON serving as the data collection platform, the group will remain at the frontier of the spine oncology research,” Laufer concludes.

- Study support is provided directly through [AOSpine’s Research department](#)
- The AOSpine MTRON study is executed with support from AOCID
- For more details about the study, please visit clinicaltrials.gov

MTRON—Metastatic Tumor Research and Outcomes Network

A multicenter prospective registry for the management and outcome of metastatic spine tumors

Participating centers, June 2019





AOSpine study will help interpret neuro-monitoring alerts—first patient recruited

AOSpine Knowledge Forum (KF) Deformity has launched a study to better understand and interpret neuro-monitoring alerts during complex high-risk corrective spinal deformity surgery. The AOSpine Spinal Deformity Intraoperative Neuro-Monitoring (SDIM*) study is an international collaboration with neurophysiologists, anesthesiologists, and surgeons. The aim is to help surgical teams understand the meaning of intra-operative changes in neuromonitoring signals and to help to guide actions to perform in response. This will greatly improve outcomes in complex spinal deformity surgery.

In spine surgery, neuro-monitoring is the mainstay for providing real-time information on the status of the spinal cord and how it is reacting to surgical maneuvers. Despite its widespread use, interpreting the results is often lacking or controversial.

“Knowing when an alert is serious or less serious, or when it’s time to do certain maneuvers to reverse the alerts is controversial. People are not sure what to do in different situations,” Principal Investigator and AOSpine KF Deformity Chairperson Stephen Lewis explains. “Sometimes we see the spinal cord threatened by the procedure, and small maneuvers—such as giving blood, raising the blood pressure, or releasing some of the correction—may be enough to prevent damage to the spinal cord.”

“Sometimes small maneuvers may be enough to prevent damage to the spinal cord.”

Optimizing patient care and safety

The first patient has already been recruited into the AOSpine SDIM-study in mid-June by Nanjing, China. In total, 22 sites across five AOSpine regions were selected from an open call to AOSpine members. The call resulted in an impressive 393 responses.

Both adult and pediatric patient groups are included.

Based on real-time key data points, this international, prospective study will provide an opportunity to develop a clinical care tool. It will enable AOSpine to provide surgeons with the knowledge they need for optimal patient safety and care in the treatment of these complex cases.

Lewis hopes the study will allow to set up simple alert patterns for different types of injury to the spinal cord—an algorithm if you like. “By knowing the patterns and recognizing the event that took place, you can

reverse the injury and restore the signal. With this, we hope to maximize deformity corrections in a safe manner so that the spinal cord is not compromised during these complex procedures”, Lewis concludes.

“SDIM will enable AOSpine to provide surgeons with the tools and the knowledge they need for optimal patient safety and care.”

(*). Understanding and managing intraoperative neuromonitoring changes during spinal deformity surgery: a prospective observational study (SDIM)

- Study support is provided directly through [AOSpine’s Research department](#)
- SDIM was awarded a Scoliosis Research Society (SRS) research grant from the SRS
- The AOSpine SDIM study is executed with support from AOCID
- A pilot study was published in [Global Spine Journal](#)
- For more details about the study, please visit [clinicaltrials.gov](#)



EDUCATION

AO Davos Courses

December 8–11, 2019

Learn minimally invasive spine surgery (MISS) and more from the experts

Following the great success last year, AOSpine's educational offering at the AO Davos Courses 2019 will again focus on MISS. This year, an advanced-level course on complex cervical problems has been added to the program.

Over three days, participants will experience expert-level teaching on micro-decompression, endoscopy, percutaneous fixation, and complex cervical spine surgery, allowing them to improve their skills and knowledge on the microscope, the exoscope, on navigation and radiation, the endoscope, and complex cervical solutions.

On December 8 in the morning, participants will be able to join a half day seminar on the topic of "Non-technical surgical skills" with representatives from the Royal College of Surgeons of Edinburgh.

On December 9, there will be two consecutive seminars offered in the morning; one is on the topic of "optimizing elderly patients for spine surgery" from the Fragility Fracture Network, the other on "the future of simulation in spine education" by Bryan Ashman.

The following AOSpine courses are available:

INTRODUCTION LEVEL COURSE ON ENDOSCOPY

Course Chair: Christoph Hofstetter (US)

Educational Advisor: JinSung Kim (KR)

ADVANCED LEVEL COURSE ON ENDOSCOPY

Course Chair: Christoph Hofstetter (US)

Onsite Co-chair: Albert Telfeian (US)

Educational Advisor: JinSung Kim (KR)

ADVANCED LEVEL COURSE ON MICRO-DECOMPRESSION AND PERCUTANEOUS FIXATION

Course Chair: Paul Taylor (AU)

Educational Advisor: Mohammed Assou (JO)

ADVANCED LEVEL COURSE ON COMPLEX CERVICAL PROBLEMS

Course Chair: Richard Bransford (US)

Educational Advisor: Chung Chek Wong (MY)

[Register now for the MISS courses](#)

[Check out the preliminary program](#)

Are you interested in learning more about the principles of clinical research?

Don't miss the chance to combine your MISS learning experience with the AOPEER Principles of Clinical Research course, which takes place from December 7–8, 2019 in Davos.

The goal of this course is to introduce the principles of clinical research, including skills and knowledge on why and how to do research, how to build a good research environment, and where to find additional resources, tools, and reference packages to support a research project.

AOPEER Course: [Learn more](#)

We look forward to welcoming you in Davos soon!



Regional Courses Santiago 2019—Updates, advances and best practices to optimize patient care

Bringing together almost 200 spine surgeons interested in deepening their knowledge, the fourth edition of the AOSpine Latin America regional courses was a success.

Some of the world's leading spine experts shared their knowledge and experience during the comprehensive and highly interactive event that took place June 6–8, 2019, in Santiago, Chile. Surgeons from 15 countries benefited from the innovative, interaction-enabling teaching methodology applied by renowned faculty.

An extraordinary scientific program that had been carefully planned by Course chairs and educational advisors comprised masters modules on degenerative spine in the elderly and complications, a principles course, a seminar on research, and a seminar for current and former fellows. The complete scientific program included:

Research Seminar—Critical Appraisal of Literature

Master Seminar—Degenerative Spine in the Elderly

- Module 1: Degenerative cervical spine
- Module 2: Degenerative lumbar spine
- Module 3: De Novo degenerative scoliosis and complications

Master Seminar—Complications

- Module 1: Complications related with sagittal balance
- Module 2: How to understand causes and mechanisms of certain complications
- Module 3: Good planning can reduce complications

Principles course

- Session 1: Thoracolumbar trauma
- Session 2: Low cervical spine fracture
- Session 3: Workshops on cervical spine
- Session 4: Cervical disc herniation

- Session 5: Lumbar disc herniation
- Session 6: Lumbar stenosis
- Session 7: Lumbar spondylolisthesis
- Session 8: Adolescent idiopathic scoliosis
- Session 9: Workshops on thoracolumbar spine
- Session 10: Evidence-based medicine

Fellows and Ex-Fellows Seminar

Plenary session on degenerative disc disease, adult deformity and surgical techniques

The event was a great opportunity for participants to update their knowledge, share experiences and interact with world-class spine surgery opinion leaders, including: Christopher Shaffrey (University of Virginia, US), Claudio Lamartina (I.R.C.C.S. Istituto Ortopedico Galeazzi Milan, IT), Ferrán Pellisé (Spine Unit Vall d'Hebron, ES), Kenneth Cheung (University of Hong Kong, HK), Munish Gupta (Washington University School of Medicine, US) and Zdenek Klezl (Royal Derby Hospital, UK).

Attendance at the various courses

Among the participants, 62 attended the Master Seminar—Degenerative Spine in the Elderly and 43 took part in the Master Seminar—Complications. Forty-one surgeons took part in the principles course while the seminar for fellows had 45 participants and the 40 were in the research seminar.

The plenary session at the end of the regional courses summarized the most relevant content related to degenerative disc disease research, lumbar lordosis, coronal imbalance in adult scoliosis, planning and technical pearls in adult deformity surgery, pedicle subtraction osteotomies and cervical fracture dislocations.