SIMEG
sacroiliac medical expert group

7TH INTERNATIONAL CONFERENCE ON SACROILIAC JOINT SURGERY AND RELATED RESEARCH

30 CME CREDITS AWARDED

BY
SWISS ORTHOPEDICS (16)
SEMS (5)
SSIPM (9)

PROGRAM

ICSJS RR 2024

CONFERENCE + WORKSHOP

20 - 22 SEPTEMBER

GRAZ/AUSTRIA

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In collaboration with the Medical University of Graz | Division of Macroscopic and Clinical Anatomy

Niels Hammer, Dr. habil.
Professor and Chair

Medical University of Graz | Gottfried Schatz Research Center | Division of Macroscopic and Clinical Anatomy

Welcome to Graz!

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Dear Colleagues,

In 2013, the SIJ expert group was founded, which specializes in the field of orthopedic and spine surgery. We are pleased to announce that the 7th International Conference on Sacroiliac Joint Surgery and Related Research will take place in collaboration with Prof. Niels Hammer, Chairman of the Clinical Department of Macroscopic and Clinical Anatomy at the Medical University of Graz.

Our mission is to create an academic forum where multidisciplinary professionals such as orthopedic surgeons, spine surgeons, hip surgeons, physical therapists, pain physicians and engineers can discuss the topic of the sacroiliac joint. The conference covers all aspects of the sacroiliac joint, from physical assessment to diagnostic injections to surgical technique and outcomes.

We warmly invite you to take part in this top-class 3-day program in Austria's second largest city. By the way: It is thanks to the best-preserved city center in Central Europe that Graz was added to the UNESCO World Heritage List in 1999.

Hardly any other city in the country offers so much variety in such a small space and, as an enjoyable bonus, the sunny flair of the south.

We look forward to welcoming you personally to what will certainly be a highly interesting meeting in this beautiful city.

Yours sincerely,

Daisuke Kurosawa, MD,
President SIMEG eV

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DAISUKE KUROSAWA; MD

PROF. NIELS HAMMER, MD

VOLKER FUCHS, MD

WILLIAM CROSS, MD

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„The Pelvic Girdle" ©2010 M. Dierks

Program

Friday, 20.09.

Chair: Martin Blay

13:05-13:25	Are Medical Students and Surgeons Equipped with the Knowledge to Master the Sacroiliac Joint?	*Hammer (10min.)* *Kurosawa (10min.)*
13:30-14:00	***Keynote lecture*** The obscure joint	*Hammer (30min.)*
14:05-14:35	Pathomechanism of SIJ dysfunction: Basic research	*Toyohara (15min.)* *Raji (15min.)*
14:40-15:10	Physical assessments for SIJ dysfunction/pain (+demonstration)	*Stark (15min)* *d'Hemecourt (15min)*
15:10-15:25	Imaging findings of the SIJ (SPECT/CT)	*Saunders*
15:25-15:40	Imaging findings of the sacroiliac joint that may be relevant to the pathology and indications for surgery	*Stark*

Coffee Break – 30 min.

Chair: Pierre d'Hemecourt

16:10-16:25	Diagnostic SIJ injections	*Kurosawa*
16:25-16:55	The latest WIP guideline for SIJ pain treatment	*Szadek (Online)*
16:55-17:10	SIMEG project: ISAR	*Blay*
17:10-17:30	Disucssion for ideal registration system and scientific study	Chair: *Blay*

19:30 Dinner („Der Steirer“) Graz

Saturday, 21.09.

Morning sesssion

Chair: Daisuke Kurosawa

Non-operative treatments

08:30-08:40	Physical therapies standards for SIJ dysfunction/pain	*Sato*
08:40-09:10	Arthrokinemaic approach for SIJ dysfunction (Japan way)	*Hashimoto*
09:10-09:40	Manual therapies specific for SIJ dysfunction (Austrian way)	*Schmid*
09:40-10:10	Treatment strategy for chronic SIJ pain syndrome	*van Wingerden*

Coffee Break – 30 min.

Chair: William Cross

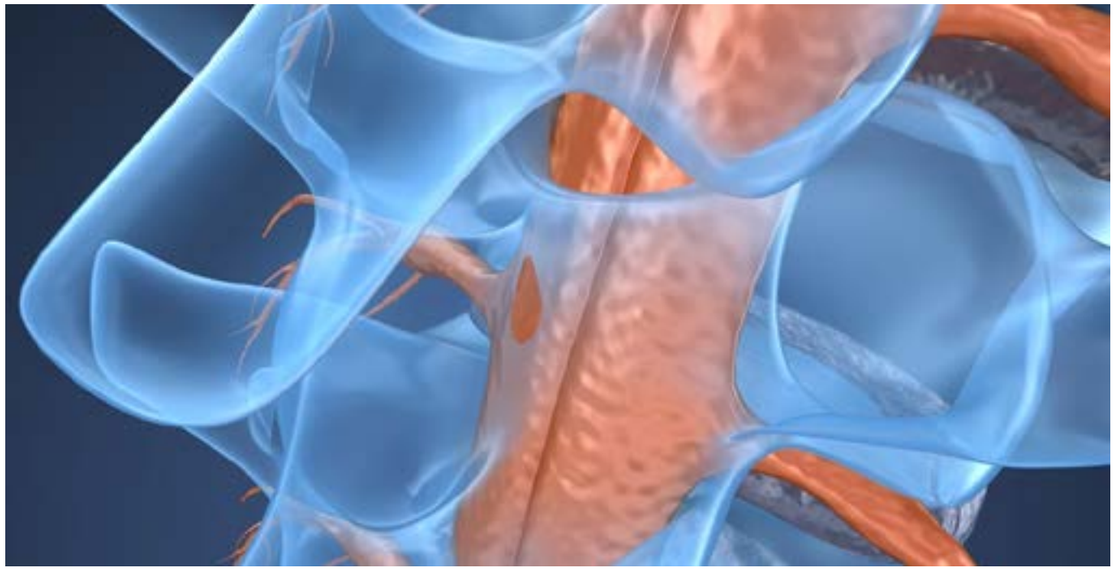
Pathology of severe SIJ problem

10:40-10:55	SIJ laxity	*d'Hemecourt*
10:55-11:10	Hip-SIJ-spine syndrome	*Kaneuji*

Concepts in advanced interventional treatments

11:10-11:25	Prolotherapy and PRP for SIJ posterior ligaments	*Saunders*
11:25-11:40	Regenerative medicine for SIJ treatments in the future	*Donner*
11:40-11:55	Endoscopic RF to SIJ pain	*Blay*

12:00–13:00 Lunch/Exhibition



Saturday, 21.09. Afternoon session

Chair: Jeffrey Donner

13:00-13:30 ***Keynote lecture***
Latest clinical SIJ practice in Mayo Clinic, US — *Cross*

Surgical treatment strategy, concepts, and outcomes

13:40-14:10 SIJ fusion surgery and outcomes — *Werner (10min) / Kurosawa (10min) / Donner (10min)*
14:10-14:25 Reconstruction of Force Closure surgery — *Koga*
14:25-14:45 SIJ fusion vs Sham surgery — *Kibsgard/Randers*

Coffee Break – 30 min.

Chair: Martin Blay

15:15-15:30 Postoperative pain manegement: secondary endoscopic denervation after fusions — *Werner*
15:30-15:45 Status of the sacroiliac joint from the viewpoint of a spine surgeon performing long spinal fusion. — *Okuyama*
15:50-16:10 Echo-guided percutaneous needlescopy, the future of interventional imaging — *van Seventer*

Health care for patients with SIJ pain

16:15-16:30 How can we promote long-lasting exercise and diet therapy for patients with spine and joint problem including SIJ — *Yoshikawa*
16:40-17:10 ***Keynote lecture***
Bony healing and bony weakness: a critical point in SIJ fusion surgery — *Obermayer-Pietsch*

19:00 Conference Dinner (Schloßberg) Graz

Sunday, 22.09.

9:00-10:00 ***Free papers session*** — *Chair: Kurosawa / Cross*
Topics:
9:00-9:10 Visualize symptoms with pictographs to distinguish between sacroiliac joint disorder and lumbar spine disease symptoms — *Sato*
9:10-9:20 Hip impingement signs can be improved in some cases by pelvic mobilization for sacroiliac joint — *Yusuke*
9:20-9:30 Pelvic Mobility test - the functional examination to evaluate ROM of SI joint — *Fujii*
9:30-9:40 Pathological Classification of Sacroiliac Joint Disorder — *Shin*
9:40-9:50 Osseointegration of minimally invasive sacroiliac joint fixation implants – a human retrieval study — *Randers*
9:50-10:00 Treatment outcomes after minimally invasive sacroiliac joint surgery. A cohort study based on the Swedish Spine registry. — *Randers*

Coffee Break – 30 min.

Workshop

Room 1: Manual Therapy Specific for SIJ Dysfunction

10:30-10:45 Kaneuji mobilization — *Kaneuji*
10:45-11:15 AKA-Japan method technique — *Yoshikawa /Hashimoto*
11:15-12:00 Austrian manual medicine specific for sacroiliac joint dysfunction — *Schmid*

12:00–13:00 Lunch Break

13:00-13:45 An integrated conservative approach to recovery of lasting pelvic -girdle pain — *van Wingerden*
13:45-14:00 Discussion

Room 2: Training on human tissues for surgeons

13:00-14:00 Medacta: Presentation: 15min + Practice 45min — *Werner*
14:00-15:00 ILIONMEDICAL; NADIA Presentation: 15min + Practice 45min — *Stark*
15:00-16:00 LUMIBIRD MEDICAL: 15min + Practice 45min — *van Seventer*

16:15–17:15 Members meeting

Non-members may leave after last lab or whenever they are done. They are not to attend the member-only meeting. Course Adjourn at 17:15.

Friday, 20. 9

Chair: Martin Blay

13:05 – 13:25

Are Medical Students and Surgeons Equipped with the Knowledge to Master the Sacroiliac Joint ?

Hammer Niels, MD
Macroscopic and Cl. Anatomy, Medical University of Graz, AUT

Introduction:
The sacroiliac joint (SIJ) is a critical anatomical structure with significant implications for lower back pain, yet it remains underrepresented in medical education. This study explores the extent and depth of SIJ-related content in major anatomical textbooks, examining how this scarcity might affect the knowledge base of medical students and practitioners.

Methods:
A thorough review of classical and contemporary anatomical textbooks, including „Fick's Handbuch der Anatomie des Menschen" (1911), „Netter Atlas of Human Anatomy" (6th Edition), „Gray's Anatomy" (40th Edition), and „Last's Anatomy Regional and Applied" (9th Edition), was conducted. The analysis focused on the representation and detail provided on the SIJ's anatomy, biomechanics, and associated pathologies.

Results:
The review revealed a consistent underrepresentation of the SIJ in these foundational anatomical texts. While these books provide comprehensive coverage of other joints and musculoskeletal structures, the SIJ is often relegated to minimal descriptions, with limited detail on its anatomical variations, ligamentous structures, and biomechanical functions. This gap is particularly pronounced when compared to the coverage of other joints and regions of the body.

Discussion:
The lack of detailed information on the SIJ in key anatomical textbooks may contribute to a significant knowledge gap among medical students and healthcare professionals. This deficit could lead to challenges in diagnosing and managing SIJ-related conditions, as practitioners may lack a thorough understanding of the joint's complex anatomy and function. The study suggests that enhancing the content on the SIJ in medical education resources is crucial for improving clinical outcomes and ensuring that practitioners are well-equipped to address SIJ-related pathologies.

The abstracts are listed in alphabetical order of the Speakers

Education on Sacroiliac Joint Anatomy and its Clinical Implications for Medical Students and Physicians

Daisuke Kurosawa, MD,
Dept of Orthopedic Surgery
Japan Sacroiliac joint and Low Back Pain Center, JCHO Sendai Hospital, Sendai, JPN

The sacroiliac joint (SIJ) plays an important role in the biomechanics of the pelvis and spine, yet remains under-addressed in traditional medical education. I have been conducting research on the anatomy of the SIJ while teaching it to medical students for the past seven years. A foundational course on SIJ anatomy has been integrated into the curriculum for medical students, emphasizing the unique structure and function of the SIJ, its evolution for bipedal locomotion. This course includes practical dissection sessions using formalin-fixed human tissue, allowing students to gain hands-on experience in identifying SIJ structures and understanding their clinical relevance. This early exposure helps medical students consider SIJ disorders as a differential diagnosis in cases of low back pain during their clinical rotations and residency.

Education for physicians has also been focused on deepening the understanding of SIJ disorders, which are often misdiagnosed or overlooked. My mentor, Prof. Eiichi Murakami, established the Japanese SIJ Research Association in 2009. Through its annual meetings, awareness of SIJ disorders has steadily increased. Additionally, for physicians/surgeons with a strong interest in this area, we have organized small-group seminars on the SIJ practice. These seminars, which include physical assessment, diagnostic SIJ injection techniques, and live surgeries, have helped to increase the number of specialists in the field.

A group of SIJ specialists with strong academic connections has been formed and is a major driving force in the development of SIJ practice in Japan.

13:30 – 14:00 *Keynote lecture*

The obscure joint

Hammer Niels, MD
Macroscopic and Cl. Anatomy, Medical University of Graz

Introduction:

The sacroiliac joint (SIJ) is a crucial biomechanical structure in the human pelvis, essential for transferring loads between the spine and lower limbs and maintaining pelvic stability. Despite its significance, the SIJ is often underrepresented in medical literature, which poses challenges in fully understanding its function in both healthy and pathological states. This study aims to bridge this gap by providing a detailed morphological analysis of the SIJ using advanced imaging techniques. These insights serve as a foundation for developing in vitro, in vivo, and numerical biomechanical models, which are vital for enhancing clinical outcomes in the diagnosis and treatment of SIJ-related disorders.

Methods:

This study employed cutting-edge imaging technologies, particularly computed tomography osteoabsorptiometry (CT-OAM), to obtain high-resolution morphological data of the SIJ. the SIJ. These detailed morphological insights were integrated into numerical biomechanical The focus was on subchondral bone structure, ligamentous architecture, and fat distribution withinmodels, including finite element analysis (FEA), to simulate the joint's behavior under various loading conditions. The models were validated through in vitro experiments and used to predict in vivo mechanical responses, providing a comprehensive understanding of the SIJ's function.

Results:

CT-OAM imaging revealed significant variability in the SIJ's subchondral bone morphology, particularly in regions subjected to high mechanical stress. The imaging data enabled the creation of high-fidelity numerical models that accurately reflect the biomechanical environment of the SIJ. FEA simulations demonstrated how variations in bone mineralization and fat distribution impact joint stability and load distribution. These models also highlighted how specific morphologies might predispose the joint to dysfunction, especially under asymmetric loading or degenerative conditions.

Discussion:

The integration of detailed SIJ morphology into numerical biomechanical models has substantial clinical implications. These models allow for the simulation of various clinical scenarios, such as surgical interventions or the progression of degenerative diseases, providing clinicians with predictive tools to inform treatment decisions. Additionally, the study proposes the future development of large-scale FEA models that encompass the SIJ morphology of dozens of individuals. Such large-scale modeling will enable the exploration of population-wide variations in SIJ biomechanics, offering insights into common patterns of dysfunction and their clinical management. Personalized numerical models, based on individual patient morphology, can further enhance diagnostic precision and the customization of treatment plans, ultimately improving patient outcomes.

Conclusion:

The integration of detailed morphological analysis with advanced numerical biomechanical modeling represents a significant advancement in the understanding of the SIJ's function and its role in clinical disorders. By enabling accurate simulations of the SIJ under various conditions, these models offer valuable tools for clinicians to predict outcomes and optimize treatment strategies. The proposed future endeavor of large-scale FEA modeling across diverse populations holds the potential to deepen our understanding of SIJ biomechanics and improve clinical interventions for a broader range of patients. Future research should continue to refine these models, expand their application in clinical settings, and explore the benefits of large-scale modeling to fully leverage the potential of biomechanical analysis in SIJ-related healthcare.

The abstracts are listed in alphabetical order of the Speakers

14:05 – 14:35 Pathomechanism of SIJ dysfunction: Basic research

Pathomechanism of SIJ dysfunction: Basic research

Ryota Toyohara[1,2], Toshiro Ohashi[1]

[1] Faculty of Engineering, Hokkaido University, Sapporo, JPN

[2] Creative Research Institution, Hokkaido University, Sapporo, JPN

Introduction:

The sacroiliac joints (SIJs) in the pelvis consist of a synovial joint anteriorly and tough ligaments posteriorly. Due to these strong ligaments, SIJs have low mobility. The SIJs can serve as a damper, thereby transmitting effectively during bipedal walking. Since the joint line is parallel to the gravity line, SIJs are exposed to compress and shear stress environment. Unexpected or repeated impacts are believed to cause joint misalignment and bring pain to SIJs. Fixing the SIJs and preventing excessive motion is considered effective in relieving the pain. In the synovial joint area, the articular surface has fine irregularities, potentially restricting the motion of the joints. We aim to clarify how the SIJ surface affects resistance of the joint motion.

Methods:

SIJ articular surface models of healthy and dysfunctional SIJs were created from X-ray CT data of three patients with unilateral SIJ dysfunction. The articular surfaces were analyzed on the bony morphology and joint gaps. Using a homemade device, the sliding resistance and repositionability were measured in four directions and three combined positions with the 3D-printed surface models.

Results:

The sacral morphology was similar in both models, however the joint gap distribution differed in dysfunctional models compared to healthy ones. In the rotated combination, the gap distribution in dysfunctional models approached that of healthy models. Joint sliding resistance and repositionability were lower in dysfunctional models compared to healthy ones, however in the rotated combination, dysfunctional models approached the healthy models.

Discussion:

The decrease in joint repositionability indicates the risk of subluxation under small loads, impairing joint function. The surface morphology and sliding test results showed that rotated combinations in dysfunctional sides approached healthy sides, suggesting that joint misalignment may cause SIJ dysfunction and that adjusting joint combination positions could be a potential treatment.

Research support:

This study was supported by JSPS KAKENHI (JP22KJ0082, JP24K21074), the Sasakawa Scientific Research Grant from The Japan Science Society and Grant program for Dispatch Overseas from Nakatani Foundation for advancement of measuring technologies in biomedical engineering. The data of SIJ articular surface models was provided by Dr. Daisuke Kurosawa (JCHO Sendai Hospital, Sendai, Japan).

Sexual Differentiation in Pathomechanism of SIJ Dysfunction: Centers and Axes of Rotation

Raji OR[1], Tandio J[1], Sarah Mayer[1], Leasure JM[1]

[1]Medical Device Development, USA

Introduction:

Sacroiliac joint (SIJ) dysfunction accounts for approximately 25% of low back pain cases, but accurately diagnosing and treating SIJ-mediated pain is challenging. Understanding the joint motion quality is crucial to improving diagnoses specificity, and treatment efficacy. This study analyzed and compared the center of rotation (CoR), and axis of rotation (AoR) of the SIJ, across both sexes, in its native and diseased states, in six loading directions, in the largest cadaveric dataset.

Materials and Methods:

38 paired fresh-frozen, asymptomatic human cadaveric SIJs (18M:20F Age- 44±11:55±12) from L4 toProximal femurs, were obtained for this study. Specimens were screened for deformity/bridging and pubic symphysis diastasis. Each joint was fixed in a single leg stance, with the hip joint rigidly affixed to the acetabulum, and tested in six loading directions (flexion, extension, ipsi-axial rotation, contra-axial rotation, ipsi-lateral bending, and contra-lateral bending). 12 joints were tested in the native state, without disruption of the ligaments, or pubic symphysis, after which these joints were retested with the pubic symphysis (PS) resected. Another 26 joints were tested, with only the secondary (iliolumbar, sacrospinous, and sacrotuberous) ligaments (SL) resected. Optical tracking systems were used to track the relative motion of the sacrum to the ilium. Each AoR was calculated using the position of the three points on the sacrum at the first and last loading steps. The CoR was quantified as the axis's intersection with the SIJ. The axes' orientation was quantified by the angle of the axis to the anatomical axes. Differences in outcome measures between conditions, sexes, and directional pairs were tested for significance. Unequal variances t-tests were performed in all comparisons except between directional pairs which utilized paired t-tests (95% CI, α=0.05).

Results:

The mean AoRs and CoRs during nutation and counternutation are shown in Figure 1. Native AoRs and CoRs were identical between male and female joints. In female joints, the Nutation CoR shifted posteriorly from the SL to the PS group. In male joints, the Counternutation CoR also shifted posteriorly from the SL to the PS group, and superiorly from the Native to PS group. In female joints, the Nutation AoR tilted anteriorly on the ipsilateral joint and posteriorly on the contralateral joint from the Native and SL to the PS group. In female joints, the Counternutation AoR tilted inferiorly on the ipsilateral joint and superiorly on the contralateral joint from the Native and SL to the PS group. The mean AoRs and CoRs during axial rotation are shown in Figure 2. Native AoRs and CoRs were identical between male and female joints. AoR and CoR changes in the PS and SI groups were only significant in the female specimens. The Contra-axial Rotation CoR shifted medially from the Native and PS to the SL group. The Contra-axial Rotation AoR was tilted anteriorly in the superior portion of the joint, and posteriorly in the inferior portion of the joint, from the Native to the PS and SL groups. The Ipsi-axial Rotation AoR was tilted postero-medially in the superior portion of the joint, and antero-laterally in the inferior portion of the joint, from the SL to the PS group. The mean AoRs and CoRs during lateral bending are shown in Figure 3. The Native Ipsi-lateral AoR of the male joint was oriented antero-superior to postero-inferior, while that of the female joint was oriented antero-inferior to postero superior. The male contra-lateral CoR shifted superiorly from the Native and PS to the SL groups. In both the male and female joints, the Ipsi-lateral bending AoR, was laterally on the anterior portion of the joint, and medially at the posterior portion of the joint from the SL to the PS conditions.

Conclusion(s):

We conclude that the native axis of rotation during ipsi-lateral bending, differs significantly between the male and female joints. This difference appears to be in line with the difference in trajectory of the lower articular portion of the joint. We conclude that compared to the native SIJ, dysfunction arising from the pubic symphysis, significantly alters the pivot point of the male joint during counternutation, for which stabilization which engages the anterior portion of the joint will be optimal. In the female joint, it significantly alters the coupled motion/loading patterns of the joint, with an expected increase in lateral bending during nutation, and an increase in axial rotation during counternutation. Thus, for women in this pathology group, stabilization along a posterior-lateral trajectory will be less effective in nutation, while a superior-medial trajectory (e.g. S2A-I) will be less effective in counternutation. We conclude that compared to the native SIJ, dysfunction arising from the secondary ligaments, significantly alters the pivot point of the female joint during contra-axial rotation, and of the male joint during contra-lateral bending. This shift in the pivot point is most likely to induce hyper-compressive loads on the joint surface. Thus, for this pathology group, stabilization engaging the anterior ala adjacent to the pelvic ring in women, and the inferior articular joint region in men, will be optimal. Finally, in women, dysfunction arising from either the pubic symphysis or secondary ligament leads to a significant anterior tilt in the rotational axis during contra-axial rotation, thus leading to asymmetric expansion of the pelvic ring.

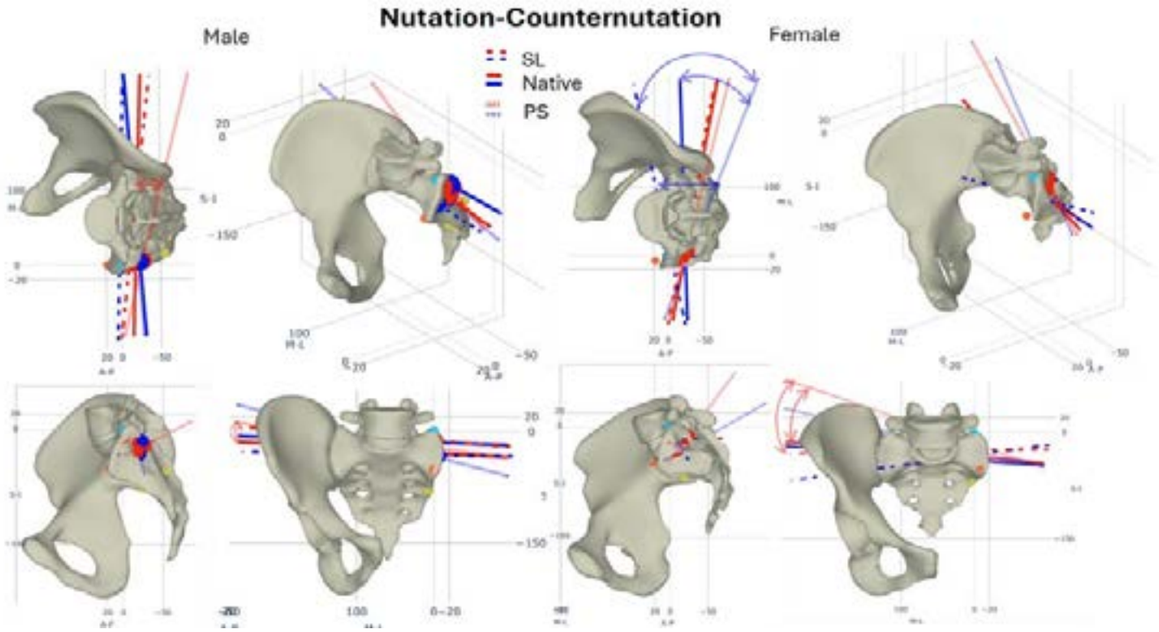


Figure 1: Axes and Centers of rotation during Nutation-Counternutation. Blue indicates Nutation, and red indicates Counternutation. Straight lines with arrows signify differences in CoR positions along the collinear anatomical axes and between the test groups indicated by the arrow endpoints. Arcs with arrows signify differences in the anatomical orientations of the directional AoRs indicated by the arrow color, between the test groups indicated by the arrow endpoints.

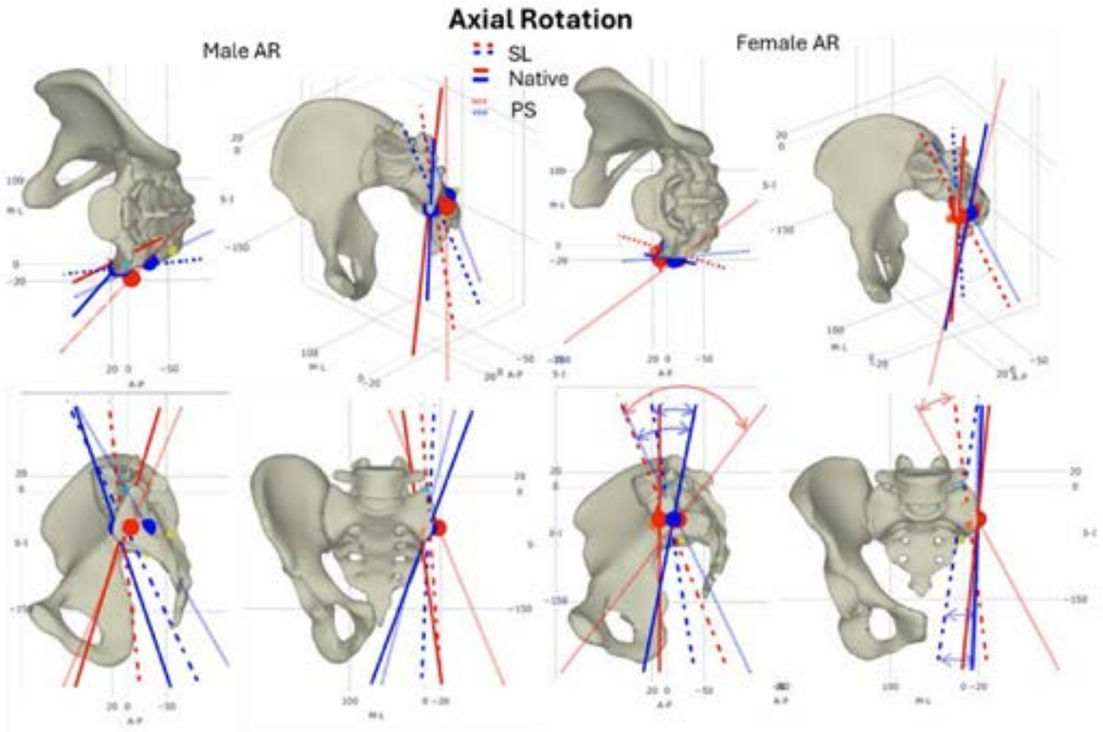


Figure 2: Axes and Centers of rotation during Axial Rotation. Blue indicates Contra-axial Rotation, and red indicates Ipsi-axial Rotation. Straight lines with arrows signify differences in CoR positions along the collinear anatomical axes and between the test groups indicated by the arrow endpoints. Arcs with arrows signify differences in the anatomical orientations of the directional AoRs indicated by the arrow color, between the test groups indicated by the arrow endpoints.

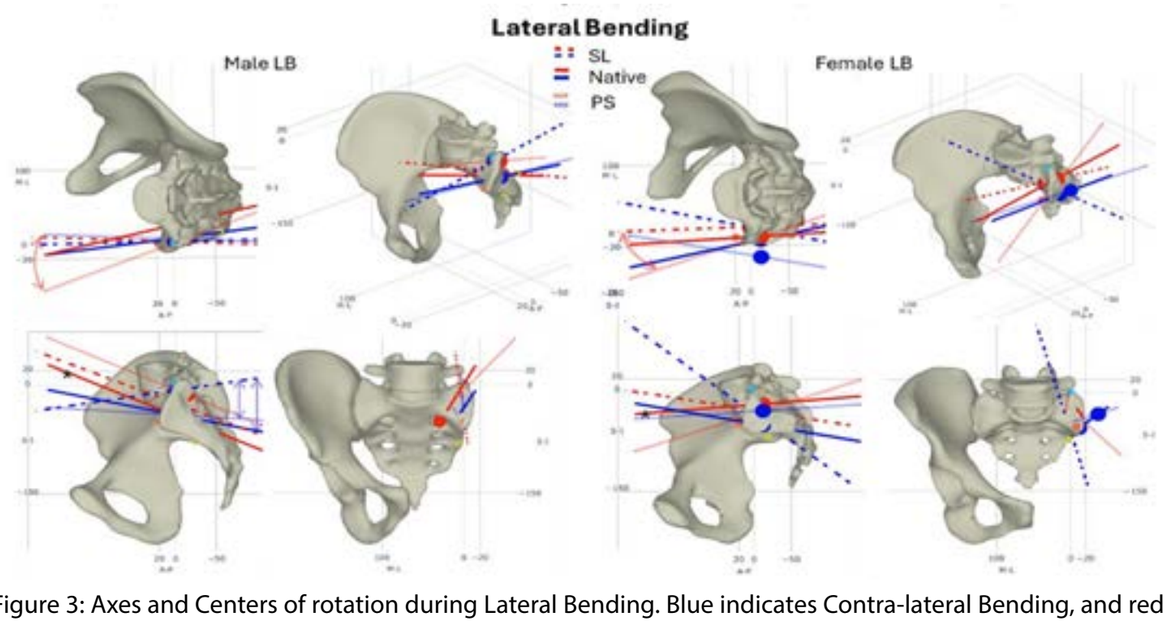


Figure 3: Axes and Centers of rotation during Lateral Bending. Blue indicates Contra-lateral Bending, and red indicates Ipsi-lateral Bending. Asterisks (*) signify differences in AoR between Native Male and Female joints. Straight lines with arrows signify differences in CoR positions along the collinear anatomical axes and between the test groups indicated by the arrow endpoints. Arcs with arrows signify differences in the anatomical orientations of the directional AoRs indicated by the arrow color, between the test groups indicated by the arrow endpoints.

14:40 - 15:10 Physical assessments for SIJ dysfunction/pain (+demonstration)

Physical Assessment for SIJ Dysfunction

Stark John, MD

Backpain Clinic, Minneapolis, MN, USA

SIJ pain is suggested to be 20-30% of back pain presentations (Stark, 2011). Considering these statistics, every back pain patient should be suspected of having SIJ-related pain, and each low back patient should be examined for SIJ signs. Therefore, the physical assessment should begin with a high index of suspicion; ruling out an SIJ origin should be a primary goal. Both the lumbar spine lesions and SIJ pain are diagnoses of inclusion and exclusion. Both may exist individually or concurrently.

Radicular-type symptoms may be present because of the SIJ or lumbar disease or both. Therefore, a cautious neurological examination should be routine, since extraaxial and spinal based radicular symptoms must be differentiated.

Like other joints, long term SIJ related pain is likely a secondary degenerative process, but unlike other joints, pain provocation is not subject to range of motion testing. It requires stress postures with a modification: deep palpation should be added to the Patrick-FABER exam, along with the straight leg raising examination; the SIJ consideration should become part of every low back examination.

The patient is examined both standing and supine. The examination is always done slowly, deliberately in a controlled fashion, always avoiding forceful thrusting.

Once suspected, the positive SIJ examination should be correlated with imaging, if possible. However, imaging does not supplant the physical examination especially if imaging is negative.

Differential injections is important, but the physical exam remains primary.

The surgeon should be deeply involved in every diagnostic decision.

The palpating hand behind the PSIS during the stress postures of the SIJ examination. It provides a differentiating sign between SI and midline complaints.

The abstracts are listed in alphabetical order of the Speakers

Clinical Evaluation of Sacroiliac Joint Pain in Adolescence and Adult

d'Hemecourt, MD

Boston Children's Hospital, Sports Medicine, Boston, USA

Sacroiliac joint pain is a very common phenomena that is often mistaken for other diagnoses. It may be associated with other pathologies and therefor difficult to assess. Etiologies of SI pain may be categorized into three categories: SI dysfunction, chronic ligament enthesopathy, and inflammatory. SI dysfunction may be secondary to acute pelvic trauma or chronic instability.

There is no perfect diagnostic imaging test for this array of possibilities. The history and physical are paramount in the diagnosis. However, the history requires a full understanding of the many associations with SI pathology. Furthermore, there is no one specific physical finding that makes the diagnosis. One must have a high suspicion and correlate all the findings.

Pain may be either intra articular such as arthritis or peri-articular due to ligamentous injury and laxity. Chronic SI pain is often mechanical. There is a large association with hip FAI and spine pathology. Spinal fusions and FAI impart more motion to the SI ligaments. This emphasizes the interaction of the spine, sacroiliac joint and hip. Hypermobility and hypomobility pathologies may cause peri pelvic pain such as the pregnancy or ligamentous laxity syndromes. Asymmetric forces the pelvic ring such as scoliosis and limb length discrepancy will also strain the SI ligaments. Inflammatory conditions such as the spondyloarthropathies require a high level of suspicion and require questioning items such as morning stiffness and family history.

The non-dermatomal radiation pattern is often confused with spinal pathology. The radiating patterns are often secondary to the ligamentous irritation as well as cluneal nerve involvement. The sacroiliac joint is stabilized by multiple ligamentous layers. Specific portions demonstrate consistent patterns of groin and leg involvement when irritated.

While often seen in mid-age, the young athlete may suffer from SI due to instability. The history should consider some specifics of the younger age group. The adolescent growth spurt imparts an increased pelvic incidence with forward pelvic tilt. The female athlete is quite prone due to anatomic differences. The female gender demonstrates increased ligamentous laxity, a more anterior center of gravity, less SI contact and a more vertical sacrum. Sports specific biomechanics often involve asymmetric forces across the pelvis such as the baseball pitcher. Running abnormalities with an overstride heal strike increases the load across the SI joints. Inflammatory spondyloarthropathy may present in the adolescence and adulthood.

These patients will often complain of buttock pain that may be sharp, stabbing and shooting down the posterior and lateral thigh and even the lower leg. This is non dermatomal. SI pain can vary, but it is generally more intense with prolonged standing, walking, or activities that involve weight-bearing. However, sitting, especially for long periods or in certain positions, can also aggravate SI joint pain for some people. The pain may worsen with transitions between sitting and standing or with activities that put uneven pressure on the pelvis, such as climbing stairs. Patients may exhibit sitting in a position offloading of the ischium on the affected side.

In the supine position, the hip should be tested for any associated femoral acetabular impingement. This may be with a flexion, adduction and internal rotation maneuver (FADIR) or with a scours test which is similar but rotates in this position. A straight leg test is done to assess potential coexisting spinal dural tension. Next, the typical SI provocation maneuvers include the thigh thrust, distraction of the ASIS, Faber and Gaenslen's test. Next, the decubitus position is assumed with the ipsilateral pain up. Direct lateral compression and a sacral torque test may be performed. Finally, in the prone position, a sacral shear test is performed along with a sacral compression test attempting to reproduce the pain. Ideally, at least 3 of these should be positive. This may lead to a diagnostic SI joint injection.

Thigh Thrust. Distraction. FABER. Gaenslen

Compressio n Sacral Torque. Sacral Torque Sacral Torque Sacral Compression

[1] Horner NS et al, Am J Sports Med. 2022

[2] Eiichi M et al, Clin Neurol Neurosurg. 2017

[3] Anderson D et al, Orthop Rev (Pavia). 2022

[4] Kiapour A et al, Int J Surg. 2020

[5] Kato K et al, J Orthop Sci. 2022

[6] Whitney KE et al, J Phys Ther Sci. 2022

[7] Kurosawa et al, Pain Med. 2017

15:10 - 15:25

Imaging Findings in SIJ (SPECT/CT)

Jennifer Saunders, MD

University of Notre Dame, AUT

The first study was to determine the sensitivity and specificity of this methodology for confirming the clinical diagnosis of Sacroiliac Joint Mechanical dysfunction. Authors: Mel Cusi • Jennifer Saunders • Hans Van der Wall • Ignac Fogelman Eur Spine J DOI 10.1007/s00586-013-2725-5

The abstracts are listed in alphabetical order of the Speakers

Abstract:

Purpose To establish the sensitivity and specificity of cross-sectional scintigraphy [single photon emission computed tomography (SPECT)] combined with computed X-ray tomography (CT) in the detection of sacroiliac joint (SIJ) mechanical dysfunction and evaluate reproducibility of reporting.Methods:

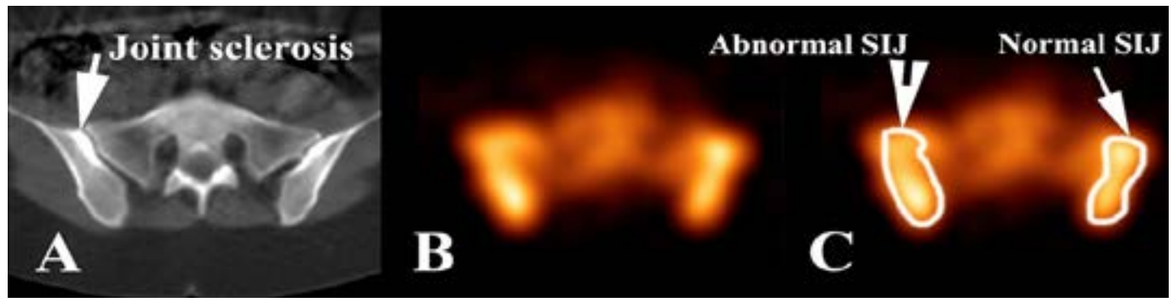
Patients with pelvic girdle pain either on the basis of peri-partum SIJ dysfunction or trauma were included. These patients were imaged with bone scintigraphy with hybrid imaging with SPECT/CT.

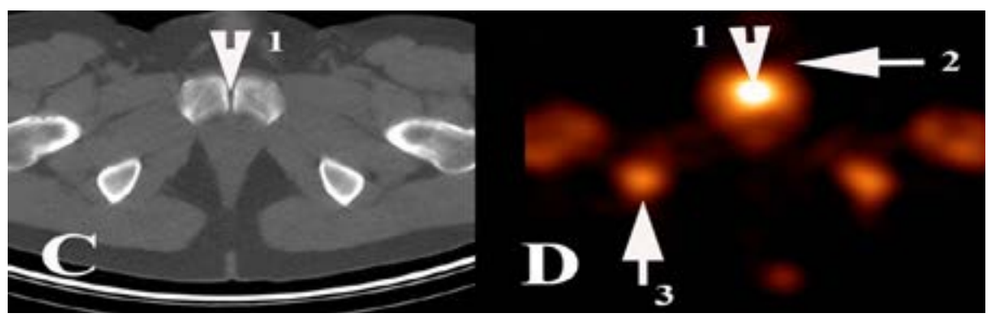
Results :

The study group comprised 100 patients (72 females, 28 males).The Control group consisted of 30 patients. Trauma accounted for 52 % and the remainder were patients with peri-partum pain. Average age was 43 years and average length of history was [2 years. The major finding was increased uptake in the upper SIJ and posterior soft-tissues/ligaments. Hybrid imaging had a sensitivity of 95 % and specificity of 99 %. Positive predictive value was 99 % and negative predictive value 94 %. Power of the test was 1.0. Reproducibility of the test was good with kappa values of 0.85.

Conclusion:

Hybrid imaging with SPECT/CT reproducibly demonstrates metabolic alterations around the SIJ in patients with SIJ dysfunction, which we have termed SIJ incompetence. The condition is more common than previously recognised and frequently occurs after trauma, which has not been reported previously.





Also view the pubis, for osteitis pubis, and tendonopathy of both hamstrings and adductors

Study 2:

What's Old Is New Again: The Sacroiliac Joint as a Cause of Lateralizing Low Back Pain

Jennifer Saunders, Mel Cusi, and Hans Van der Wall

University of Notre Dame, AUT

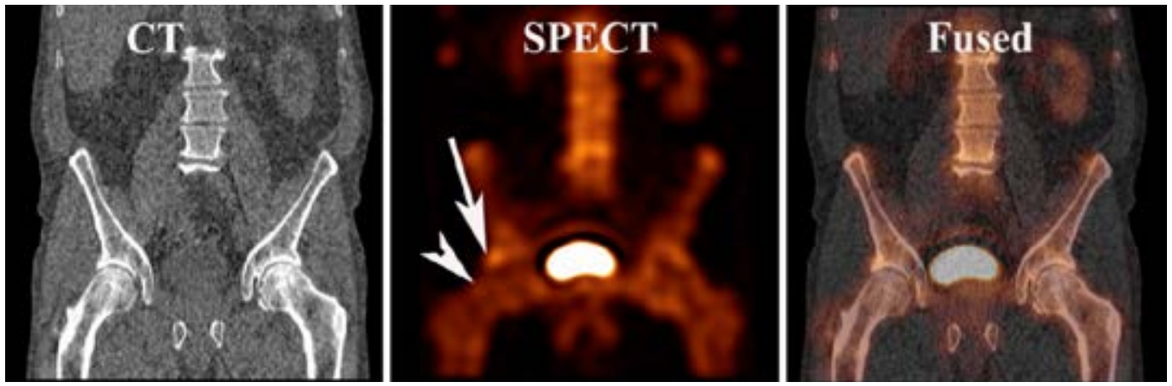
ABSTRACT

It has not been easy to identify mechanical failure of the sacroiliac joint (SIJ) with traditional imaging. The integrated model of function (Lee and Vleeming, 1998) suggests that under normal circumstances, form and force closure combined contribute to sacral nutation and "locking" the SIJ for optimal load transfer. This model is supported by clinical evidence and scintigraphic findings that contribute to successful therapy in 80% of cases. Single-photon emission computed tomography and x-ray computed tomography (SPECT-CT), a hybrid device, was used in a study of 1200 patients (64% female and 36%

Standard clinical testing and an alternate series of tests were used as a reference standard for imaging. Symptoms were present for a mean of 43 months. Imaging finding were of increased uptake in the upper SIJ (S1–S2), with extension into the dorsal interosseous ligament and measurable by count profile. Associated findings of tendon enthesopathy reflected altered biomechanics around the pelvis. Ipsilateral adductor enthesopathy was found in 70% and contralateral hamstring enthesopathy in 60% of patients. SPECT-CT criteria for the diagnosis of SIJ incompetence were developed and validated. SPECT-CT is a valid and reproducible technique for the diagnosis of SIJ incompetence with high concordance and specificity compared to the reference standards. Findings are supportive of the integrated model of SIJ function proposed by Lee and Vleeming.

Diagram Below.

Femeroacetabular hip impingement in a patient with right sacroiliac joint incompetence. The patient presented with right buttock pain and sudden onset of worsening groin pain while running. Intense uptake is apparent in the superior lip of the right acetabulum (arrow), which was subsequently shown to be an acetabular labral tear. A camshaped femoral head is apparent on both sides, being more marked on the right, with increased uptake at the head and neck junction (arrowhead) on the right.



This study confirms the value of using SPECT CT to confirm the clinical diagnosis and assist with a positive outcome. Furthermore 70% of these patients had a normal MRO of the lumbar spine and/or hip leading to a significant delay in diagnosis, and even being accused of malingering or having a psychiatric illness.

The abstracts are listed in alphabetical order of the Speakers

15:25 - 15:40

Imaging findings of the sacroiliac joint that may be relevant to the pathology and indications for surgery

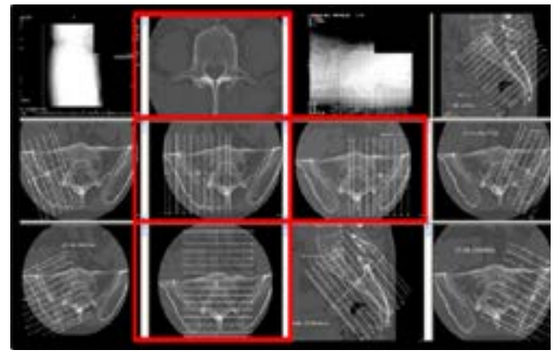
Stark John, MD
Backpain Clinic, Minneapolis, MN, US

The diagnosis of SIJ dysfunction is a clinical diagnosis, not a radiologic one. The diagnosis begins with a Pain Diagram and a high index of suspicion. Then, imaging and clinical correlation are critically linked. The SIJ diagnosis may easily coexist with lumbar, hip, or visceral disease. CT is emphasized because of its ability to demonstrate bone disease, including segmentation abnormalities, vestigial joints, and surgical osteology.

The surgeon, as a physician, is responsible for surgical and nonsurgical considerations. These include neoplasia, infection, metabolic disease, and dysmorphism, all of which may cause SIJ-related complaints. "Upstream" elements, including cervical stenosis or central nervous system elements should be suspected, especially in the circumstance of unusual neural sign distributions.

Degenerative arthritis of the SIJ is common and may be present. Often, the severity of changes will have no relationship to the severity of the pain. If the SIJ suspicion is confirmed by physical examination, appropriate imaging includes lumbar spine studies (plain radiography of the lumbar spine and pelvis), and a modified CT scan which includes axial sagittal and coronal images in the planes of the SIJ. The protocol recommended is planned using the land marks provided by the routine SIJ CT.

A radicular suggestion should not be assumed to be due to the lumbar spine. Extraaxial causes outside of the spine may coexist. Two concepts are presented, "The Gauntlet" (a distance between the foramen and the SIJ itself) and the "Critical Zone" (converging degenerative and vascular elements at the SIJ). Both are common and may lead to misdirected lumbar surgery.



Coffee Break - 30 min.

Chair: Pierre' Hemecourt

16:10 – 16:25 Diagnostic SIJ injections

Diagnosis of Sacroiliac Joint Dysfunction/Pain with Sacroiliac Joint Injections - The practice of the procedures based on the anatomy and its implications

Daisuke Kurosawa, MD

Japan Sacroiliac joint and Low Back Pain Center, JCHO Sendai Hospital, Sendai, JPN

Sacroiliac joint (SIJ) dysfunction is a significant contributor to lower back and buttock pain. Accurate diagnosis and effective treatment of SIJ-related pain is considered not easy due to the complex anatomy and varied pain sources of the joint.

This presentation explores the diagnostic value of SIJ injections, specifically peri-articular and intra-articular injection. We highlight that approximately two-thirds of SIJ pain cases originate from the posterior ligamentous region rather than the intra-articular region. This finding is supported by the clinical outcomes and distribution of nerve endings, which are predominantly located in the posterior ligamentous region, making peri-articular injections a reliable diagnostic tool when administered under fluoroscopy or ultrasound guidance. An intra-articular SIJ injection is required when a peri-articular SIJ injection is ineffective. Conventional intra-articular injection methods are technically difficult and do not have a high success rate. We have developed a new middle approach to increase the success rate of this injection.

Is there a difference in the type of pain/symptoms from the articular and posterior ligamentous regions? In our previous study, patients with pain originating from the intra-articular region often had a higher frequency of sacro-tubercular ligament tenderness. There may be a different pathway for pain originating from the intra-articular region, as discomfort remains during joint space distension even when the posterolateral branch of the S1-3 nerve is blocked. Patients who respond well to SIJ intra-articular injections may have intra-articular inflammation as well as pain originating from the anterior or basal capsule/ligamentous regions because these regions may be infiltrated by only SIJ intra-articular injections.

When assessing the indication and efficacy of surgery, it is useful to perform both peri and intra- at the same time. This is because all sources of SIJ pain can be blocked.

16:25 - 16:55 The latest WIP guideline for SIJ pain treatment

Detailed Anatomy and Interventional Techniques in Sacroiliac Joint Pain Management

Karolina Szadek, MD
Department of Anesthesiology, VU University Medical Center, Amsterdam, NLD

Introduction
Sacroiliac (SI) joint pain significantly contributes to the prevalence of mechanical low back pain, affecting 15% to 30% of patients. This in an updated perspective on the intricate anatomy of the SI joint and the sophisticated interventional techniques aimed at diagnosing and managing SI joint pain.

Methods
This review synthesizes information from an array of sources, including recent systematic reviews and randomized controlled trials (RCTs) up to 2022, to elucidate the diagnostic and therapeutic approaches to SI joint pain.

Anatomy of the SI Joint:
The SI joint is a complex diarthrodial synovial joint that crucially links the sacrum to the iliac bones of the pelvis. It is uniquely designed to support significant forces transmitted through the spine to the lower limbs. The joint is stabilized by a network of robust ligaments including the interosseous, anterior, and posterior sacroiliac ligaments, and supplemented by the sacrotuberous, sacrospinous, and iliolumbar ligaments. Muscular support is provided by powerful adjacent muscles such as the erector spinae, piriformis, and gluteal groups. Innervation is predominantly from the L4 and L5 nerve roots on the ventral side of the SI joint, and from the dorsal sacral plexus, specifically the lateral branches of the posterior rami of S1 to S3, innervating the dorsal part of the SI joint. This rich anatomical configuration contributes to the joint's stability and limited mobility, but also to the complexity of SI joint pain etiology.

Diagnostic Techniques:
Accurate diagnosis of SI joint pain relies on a combination of detailed patient history, comprehensive physical examinations, and selective use of imaging modalities. Physical exams focus on pain provocation maneuvers, which, despite their limitations, remain crucial in clinical settings. Imaging techniques such as MRI and CT scans are employed primarily to exclude serious conditions („red flags") rather than confirm SI joint pain, given their limited specificity. Diagnostic blocks, though commonly used, are marred by controversies regarding their reliability due to high rates of false-positive and false-negative results.

Interventional Techniques:
1. Corticosteroid Injections: Administered both intra- and extra-articularly, these injections are documented to alleviate pain for periods extending up to six months, providing significant relief from acute exacerbations of chronic SI joint pain.

2. Traditional RFA methods have demonstrated moderate success in alleviating SI joint pain by targeting the L5 dorsal ramus and S1-S3 lateral branches, with outcomes varying significantly based on the technique used and the precision of nerve targeting. Cooled RFA, which uses internally cooled electrodes to create larger, more confluent lesions, has shown superior efficacy in several studies. Patients treated with cooled RFA typically experience prolonged pain relief, with significant improvements in function and quality of life. Studies comparing cooled RFA to conventional RFA have consistently demonstrated that cooled RFA provides better and more durable outcomes, especially in terms of pain reduction and functional mobility.
3. Surgical Interventions: The evolution of minimally invasive surgical techniques for SI joint fusion reflects the growing need for durable solutions in cases unresponsive to other treatments. These techniques aim to stabilize the joint and alleviate pain, particularly in patients with joint degeneration or instability.

Conclusion:
The management of SI joint pain requires a robust, interdisciplinary approach, integrating advanced diagnostic and interventional techniques tailored to the complex anatomy of the SI joint. The continuous refinement of interventional strategies, particularly in radiofrequency ablation and surgical innovations, holds promise for improving outcomes in patients suffering from this challenging condition.

Keywords:
Sacroiliac joint, low back pain, advanced anatomy, interventional pain management, corticosteroid injections, radiofrequency ablation, surgical techniques.

References:
Szadek K, Cohen SP, de Andrès Ares J, Steegers M, Van Zundert J, Kallewaard JW. 5. Sacroiliac joint pain. Pain Pract. 2024 Apr;24(4):627-646.

16:55 – 17:10 SIMEG project: ISAR

International sacroiliac arthrodesis registry

Blay Martin, MD

Orthopadie am See, Kreuzlingen, CHE

The register offers the inclusion of patients with conservative, infiltrative, denervating or surgical methods.

It is essentially based on PROMs, which are sent to patients by email at various times before and after the start of a specific treatment. Patients log in to the ISAR site with their access data and can answer the questionnaires available there.

In addition to the questions for the patients, questionnaires are also provided for the treating physicians, with which historic/anamnestic, clinical, radiological and infiltrative clarifications can be documented at any desired time.

There are hardly any mandatory fields.

This makes the registry a very open platform, which could be used, for example, to look after patients as part of studies.

The patient questionnaires include a one-off medical history questionnaire at the start of treatment and 3 follow-up questionnaires: DSIJQ, EQ-5D-5L, iSOS.

The iSOS is still a rather extensive questionnaire that can and should be further condensed and established as an ISG-specific questionnaire as part of the “ISAR” project.

The register allows simple analyses to be carried out quickly; for more complex queries, all data can be filtered and exported for statistical analyses.

SIMEG members can use the register free of charge.

Funding has so far come from membership fees of SIMEG and is to be increasingly taken from a funding pot for ISAR projects in the future. In this way, the influence of third parties should be avoided as far as possible.

So please get part of ISAR, join the registry and with doing that improve knowledge about SI joint treatment.

17:10 – 17:30 Chair: Blay

Discussion for ideal registration system and scintific study

SI knowledge, diagnostics, therapies are all not accepted everywhere. So we certainly do have a lack of data to support our way of thinking and acting.

What makes a procedure successful? What is „success“?

1) It should not only work in my hands but in all hands out there that take care of the same principles.

2) To dinstinguish between SI and other problems, thus being as precise as possible.

3) To name and treat as precise as possible the underlying pathology

4) Have as little as possible side effects or complications.

5) knowing the shortest and safest way to solve the problem

6) solve the problem for ever

But how do we get there!

What is a good result? Pain, function, fusion,…..

Who states that the result is good? Patient, doctor, nurse, company?

What is a complication?

Who defines that there is a „complication“?

How do we rate an improvement?

What is an improvement?

And a lot more of that.

Our problem:

So far we still lack knowledge for so many things in the field of SI treatment.

are there SI specific key questions to ask the patient

are there SI specific key tests to do in the clinical exam

are there other SI specific steps like xray/CT/MRI at certain times to be done?

The abstracts are listed in Speakers order

infiltration algorithme?

inclusion/exclusion for therapy: diagnostic algorithme

pain patients with typically more than one diagnosis

So what do we call an „improvement“?

SI specific questionnaire

is the DSIJQ enough? Reduction of pain medication? getting back to work?

Is a fusion without bony fusion a success even pain is gone?

What is a „complication“?

how do we measure the rate of complications

The number of surgically treated SI patients usually is low. So single centers will not have the power to get good statistics. International studies are difficult and expensive to be organized and therefore often are critical concerning influence of 3rd parties.

National registries often still lack SI joint treatments.

So what are we looking for?

1) improve and create basic knowledge:
   key questions to the patient for diagnostics, choice of treatment, for follow up

2) follow as many patients as possible to get solid numbers with different ways of therapy

3) find out what we are doing in the SI society (worldwide)

4) compare different ways of treatment, of nonsurgical and surgical treatment

5) best way to do it….

6) it must be save, cheap, simple

19:30 Dinner* (Der Steirer) Graz.

Saturday, 21. 9

Morning session

Chair: Daisuke Kurosawa

Non-operative treatments

08:30 - 08:40

Physical therapies standards for SIJ dysfunction/pain

Asagi Sato[1] , Takeshi Sasaki[1], Daisuke Kurosawa[1,2], Eiichi Murakami[1,2]
[1] Japan Sacroiliac joint and Low back pain Center, Japan Community Healthcare Organization Sendai Hospital, Sendai, JPN
[2] Dept of Orthopedic surgery, Japan Community Healthcare Organization Sendai Hospital, Sendai, JPN

Introduction:
Effective combinations of Physical therapies for sacroiliac joint disorders (SIJD) are being investigated and worked on so that they can be standardised. First, an orthopaedic surgeon confirmed the diagnosis of SIJD with a sacroiliac joint (SIJ) injection. Physiotherapist then provide standard Physical therapies from an early stage. This could help prevent SIJD from becoming chronic or intractable.

Physical therapies standards for SIJ dysfunction/pain:
Standard Physical therapies is implemented after definitive diagnosis by SIJ injection. First, normalize joint movement with AKA Hakuta Method or Swing Ishiguro Method. The SIJ is then stabilized with a pelvic belt to strengthen the abdominal trunk muscles and increase the rigidity of the SIJ. There are three types of pelvic belts (Smart Spine SI Support, Balacon Belt and Functional pelvic Tanaka's belt). Various types are fitted and selected to suit the patient. Abdominal trunk muscles strengthening is useful with the RECORE® abdominal trunk muscles training device and selective transversus abdominis muscle training under ultrasound. It is useful to combine this with motion instruction to reduce SIJD in ADL. Modify the motion to spine user to hip user to avoid increasing the shearing forces on the SIJ. The patient's family is present during the visit and the Swing Ishiguro method is taught as self-care if the family is able to implement it at home. Sitting instruction with a rolled towel if pain is severe during sitting. If the pain is severe when turning over or waking up, adjust the pillow height with the Orthopaedic Pillow®.
Inform patients about the self-care they can do in their daily lives. Practice improves the effectiveness of treatment. Standard Physical therapies by a physiotherapist after a definitive diagnosis can help to maintain the effects of SIJ injection and increase patient satisfaction.

Assessment of functional impairment and treatment goals:
The Denver SI-Joint Questionnaire (DSIJQ) consists of 10 items, including sitting pain and SIJ instability specific to SIJD. The higher the score (zero-50), the more severe the disease. A Minimal clinically important difference of 22-24% improvement before and after treatment was found to be therapeutically significant. The DSIJQ is useful in determining whether the treatment plan is moving in the right direction.

The abstracts are listed in Speakers order

08:40 – 09:10 Arthrokinemaic approach for SIJ dysfunction (Japan way)

A Unique Approach to Joint Movement Diagnosis and Treatment Arthrokinematic Approach -Japanese Method

Hiroko Hashimoto, MD

Clinic Hakata, Fukuoka, JPN

Background

The pathology of sacroiliac joint dysfunction is largely due to joint misalignment (dysfunction), which current imaging techniques struggle to detect as abnormalities. The arthrokinematic approach (AKA) is a manual therapy based on joint kinematics that addresses abnormalities in joint play, sliding, rotation, and spin within the joint capsule and guides joint surface movement. This technique focuses on sensory receptors in the joint capsule and ligaments. There are four types of sensory receptors in the joint capsule and ligaments that control joint movement and soft tissue tension. When a joint dysfunction occurs, the surrounding ligaments tend to become hypertonic, and this response is particularly noticeable in the sacroiliac joint. At our clinic, most patients present with low back pain believed to be caused by sacroiliac joint ligament dysfunction. We perform manual diagnostic treatments using the characteristics of proprioceptors as reported by Wyke. This study introduces the manual therapy practiced in Japan based on our data.

Methods

We conducted a study on 139 patients (54 men, average age 59.4 years; 85 women, average age 60.2 years) over one year from June 2023 to evaluate treatment outcomes. We examined history of specialist consultations, previous diagnoses, duration before starting treatment at our clinic, changes in SLR angle before and after manual sacroiliac joint function treatment, cure rate, and subsequent treatment progress.

Results

The average number of specialist consultations was approximately 2.2. Diagnoses included sacroiliac joint dysfunction (44%), lumbar spinal stenosis (19%), hip joint disorders (20%), knee joint disorders (14%), herniated disc (2%), and L5 spondylolisthesis or lumbar osteoarthritis (1%). Imaging at previous physicians showed no abnormalities in 25% of cases. The duration before starting treatment at our clinic was less than one month in 21% of cases, one to three months in 16%, four to six months in 12%, seven months to one year in 3%, and over one year in 48%. The change in SLR angle immediately after treatment ranged from 15 degrees to 95 degrees, with an average improvement of 48 degrees ($P<0.05$, Student-T test). The average VAS score was 57mm (20mm to 90mm) before treatment and 3mm (0mm to 25mm) immediately after treatment, showing a significant average improvement of 54mm ($P<0.05$, Student-T test).

The cure rate within three manual therapy sessions was 79% for patients within one month of onset, 68% for those one to three months post-onset, 47% for those three to six months post-onset, 56% for those six months to one year post-onset, and 42% for those over one year post onset. Due to symptom recurrence, 21.6% of patients returned for a follow up more than three months after their last visit. Additionally, 35% of patients continued to visit for regular treatments to maintain sacroiliac joint function. One of the 139 cases was referred to another hospital for removal surgery of an L5/S1 fixation, and the patient has since experienced symptom relief and returned to normal life.

Discussion

We achieved favorable results using a manual therapy developed in Japan for the diagnostic treatment of sacroiliac joint dysfunction. Prolonged sitting and excessive physical activity often worsen sacroiliac joint function. By providing lifestyle guidance and performing regular manual therapy,

treatment effects can be maintained, potentially avoiding sacroiliac joint fixation surgery. Following the presentation, participants will have the opportunity to experience our AKA technique, which treats the sacroiliac joint ligaments through proprioceptive receptors.

09:10 – 09:40

Manual therapies specific for SIJ dysfunction (Austrian way)

Schmid Gerhard, MD

Osterreichischen Arbeitsgemeinschaft fur Manuelle Medizin, AUT

The aim of this lecture is to present diagnostic and treatment of SIJ dysfunction in the way of manual medicine. The following workshop will train, how to use it practically. The MIP-Diagnostic (Mobility, Irritation, Provocation) is used to find the dysfunction and the decision of treatment. There are different techniques of mobilization and manipulation (HVLA – high-velocity low amplitude). HVLA means rapid use of small force over a short duration and distance (and/ or rotation) within the anatomical range of motion of a joint. This techniques are very useful in treatment of SIJ dysfunction.

09:40 – 10:10

Treatment strategy for chronic SIJ pain syndrome

JP van Wingerden PhD,

Dutch Rehabilitation & Spine and Joint Centre, the NLD

Sacroiliac joint problems occur far more often than we assume. Not only woman around pregnancy, but also man as a result of mechanical impact may suffer chronic SI complaints. Pain around the SI joint can be very disabling. But we have to be aware that problems in the pelvic girdle may have impact beyond the region of the pelvis. Consider incontinence, breathing disorders, secondary pain complaints in several regions of the body (bursa trochanterica inflammation, piriformis syndrome, pseudoradicular pain, neckpain, headaches, bowel problems, breathing problems, loss of power and stamina)

In addition SI problems can seldomly cured with a single manipulation or similar intervention. Chronic SI joint problems are the result of an intrinsic disturbance of the SJ joint control in combination with psychological and social aspects.

Consequently, an effective conservative treatment for SI Joint problems has the nature of a lineup of domino tiles. Flip the first, and if the tiles are positioned right the whole sequence will follow. Forget or misplace one tile and the sequence will be interrupted and without the desired result.

In this presentation will be shown which tiles (biological, psychological and social therapeutical aspects) need to be addressed in what order.

The results in severe pelvic pain patients will be shown and discussed.

Coffee Break - 30 min.

Chair: William Cross

Pathology of severe SIJ problem

10:40 - 10:55

SIJ laxity

d'Hemecourt

Boston Children's Hospital, Sports Medicine, Boston, USA

The SI joint is often described as being suspended in ligaments, with the sacrum essentially „hanging" between the iliac bones. This design allows the joint to handle the substantial forces that pass through it while maintaining stability and minimizing wear on the joint surfaces. The ligaments surrounding the SI joint function like tension wires,

The sacroiliac (SI) joint, located between the sacrum and ilium of the pelvis, plays a critical role in transferring forces between the upper body and lower extremities. The motion of the sacrum within the SI joint occurs in two primary directions:nutation and counternutation. Nutation refers to the anterior tilt of the sacral base while the coccyx (tailbone) moves posteriorly. This movement occurs naturally when we stand upright or engage in weight-bearing activities, as it helps lock the SI joint and stabilize the pelvis. Counternutation, in contrast, is the posterior (backward) tilt of the sacral base while the coccyx moves anteriorly. This movement generally occurs during activities like squatting or bending backward and creates a looser position for the SI joint, allowing for more flexibility.

Both nutation and counternutation are essential for pelvic and spinal mechanics, enabling efficient movement, force distribution, and stability during dynamic activities such as walking, running, and lifting. These movements are small and subtle, but they are crucial for overall lumbopelvic function. The three-dimensional motion of the pelvis and sacroiliac (SI) joint, involving nutation, counternutation, and axial rotation, is critical to understanding how forces are transmitted between the spine and lower limbs, especially during dynamic activities like walking, bending, and rotating the trunk. This three-dimensional movement ensures proper alignment and coordination between the pelvis and spine, supporting overall stability and flexibility.

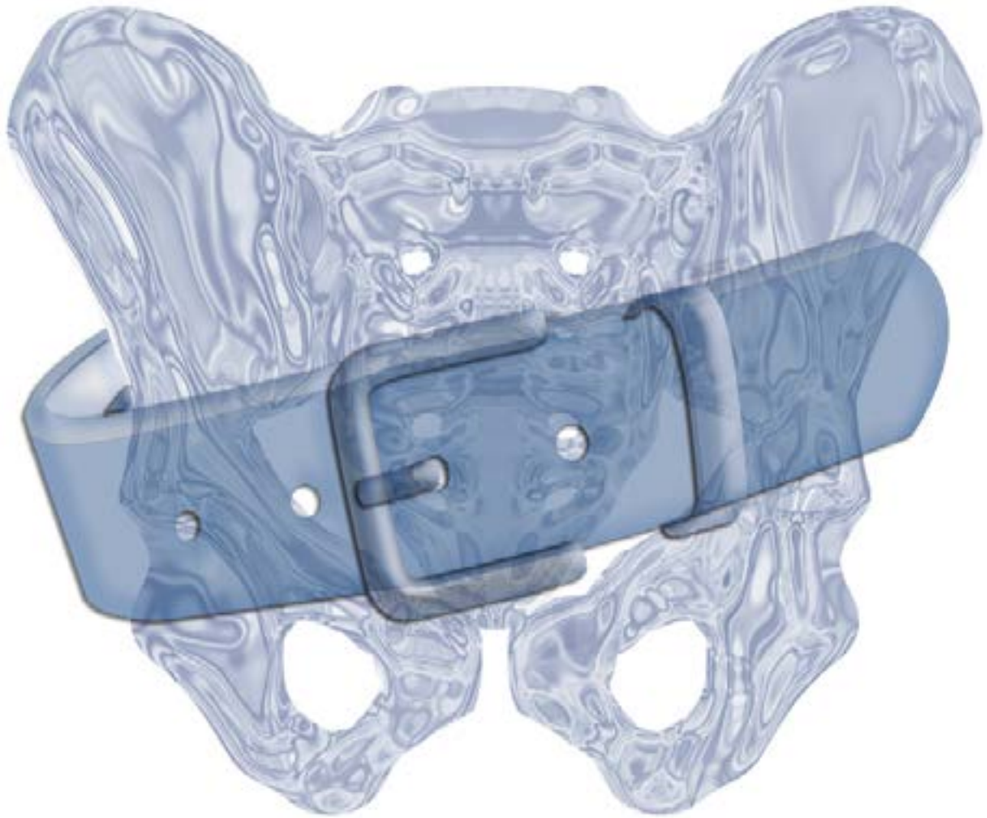
In three dimensions, during nutation, the sacrum tilts forward, and the pelvic inlet narrows slightly. This movement creates a locking effect in the SI joint, stabilizing the pelvis during weight-bearing activities. The pelvis slightly rotates externally as the sacrum tilts forward. The counternutation on the opposite side may have a slight pelvic tilt with the slight altered pelvic rotation.

The ligaments that restrain SI motion are critical for the proper transfer of forces.

The ligaments that Restrict nutation include the sacrotuberous ligament and sacrospinous ligament. Conversly, the interosseous ligament and the posterior SI ligaments limit counternutation.These ligaments form a suspension system that „hammocks" the sacrum between the ilia of the pelvis. This ligamentous network not only limits excessive movement but also helps absorb and distribute the forces transmitted through the joint during various activities.

Ligamentous laxity refers to a condition where ligaments become overly stretched or loose, reducing their ability to provide stability to a joint. This can occur due to several factors, including trauma, pregnancy (due to the hormone relaxin), genetic conditions like Ehlers-Danlos Syndrome, or repetitive strain.In the context of the SI joint, ligamentous laxity can lead to excessive movement in both nutation and counternutation. The SI joint, which relies heavily on ligamentous support for stability, becomes unstable when these ligaments are lax. This instability can manifest as pain, dysfunction, and a sensation of the joint „locking" or „catching" during movement.

With lax ligaments, the sacrum may move excessively relative to the ilium, leading to an unstable SI joint. This can cause recurrent episodes of misalignment, where the sacrum does not return to its proper position after nutation or counternutation. The instability results in abnormal stress on the surrounding muscles and tissues, often causing pain in the lower back, buttocks, or legs. It may also alter force transmission. Ligamentous laxity disrupts the normal function of the SI joint in transmitting forces between the upper body and lower limbs. As the joint becomes more mobile, the forces that would typically be absorbed by the ligaments are transferred to the muscles and other tissues around the joint. This compensatory mechanism often leads to overuse and strain in the surrounding musculature, contributing to chronic pain and dysfunction.



„The Pelvic Girdle“ ©2010 M. Dierks

10:55 – 11:10 Hip-SIJ-spine syndrome

Hip-Sacroiliac joint-Spine syndrome in total hip arthroplasty patients

Ayumi Kaneuji, MD, PhD, Makoto Fukui, MD, Eiji Takahashi, MD, PhD, Yusuke Sanji, MD, Hiroaki Hirata, MD, PhD, Norio Kawahara, MD, PhD

Kanazawa Medical University, Orthopedic Surgery, Kahoku-gun, Ishikawa, JPN

Introduction: Hip-spine syndrome was first described by Offierski and Macnab in 1983. After that, there have been reports of increased stress on the sacroiliac joint (SIJ) due to lumbosacral fusion, as well as reports of increased degeneration of the SIJ, strongly indicating an interrelationship between the lumbar spine and the SIJ, and a link between hip OA and SIJ dysfunction has been suggested. Elucidating the relationship between the hip, spine, and SIJ disorders is thus of considerable clinical importance.

This study is designed to compare the extent of sacroiliac joint (SIJ) degeneration at total hip arthroplasty (THA) for two pathologies: osteoarthritis of the hip (OA) and osteonecrosis of the femoral head (ON). We also assessed the prevalence of SIJ degeneration in patients with lumbar spondylolisthesis or degenerative scoliosis.

Materials and Methods: A total of 138 THA patients (69 OA and 69 ON) were assessed in this study, including 66 hips affected by OA secondary to developmental dysplasia of the hip. The degenerative changes in the SIJ and lumbar spine were evaluated prior to THA using radiographs and computed tomography (CT) scans, showing 9 instances of spondylolisthesis and 38 of degenerative scoliosis. The results in severe pelvic pain patients will be shown and discussed.

Results: The OA group exhibited longer duration from onset to surgery than the ON group. The OA group also included more cases with significant pelvic obliquity (3 degrees or more) and with significant increases in SIJ sclerosis and irregularities. The presence of lumbar spondylolisthesis and of 5 degrees or more of scoliosis were significantly associated with a higher prevalence of irregular SIJ images ($P=0.027$) and ($P=0.00373$), respectively. Further analysis revealed that the presence of SIJ irregularities was significantly associated with asymmetry in the SIJ joint space in the entire group ($P<0.0001$).

Discussion: This study indicated that long-term degeneration of the hip joint has a major impact on the SIJ, making it more susceptible to Hip-SIJ syndrome. And patients with the condition termed “Hip-Spine syndrome” may show a higher prevalence of SIJ degeneration, suggesting the existence of what we have designated as “Hip-SIJ-Spine syndrome”.

Conclusion:

The prevalence of SIJ degeneration was higher in cases of THA for OA than for ON. This study also suggests the possibility of Hip-SIJ-Spine syndrome in THA patients with OA.

Concepts in advanced interventional treatments

11:10 - 11:25 The use of Prolotherapy / PRP in the treatment of Physiotherapy Resistant SIJ Mechanical dysfunction.

Study 1: The use of prolotherapy in the sacro-iliac joint.

Jennifer Saunders

University of Notre Dame, AUS

Objective: To determine whether prolotherapy is effective in the treatment of deficient load transfer of the SIJ.

Design: A prospective descriptive study

Setting: Authors' private practice

Participants: 25 patients who consented to treatment and attended for at least one follow up visit and assessment. Study period From April 2004 to July 2007

Intervention: Three injections of hypertonic dextrose solution into the dorsal interosseous ligament of the affected SIJ, under CT control, six weeks apart.

Main outcome measures: Quebec Inventory, Roland Morris 24, Roland Morris 24 Multiform questionnaires and clinical examination by two authors independently.

Results: All patients included in this study attended for at least one follow up visit at 3, 12 or 24 months. The number of patients at follow up decreased at 12 and 24 months. Functional questionnaires demonstrated significant improvements for those followed up at 3,12 and 24 months ($p < 0.05$). Clinical scores showed significant improvement from commencement to three, 12 and 24 months ($p < 0.001$)

Conclusions: This descriptive study of prolotherapy in private practice has shown positive clinical outcomes for the 76% of patients who attended the 3 month follow up visit (76% at 12 months and 32% at 24 months). Similar results were found in the Questionnaires (Q, RM and RMM) at 3, 12 and 24 months.

Trial registration: Written informed consent was obtained from all participants in the trial. This was conducted as a practice quality project, and as such did not require ethics approval or trial registration.

Further notes regarding this trial. The study participants were taken from a larger group of participants who had been clinically identified as having Sacroiliac joint Mechanical Dysfunction. These remaining patients were the non responders to the specialised Physiotherapy.

The abstracts are listed in Speakers order

Study 2: A comparison of ultrasound guided PRP injection and prolotherapy for mechanical dysfunction of the sacroiliac joint.

Jennifer Saunders

University of Notre Dame, AUS

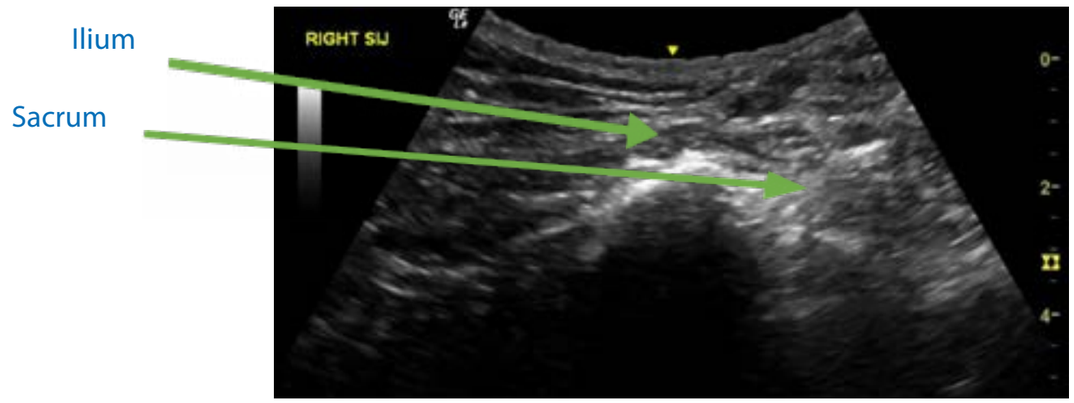
Objective: The sacroiliac joint (SIJ) can become dysfunctional through trauma and/ or pregnancy. The mechanism involves direct or repetitive microtrauma to the buttocks/ lower back. Treatment with specialised physiotherapy alleviates the problems in ~ 80% of cases. The remainder may respond to prolotherapy (hypertonic glucose injections into the dorsal intra-osseous ligament (DIOL) after multiple injections. We hypothesised that the response may be more rapid with injection of platelet enriched plasma (PRP) into the DIOL under ultrasound guidance.

Design: Following Ethics approval, a study was undertaken to compare the efficacy of PRP injections Vs Standard prolotherapy. Setting: A group of 45 patients (35F, 10M, Age range:18-70 yrs) was studied and the results compared to the control group who had received hypertonic glucose injections following tertiary referral from specialized sports medicine physicians.

Main outcome measures: All patients were assessed clinically at baseline, 3 and 12 months. Outcome measures included VAS, Roland-Morris questionnaire and Quebec Back Pain inventory, as well as clinical tests of SIJ incompetence.

Results: The outcome measures of change in pain scores, improvement in function between the groups was superior for the PRP group, All PRP patients experiencing significant improvement in pain score and function. The number of injections required was less for the PRP group (mean of 1.6) than the controls (mean 3.0). Long term benefits were also achieved in 12 months for the PRP group Vs 24 Months for the Prolotherapy group.

Conclusion: PRP is a viable alternative to hypertonic dextrose injections into the DIOL in patients who have failed physiotherapy for SIJ incompetence. It is better tolerated as less injections are required and avoids radiation exposure in a relatively young group of patients.



11:25–11:40

Regenerative medicine for SIJ treatments in the future

Edward Jeffrey Donner, MD.

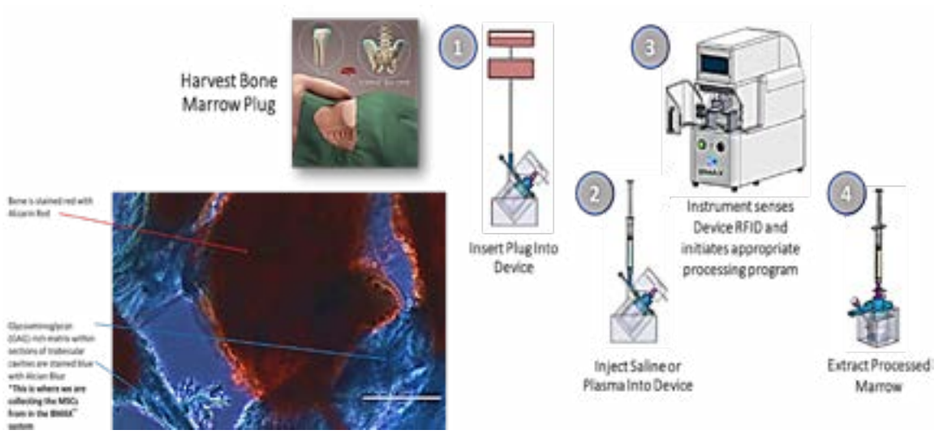
Colorado Spine Institute, Loveland, Colorado, USA

Regenerative medicine has progressively become an accepted medical practice around the world based on substantiating basic science and clinical studies using a variety of biological products ranging from embryonic stems cells to isolated autologous proteins like A2M depending on the disease process but mostly due to the regulatory status of these products in the country in which the treatment is performed.

The US is fairly conservative in terms of the allowable human use and marketing of regeneration medicine products since none have been approved for any specific medical indication. Platelet rich plasma (PRP) has been the most studied and used product with mixed results for a variety of musculoskeletal maladies. The platelets essentially release about 1500 biological factors to the local environment without providing any additional cells to orchestrate the regenerative process.

Mesenchymal Stem/Stromal Cells (MSCs) have intrinsic anti-inflammation and trophic properties beyond PRP and can also access and modulate the immune system. MSCs are commonly and readily obtained from autologous bone marrow or adipose tissue. Bone marrow aspirate concentrate (BMAC), which eliminates most of the pro inflammatory and toxic RBCs through centrifugation but maintains the remaining bone marrow blood products including WBCs, platelets and plasma with its pro-regenerative exosomes and other bioactive messenger molecules but has low concentration of MSCs.

Our clinic developed a unique bone-marrow derived MSC population maintained within its natural stroma and supporting subpopulation of cells (BMAX) which has been shown to have additional anti-inflammatory and regenerative capacity has been used in combination with BMAC to create a better biological product which has been used treat approximately 700 patients with 30 different musculoskeletal conditions with good success including sacroiliac dysfunction and pain.



The abstracts are listed in Speakers order

Disclosures

SI-TECHNOLOGY, LLC – President and majority owner

BMAX Medical LLC – President and majority owner

R&D Regenerative Laboratory Resources, LLC – President and majority owner

Elite Regenerative Institute PLLC – Director and owner

US Patent 11,655,454 Method and Apparatus for Improved Mesenchymal Stem Cell Harvesting – Co-inventor

BMAC *vs* **BMAX™**

***Pitfalls** with BMAC*

- Low MSC content respective to other cell types (0.01-0.001%)
- No method to ensure MSC:
  1. Adhesion
  2. Survival & Proliferation
  3. Retention
- RBC and WBC content may reduce MSC effectiveness/function

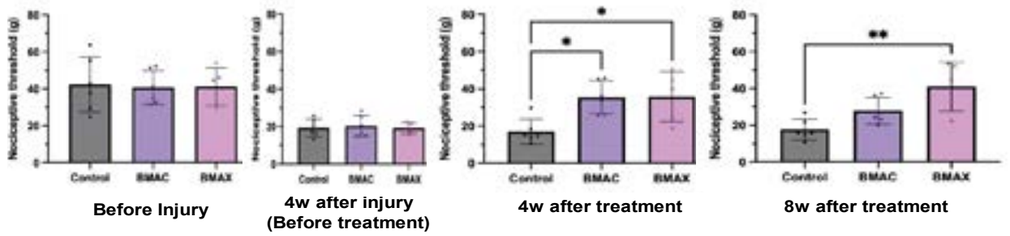
BMAX™ Advantages

- Adhesion: MSCs are naturally embedded in an autologous, non-ridged scaffold at the time of therapy.
- Survival & Proliferation: MSCs begin in a pro-survival environment due to the presence of scaffold. In vitro analysis indicates that MSCs proliferate readily.
- Retention: While daughter cells may "shed" from the scaffold, the MSCs remain in the matrix over several weeks, allowing MSCs to preform their "medicinal signaling" function at the site of injury.

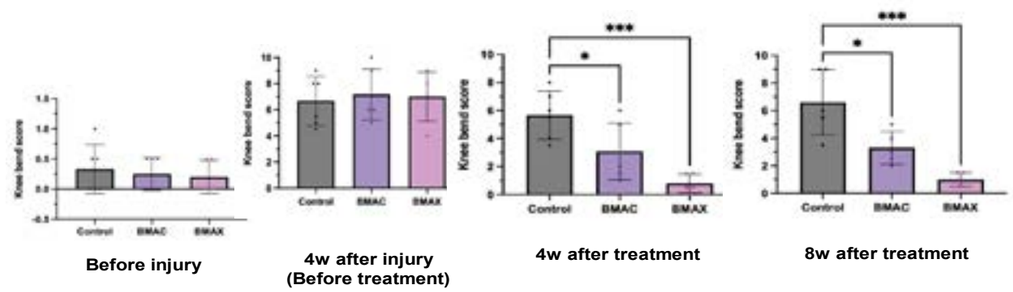
Pain testing

von Frey test

https://doi.org/10.1007/978-3-031-29231-6
Animal Models of Pain and Anti-inflammatory Treatments; Aidan McGinnis, Michael Wang, and Ru-Rong Ji; Page 46



Knee bend test



11:40–11:55 Endoscopic RF to SIJ pain

Endoscopic radiofrequency ablation for SI joint pain

Blay Martin, MD

Kreuzlingen, CHE

Radiofrequency ablation is a procedure in which heat is used to specifically interrupt pain-conducting nerves, at least temporarily, if the pain situation cannot be resolved in any other (orthopaedic) way.

In recent years, this well known procedure has been increasingly used for the large peripheral joints of the extremities.

The procedure has been used successfully on the spine for over 50 years.

It is frequently used to cut the medial branch, which conduct the pain from the facet joints.

Traditionally, the tips of percutaneously inserted probes or needles are heated by electricity, for example, and thus obliterate the desired nerve points.

In the case of painful sacroiliac joints, the rami laterales can be interrupted using this procedure.

In the endoscopic technique, two to three small skin incisions are usually made dorsal to the SIJ and each is entered through the tissue to the sacrum using a monoportal technique with a camera and working shaft. The target area is the cranial base of the transverse processes L5 and S1 and from there a strip laterally to the dorsal neuroforamina towards distally to the sacral caudal edge of the SI joint.

Alternatively, in addition to the transverse processes L5 and S1, only the lateral hemicircumference of the dorsal neuroforamina S1-S4 can be treated.

Due to the regrowth or recovery of the nerve fibers, these denevations usually only have a temporary effect. Whether endoscopic procedures have a longer duration of action compared to percutaneous procedures is the subject of current investigations and observations.

The advantage of a possibly longer duration of effect is offset by the disadvantage of greater invasiveness and, of course, the need to perform a general anesthetic for this procedure, for example.

If the diagnosis of an SI joint pain problem is not yet certain enough for a definitive fusion/transfixation or if the patient does not yet want a fusion, endoscopic denervation represents a certain alternative to conservative treatment. The patient must be aware of the temporary nature of this procedure like it is the same in percutaneous techniques.

12:00-13:00 Lunch/Exhibition

Saturday, 21. 9

Afternoon session

Chair: Donner

13:00-13:30 *Keynote lecture*

Latest clinical SIJ practice in Mayo Clinic, US

Dr. William W. Cross III

The Mayo Clinic SI Joint Clinic:
In the lecture, Dr. William W. Cross III, will present his clinic's foundation and current status. He will review the Mayo Clinic's strategy for evaluating and treating patient's with SI Joint pathology. There will be a question and answer session following the presentation for comments and discussion.

Surgical treatment strategy, concepts, and outcome

13:40-14:10 SIJ fusion surgery and outcomes

Postoperative pain management: secondary endoscopic denervation after fusions

Clement Werner, MD

Zurich, CHE

SIJ fusion surgery and outcomes
I will try to demonstrate that there are certain anatomical or patient-related specific cases, where a different implant can be a valuable option when using the lateral approach.
Postoperative pain manegement: secondary endoscopic denervation after fusions
I will demonstrate how to identify the painful fibers within the ligamentous part of the SI joint, Also, how to look for them during endoscopic denervation (which has developed to ameliorate the results of percutaneous rhizotomy)

Medacta: Presentation: 15min + Practice 45min
Demonstration of the implants and its features, connecting it to the washer, and cadaver demo on how it is placed.

Posterior Sacroiliac Joint Fusion: Technique and Clinical Outcomes

Daisuke Kurosawa, MD,

SIJ and LBP Center, JCHO Sendai Hospital, Japan

Sacroiliac joint (SIJ) dysfunction that remain unresponsive to over six months of conservative treatment often require surgical treatment. Since 2016, we have performed a posterior SIJ fusion technique, modified Dr. Bruce Dall's method. This technique has been evaluated over a seven-year period, from April 2016 to March 2023, during which 21 patients underwent surgery, and 18 were available for follow-up as of September 2023. These patients, with an average age of 43±8 years, were diagnosed preoperatively with SIJ dysfunction, indicated by a SIJ score of 5 or higher and a pain reduction of more than 70% following SIJ injections.

Clinical outcomes were measured using the Visual Analog Scale (VAS) for pain at the posterior superior iliac spine and the Denver Sacroiliac Joint Questionnaire (DSIJQ) for assessing activities of daily living (ADL). The results demonstrated a significant improvement in VAS scores from 88±17mm preoperatively to 24±24mm postoperatively, with DSIJQ scores improving from 32±11 to 19±15 points. Additionally, patient satisfaction was high, with 90.1% of the treated joints (19/21) reported as "satisfied" or "fairly satisfied" with the outcomes. However, residual ADL disability persisted in 7 patients, particularly among those with spondyloarthritis, multisite pain, or unknown etiologies, highlighting the importance of careful patient selection.

The posterior SIJ fusion technique has shown considerable effectiveness, particularly for patients with pain localized to the SIJ or in combination with lumbar spine fusion. However, patients with conditions such as spondyloarthritis or widespread pain may not benefit as much, underscoring the need for careful consideration before proceeding with SIJ fusion.

Evolutionary insights suggest that supporting the area where the load passes through, such as the S2AIS insertion area, is important for treating loading disturbances in SIJ dysfunction. An ideal SIJ fusion procedure involves compression of the articular surface and bone grafting into the joint, contributing to true joint fusion.

The abstracts are listed in Speakers order

Research and Development of SI-TECHNOLOGY® SI-DESIS® X™ with Clinical Outcomes of Intra-Articular SIJ Fusion Technologies

Dr. Edward Jeffrey Donner, M.D.

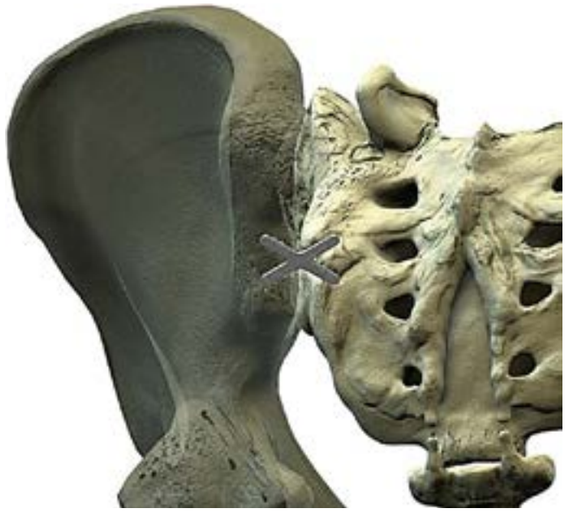
Mayo Clinic, Rochester, MN, USA

The surgical treatment of SIJ pain which is unresponsive to non-operative treatment, has evolved over the past century. The initial surgical fusion procedures were typically performed via an open technique and primarily by removing a bone plug through the lateral iliac cortex followed by removing the SIJ cartilage. The residual bone plug was then seated into the sacrum creating a joint arthrodesis, as outlined by Smith-Petersen in the 1920s. Around the same time period, extra-articular SIJ fusions were also performed, as outlined by Campbell. However, after the herniated lumbar disc was discovered to cause of the majority of sciatic symptoms in the 1930s, SIJ fusions were rarely performed.

Over the past several decades the SIJ was reestablished as a significant pain generator which at times required surgical procedures to help eliminate SIJ pain. To this end, „Minimally Invasive" SIJ „Fusions" were popularized about 15 years ago but most were SIJ fixation devices and not true SIJ fusions since most of these techniques and technologies did not follow accepted orthopedic AO fusion principles and therefore did not create a true joint arthrodesis.

More recently, a growing group of SIJ surgeons have recognized the value of AO fusion principles and have gravitated to technologies which address these principles and also avoid the well-recognized neurovascular complications of trans iliosacral devices well documented in the literature and US FDA Manufacturer and User Facility Device Experience (MAUDE) database.

Based on approximately 30 years of experience performing a variety of SIJ fusion procedures, our clinic has progressively developed a stand-alone SIJ fixation-fusion device using a minimally invasive posterior-inferior, intra-articular approach as well as AO joint fusion principles which also avoids trans iliosacral implants thereby avoiding those associated risks and complications.



Disclosures

SI-TECHNOLOGY, LLC – President and majority owner

si-technology.com for list of patents

14:10–14:25 Reconstruction of Force Closure surgery

Reconstruction-surgery using force closure

Hiroaki Koga, MD

Kyushu Low back pain and Sacroiliac Joint Center, Nanpu Hospital, Kagoshima, JPN

Introduction:

Although the pathology of sacroiliac joint disorders cannot be fully clarified by imaging tests such as MRI and CT.

Recently, bone scintigraphy-based 99mTc-MDP SPECT/CT has improved the pathologic imaging of sacroiliac joint disorders.

Materials and Methods:

The sacroiliac joint was divided into the S1, S2, and S3 regions based on the anatomical positioning, and the degree of 99mTc-MDP accumulation in each region was quantified using the standardized uptake value (SUV) of the spots where 99mTc-MDP accumulated.

Results:

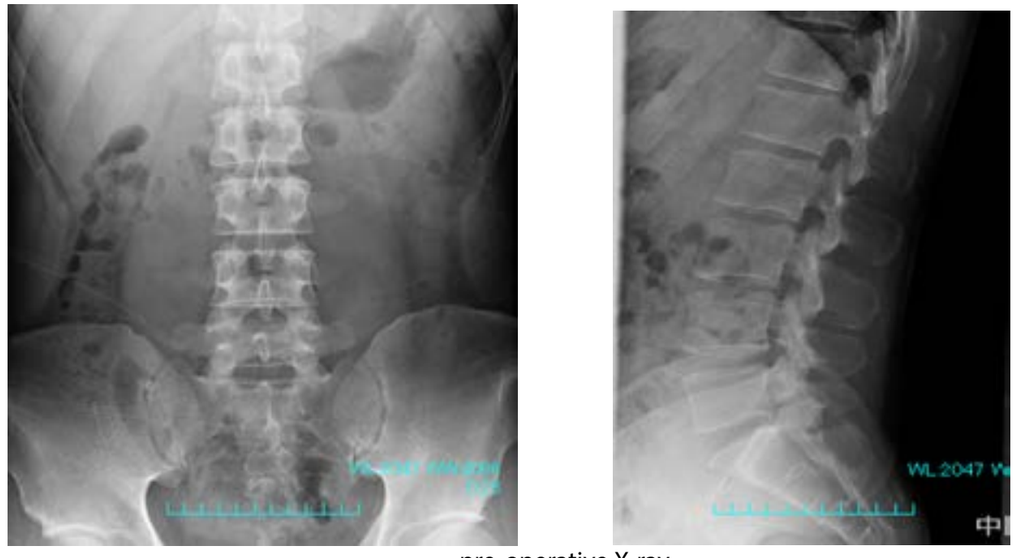
In patients with intractable sacroiliac joint disorders, the maximum SUV was observed in the S2 region in > 95% of the affected joints.

Conclusions:

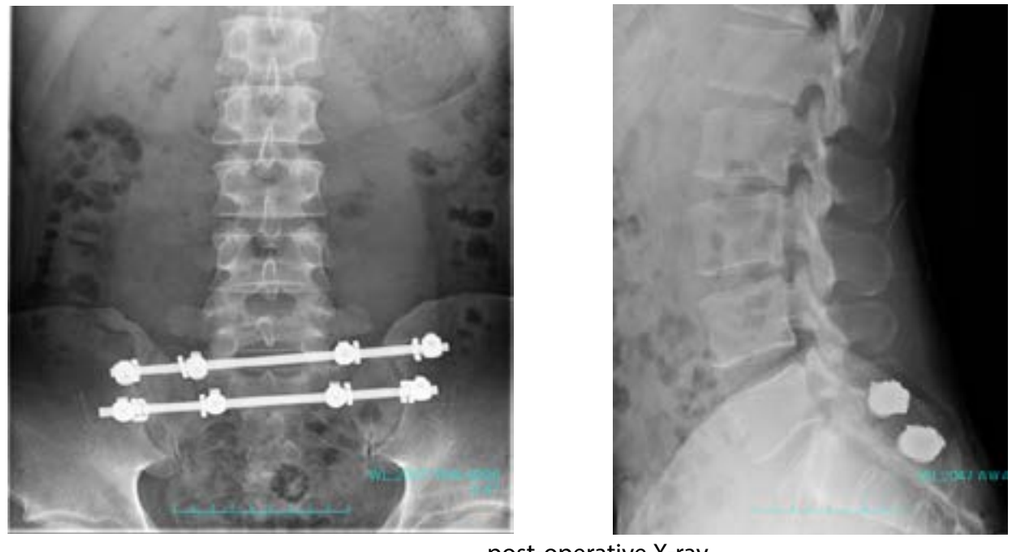
Unlike ball-and-socket joints, such as the hip, the sacroiliac joint is a planar joint that moves in a fixed orbit on the XY plane, with minimal three-dimensional movement along the Z-axis. Repeated movements of the sacroiliac joint in the non-physiological Z-axis direction, are believed to concentrate weight load in the S2 region, indicating impaired force closure. The SPECT/CT result have suggested that force closure function is impaired in difficult-to-treat cases.

Sacroiliac joint fixation surgery is performed worldwide as an invasive treatment for sacroiliac joint disorders,; however, the joint function is lost. If joint pain can be improved in conjunction with joint function, preservation, patients will benefit greatly. Based on the pathology of sacroiliac joint disorders, force closure reconstruction surgery was devised to preserve joint function. This report discusses the possibilities and limitations of this surgical method based on treatment experience.

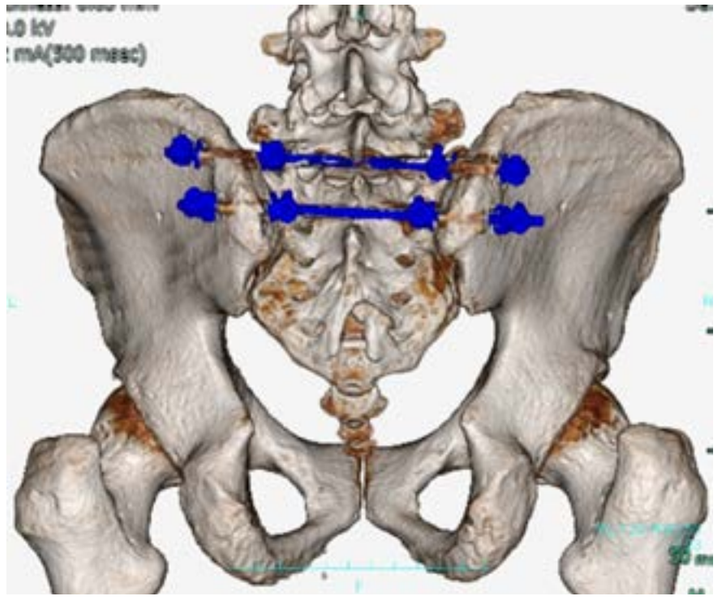
COI: The authors declare no conflicts of interest.



pre-operative X-ray



post-operative X-ray



3-Dimensional CT image after surgery

14:25–14:45 SIJ fusion vs Sham surgery

Minimally invasive sacroiliac joint fusion versus sham surgery as treatment for sacroiliac joint pain – a randomized controlled double-blinded multicenter trial

Randers, E.M.[1,2], Gerdhem P.[3,4,5], Stuge, B.[1,2], Diarbakerli E[3,6], Nordsletten L.[1,2], Rohrl S.M.[1,2], Kibsgård, T.J.[1,2]

[1]Division of Orthopaedic Surgery, Oslo University Hospital, Oslo, Norway; [2]Institute of Medicine, University of Oslo, Oslo, Norway; [3]Department of Clinical Sciences, Intervention and Technology, Karolinska Institutet, Stockholm, Sweden; [4]Department of Surgical Sciences, Uppsala University Hospital, Uppsala, Sweden; [5]Department of Orthopaedics and Hand Surgery, Uppsala, Sweden; [6]Department of Reconstructive Orthopedics, Karolinska University Hospital, Stockholm, Sweden.

Introduction:

The sacroiliac joint is increasingly recognized as a cause of pain in 15-30% of patients with low back pain. Non-operative management is not always successful and surgical treatment with fusion of the joint is increasingly recommended. According to the literature, minimally-invasive fusion reduces pain and improves function compared to non-operative treatment. It is unclear to what extent the placebo effect influences on these results. To our knowledge, no placebo-controlled randomized controlled trials exist on minimally invasive sacroiliac joint fusions.

The abstracts are listed in Speakers order

Purpose/aim:

The main objective is to examine if there is a difference in pain reduction between the patients treated with minimally invasive fusion of the sacroiliac joint compared to patients undergoing a sham operation.

Materials and methods:

This is a multi-center, double blinded, randomized sham-surgery controlled trial with 2 parallel groups in Norway and Sweden. 63 patients with diagnosis of sacroiliac joint pain confirmed with sacroiliac joint injection were included according to the trial inclusion criteria. Patients were randomized with a 1:1 allocation into two groups. The primary endpoint is group difference in sacroiliac joint pain intensity on the operated side at 6 months postoperatively, measured by the Numeric Rating Scale (NRS). Un-blinding and primary analysis were performed when all patients had completed 6 months follow-up. Secondary outcomes were collected by Oswestry Disability Index (ODI) and the Pelvic Girdle Questionnaire (PGQ).

Results:

63 patients were randomized, 32 to the surgical group, 31 to the sham group. Overall, the mean age was 44.3yrs, 94% were female, and 32% were employed.

Preliminary results show that at 6 months group difference in pain reduction of the operated sacroiliac joint was -1 NRS points (95%CI -2.2 – 0.3; p=0.13)). The reduction in pain in the operated sacroiliac joint in the surgical group was 2.6 NRS points (95%CI 1.5 to 3.7), whereas the sham group had a reduction of 1.7 NRS points (95%CI 0.6 – 2.8).

Secondary outcomes showed small improvements in both groups, although with no difference between groups.

Conclusion:

The current sham-controlled RCT could not prove minimally invasive sacroiliac joint fusion to be superior to sham surgery at 6 months postoperative for the primary outcome: pain in the operated sacroiliac joint.

Keywords:

Sacroiliac joint fusion, RCT, Sham surgery

Coffee Break - 30 min.

Chair: Martin Blay

15:15-15:30 Postoperative pain management: sencondary endoscopic denervation after fusions

SIJ fusion surgery and outcomes
Postoperative pain management: secondary endoscopic denervation after fusions

Clement Werner, MD
Ortho Clinic Zurich, Spine and Pelvic Surgery, Zurich, CHE

SIJ fusion surgery and outcomes
I will try to demonstrate that there are certain anatomical or patient-related specific cases, where a different implant can be a valuable option when using the lateral approach.

Postoperative pain manegement: secondary endoscopic denervation after fusions
I will demonstrate how to identify the painful fibers within the ligamentous part of the SI joint, Also, how to look for them during endoscopic denervation (which has developed to ameliorate the results of percutaneous rhizotomy)

The abstracts are listed in Speakers order

15:30–15:45 Status of the sacroiliac joint from the viewpoint of a spine surgeon performing long spinal fusion

A retrospective study of S2-alar-iliac screw loosening (Halo Ring Sign) and its related complications in elderly patients

Koichiro Okuyama[1], Tadato. Kido1, Chiaki Sato[1], Chie Abe[1], Naohisa Miyakoshi[2]

[1]Department of Orthopaedic Surgery, Akita, Rosai Hospital, Odate , JAPAN

[2]Department of Orthopaedic Surgery, Akita University School of Medicine, Akita City, JAPAN

BACKGROUND:

Pelvic anchors used in spinopelvic fixation for spinal corrective surgery need bio-mechanically strong stability to overcome a huge stress on the long construct, ease of use (simple technique of screw-rod connection), and low complication rates (low profile to avoid postoperative infection, etc.). Regarding these points, S2-alar-iliac (S2AI) screws have very significant advantages. Meanwhile, there are some potential disadvantages of the S2AI screw. Prevalence of S2AI screw loosening (Halo Ring Sign : presence of a radiolucent area with a marginal sclerotic change around S2AI screw) seems to be high in the elderly with osteoporosis and/or sarcopenia when spinopelvic fixation was attempted (Figure 1). Halo Ring Sign could lead to backout of the construct and loss of correction. Furthermore, sacroiliac joint (SIJ) site pain etc., which might be caused by a micro-motion of the S2AI screw within the Halo Ring Sign, are anticipated as it must cross 2 cortical and cartilage surfaces of SIJ.

PURPOSE:

The first is to reconfirm the advantages of S2AI screws in corrective surgery for spinal deformity of elderly patients globally. The second is to disclose the prevalence of Halo Ring Sign and its related complications in elderly patients, and finally to study whether post-operative SIJ site pain is associated with Halo Ring Sign.

STUDY DESIGN/SETTING:

A retrospective study in a single institute.

PATIENT SAMPLE:

Twenty-one consecutive patients with degenerative spinal disease

and in whom spinopelvic fixation was done with S2AI screws between 2014 and 2023. The mean follow-up period was 4.1 years (range, 1-10).

OUTCOME MEASURES:

Patients-reported LBP & body image, postoperative global spinal alignment change, SIJ disorder and its related complications, and prevalence of Halo Ring Sign were mainly measured. The degree of osteoporosis and sarcopenia was also determined.

METHODS:

Retrospective checks were conducted among all medical records and operative notes. Whole A-P and lateral spine X-R in standing position before and after operation, and at final F/U were reviewed. Computed tomogram (CT) around S2AI screws at final F/U was analyzed. Bone mineral density (BMD)g/cm2 in the hip and skeletal muscle mass index (SMI) kg/m2 by DEXA were also checked.

RESULTS:

The average age was 75.3 years (range, 67~86; Male/Female, 2/19). The mean BMI, SMI, and hip BMD were 22.4 kg/m2 (range, 16.7~28.9), 6.20 kg/m2 (range, 4.80~7.37), and 0.597g/cm2 (range, 0.384~1.028), respectively. Treatment for osteoporosis was done on 15 patients (71%) after their initial surgery. Primary and revision surgeries were done on 18 patients and 3 patients, respectively. In 81% (17/21patients), the fusion were done from T7, 8 and 9 to the pelvis using S2AI screws. The mean length and diameter of each S2AI screw were 71.6mm (range, 35~80) and 7.8mm (range, 7~10). As a clinical result, all patients reported satisfactory improvements in LBP and body image. Post-operative bilateral buttock pain, which was temporarily present, was observed in 24% (5/21patients). Pain in the unilateral SIJ site was present in 5% (2/42 joints) at final F/U. S2AI screw removal was necessary in 2 patients because of skin trouble and an irritative pain caused by protrusion of the screw heads. Judging by globally accepted standards, spinal alignment, C7-SVA, PI-LL, and SS were significantly improved immediately after surgery. At final F/U, significant improvement was maintained in PI-LL, and SS ($P<0.05$). In terms of Halo Ring Sign, it was observed in 67% (28/42 screws) on CT and 78% (36/46 screws) on A-P spine X-R in the standing position, but no clear association was found between Halo Ring Sign and SIJ site pain.

LIMITATIONS:

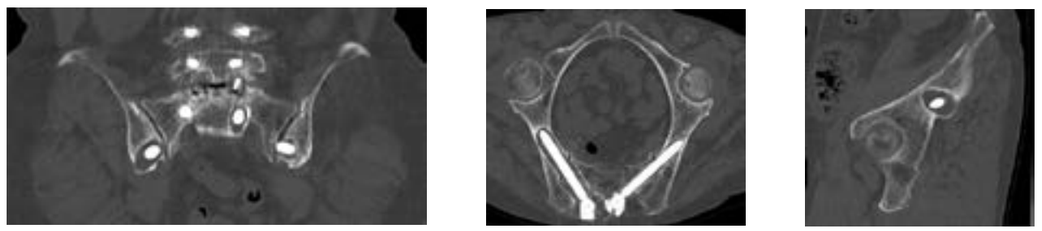
1) Definition of Hale Ring Sign is very subjective, and a bias about the grading of Grade I, II, and III could not be denied (Figure 1). 2) Provocative testing was not conducted in the patients who had SIJ site pain. Thus, there is no evidence that it originated from the SIJ itself.

CONCLUSIONS:

The S2AI screw is a very strong anchor for corrective surgery in elderly cases of spinopelvic fixation who have low BMD and/or SMI. Prevalence of Halo Ring Sign is highly anticipated in elderly cases in the long-term, and it would partially lead to correction loss of global spinal alignment. SIJ site pain after usage of S2AI screws is relatively rare, and the degree is mild unless it backs out.

Figure:

A



B

Fig.1. Demonstrating S2AI Screw loosening (Halo Ring Sign) defined as presence of radiolucent area with a marginal sclerotic change around the screw on the whole spine X-R of AP view (A) and on CT (B). Grade I $\leqq$2mm, Grade II 2mm< <3mm, and Grade III $\leqq$3mm.

Declaration of Competing Interest :

The authors declare that they have no known competing financial interest or personal relationships that could appear to influence the content of this presentation

15:50 - 16:10 Ultrasound-guided percutaneous needlescopy, the future of interventional imaging

Interventional Pain Treatments with Needlescopy

Robert van Seventer, MD

Research Center for Pain Medicine, Rotterdam, NLD

Needlescopy

From blind technique to direct vision

For years the approach to a nerve was based on blind techniques.

Needlescopy offers a new possibility to approach the nerve or other targets for diagnosis or treatment. Combined with ultrasound needlescopy offers an unique technique to see what is at the end of you needlepoint.

A recent key procedural advance is the minimally invasive techniques under direct vision, to approach the nerve and other structures under direct vision and to cope with severe pain immediately and thereby avoiding the burden of side effects of strong analgesics

Some examples of beneficial pain treatments under direct vision will be presented and the visibility and use will be demonstrated.

Health care for patients with SIJ pain

16:15 - 16:30 How can we promote long-lasting exercise and diet therapy for patients with spine and joint

How can we promote long-lasting exercise and diet therapy for patients with spine and joint problem including sacroiliac joint

Yasuhiro Yoshikawa, MD

Yoshikawa Orthopaedic Clinic, Kanagawa, JPN

There are three topics that contribute to the effective management of spine and joint disorders:

1. The Arthrokinematic approach(AKA)-Japan Way

The AKA-Japan way is a manipulation therapy developed in Japan, based on articular neurology and arthrokinematics. This technique aims to enhance joint function and alleviate pain, with a particular focus on lower back and lower extremity pain associated with sacroiliac joint dysfunction.

Our discussion will highlight the significant role the AKA-Japan way plays in restoring sacroiliac joint function. We will present clinical data from our practice showing improvements in passive straight leg raising (SLR) angles before and after treatment. In addition, we will compare the effectiveness of three treatment modalities: AKA therapy for the sacroiliac joint, ultrasound-guided injections into the posterior sacroiliac ligaments, and the five-minute „hip mozo-mozo“ exercise.

The abstracts are listed in Speakers order

2. Sustaining Exercise with “Yuru Exercise”

“Yuru Exercise” is a unique form of exercise created by Japanese athletic scientist Mr. Hideo Takaoka. This exercise aims to reduce stiffness and pain by gently shaking the body, ultimately achieving a high-performance state. Specifically, the hip mozo-mozo exercise targets the lower back and sacroiliac joint function. During this session you will have the opportunity to experience the benefits of “Yuru Exercise” for yourself. I will guide you through exercises designed to improve hand function and provide a comfortable sensation. “Yuru Exercise” is an effective method for maintaining sacroiliac joint function and promoting overall wellness.

3. Orthomolecular Nutritional Therapy

Orthomolecular nutritional therapy is a specialized approach to identifying and treating conditions that do not respond to conventional treatments. Maintaining the health of our bones and muscles requires a thorough evaluation of dietary habits and nutritional data. Orthomolecular Nutrition Therapy is based on biochemical data and addresses nutrient deficiencies through diet and supplementation. I will review the common nutrients that are often deficient in patients and discuss dietary and supplementation strategies to correct these imbalances. For the musculoskeletal system, essential nutrients include protein, vitamin C, iron, vitamin B, and calcium. We will examine how to effectively use diet and supplementation to prevent deficiencies and promote optimal musculoskeletal health.

This presentation aims to provide comprehensive insights into advanced therapeutic approaches, promoting long-lasting health and function for patients with spine and joint problems, including those affecting the sacroiliac joint.

16:40 - 17:10 *Keynote leture*

Bony healing and bony weakness: a critical point in SIJ fusion surgery

Postoperative pain management: secondary endoscopic denervation after fusions

Bony healing and bony weakness: a critical point in SIJ fusion surgery

Obermayer-Pietsch, MD
Medical University of Graz, AUT

19:00 Conference Dinner* (Schloßberg) Graz

Sunday, 22. 9.

Chair: Kurosawa / Cross

09:00 - 10:00 *Free papers session*

09:00 - 09:10

Visualize symptoms with pictographs to distinguish between sacroiliac joint disorder and lumbar spine disease symptoms

Asagi Sato [2], Daisuke Kurosawa [1, 2], Takeshi Sasaki [2], Eiichi Murakami [1, 2]
[1] Department of Orthopedic surgery, Japan Community Healthcare Organization Sendai Hospital, Sendai, JPN
[2] Japan Sacroiliac joint and Low back pain Center, Japan Community Healthcare Organization Sendai Hospital, Sendai, JPN

Introduction:
The symptoms of lumbogluteal and lower extremity conditions are often described in terms of pain and numbness, but some symptoms are difficult to verbalize. The Universal Language of Pain (a diagram representing multiple symptoms: the patient selects a pictograph that most closely matches their symptoms), Mercedes-Benz's social contribution project, could also be a useful medical tool in sacroiliac joint treatment as well.

Purpose:
Using pictographs, we investigated whether there was a difference in symptoms between sacroiliac joint disorder (SIJD) and lumbar spine disease (Lumber spinal canal stenosis: LSS, Lumbar disc herniation: LDH) conditions.

Materials and Methods:
15 patients with SIJD (4 men, 11 women, 45.3 ± 8.8 years old) and 17 patients with lumbar spine disease (9 men, 8 women, 67.2 ± 11.9 years old; 9 LSS, 4 LDH, 4 combined LSS/LDH) who required inpatient treatment from June 2023 to April 2024 were included in this study. The pictograph was illustrated with 13 items: twisting, squeezing, burning, stabbing, ripping, tingling, electric-like, pins & needles, smashing, dizziness, bursting, tight, stiff/tense, and patients selected the one that matched their symptoms.

Results:
Regarding lumbogluteal region, SIJD group often showed stabbing: 5 (33.3%) and squeezing: 4 (26.6%). On the other hand, the lumbar spine disease group often described their symptoms as squeezing: 5 (29.4%), tingling and stiff/tense: 3 (17.6%) in each. 13 patients in the SIJD group and 17 patients in the lumbar spine disease group had the lower extremities symptoms; SIJD group had symptoms of squeezing: 9 (69.2%), ripping, tingling, and stiff/tense: 4 (30.7%) in each; lumbar spine disease group had symptoms of tingling: 9 (52.9%), electric-like: 7 (41.1%), squeezing and stabbing: 6 (35.2%) in each.

Conclusions:
The one-finger test showed a superior posterior iliac spine, and if the symptoms were stabbing or squeezing, the possibility of SIJD increased. Pictographs could evaluate the quality of symptoms other than pain and numbness and would be helpful to know the patient's symptoms better than before, it could lead to find more specific symptoms originating from SIJD.

The abstracts are listed in Speakers order

09:10 – 09:20

Hip impingement signs can be improved in some cases by pelvic mobilization for sacroiliac joint

Yusuke Sanji, Ayumi Kaneuji, Hiroaki Hirata, Eiji Takahashi, Makoto Fukui, Norio Kawahara

Department of Orthopedic Surgery, Kanazawa Medical University, Kahoku, 920-0293, Ishikawa, JPN

Introduction:

Many cases of hip disease are accompanied by sacroiliac joint (SIJ) dysfunction, which we have reported as Hip-SIJ syndrome. SIJ dysfunction cause groin pain, and when impingement signs appear in the hip joint (HIS), there are no reports that approaches to the SIJ will improve the symptoms. HIS is generally considered acetabular rim or cementless cup issues including labral injury or iliopsoas impingement after total hip arthroplasty (THA), and surgical treatment may need for some patients. We approach the SIJ using an SIJ block and original pelvic mobilization (PM-Kaneuji method) in cases who SIJ dysfunction is suspected, and the anterior HIS is positive. Our case reports will be demonstrated in this presentation.

Method:

In this study, we will report 10 cases. 9 cases were female. All patients had positive HIS. 4 cases have not been performed hip surgery, and 5 cases have been performed hip surgery (5 THAs and 1 PAO).

The average SIJ score of Kurosawa et al. was 5.4 points (2-9). Symptoms had lasted an average of 4 years (2 months to 13 years) before our consultations. As a treatment, only the PM method was performed in 7 cases, and the PM method with SIJ posterior ligament block was performed in 3 cases Table.1 .

Result:

After treatment, HIS improved in all cases, and immediate average pain improvement rate was 69% (40-90).

Most cases had groin pain again for one day to few weeks. However, we have experienced that doing the same procedure several times can relieve the pain gradually. Then, no cases required surgery to resolve HIS until now.

Discussion:

We have experienced that the PM method increases the SLR angle and elongation of leg length in clinical. This suggests that relaxation of the posterior SIJ ligament may relieve muscle tension throughout the ipsilateral lower limb. In this study, using the PM method, HIS improved in all hip joint disease cases with HIS and SIJ disfunction. Although the correct mechanism is unknown, it is a possibility that the over soft tissue tension around the hip, which the SIJ-derived soft tissue around joints had overstressed overstrain chain, was relaxed by the PM method, resulting in decreasing the pressure on the labrum or the iliopsoas muscle tension. HIS is often treated surgically by hip arthroscopy or cup revision. A SIJ approach might also reduce the number of patients for need for additional hip surgeries.

Conclusion:

Conservative approach for SIJ using pelvic mobilization and injection against posterior ligaments improved HIS for patients with hip disease combined with SIJ dysfunction.

Table:

case	Disease	Surgery history	Symptoms	Therapy	Response rate	SIJ score
1	OA of the left hip	THA	HIS	PM	70%	8
2	OA of the right hip	THA	HIS+ right buttock pain	PM + SJI block	80%	7
3	Acetabular displasia of the right hip	PAO	HIS+ right buttock pain	PM + SJI block	80%	9
4	OA of the right hip	THA	HIS + right buttock pain	PM	70%	6
5	OA of the right hip	THA	HIS	PM + SJI block	90%	4
6	Labrum injury of the right hip	none	HIS	PM	60%	2
7	FAI of the right hip(pincer type)	none	HIS	PM	80%	2
8	FAIof the right hip (pincer type)	none	HIS	PM	50%	2
9	OA of the left hip	none	HIS	PM	40%	8
10	OA of the left hip	THA	HIS + left buttock pain	PM	70%	6

OA: osteoarthritis, THA: total hip arthroplasty, PM: pelvic mobilization (Kaneuji method), SIJ: sacro-iliac joint,

PAO: peri-acetabular osteotomy, HIS: hip impingement sign, FAI: femoroacetabular impingement

The abstracts are listed in Speakers order

09:20 – 09:30

Pelvic Mobility test - the functional examination to evaluate ROM of SI joint -

Yasunari Fujii, MD

The Health Service Center, National Institute of Fitness and Sports in Kanoya, Kagoshima, JPN

Introduction:

We introduce the functional evaluation of pelvic mobility around SI joint, which I devised and is called Pelvic Mobility test (PMT)

The PMT evaluates the posterior rotational movement of the examining iliac bone during hip flexion with the knee in the deep flexed position in order to minimize the effect on sacral motion caused by tension on the sacroiliac ligament controlled by hamstring tightness.

Results:

In cases with the negative PMT, the superior anterior iliac spine on the examination side moves cephaloposteriorly with the posterior rotation of the iliac bone, and the cephaloposterior difference in height between the iliac spine and the top of the iliac crest is reduced to less than one-half of that before examination compared to that at the end range in the PMT. On the other hand, in cases with the positive PMT, there is no or little iliac rotation during the PMT, and the height difference was less than one-half.

Conclusions:

The iliac inflare movement which occurs over 90-degrees' flexion of hip is very important to make a deep hip flexion, which enables the joint surface of the acetabulum to move more anteriorily. In cases with good posterior rotation and inflare, the height difference decreases further and the line connecting the superior anterior iliac spine and the top of the iliac crest before examination moves to near vertical to the supine plane. Such cases have a deep flexion over about 120 degrees.

I think that pelvic dysfunction is greatly relevant to the femoroacetablar impingement (FAI), and both negative PMT with good inflare movement is essential to prevent the FAI.

09:30 - 09:40

Pathological classification of sacroiliac arthropathy

Shin J., Matsumoto R., Kawano T., Ibusuki K., Sueyoshi T., Koga T., Koga H

Department of Orthopedic Surgery/Low Back Pain and Sacroiliac Joint Center

Kyousaikai Nanpuh Hospital, Kagoshima, JPN

Introduction:

The pathology of sacroiliac arthropathy is divided into three stages: joint pseudolocking (stage I), ligamentitis (stage II), and synovitis/arthritis (stage III). In some cases of sacroiliac arthropathy classified as joint pseudolocking (stage I), the clinical course varies depending on combinations of physical therapies.

Objective:

This study aimed to further classify the pathology of joint pseudolocking (stage I) based on outcomes of applied physical therapies.

Subjects and Methods:

This study included 1216 patients (463 men and 753 women, with a mean age of 60.6±17.7 years) who visited our hospital between April 2018 and March 2024 with low back or buttock pain that appeared to be caused by joint pseudolocking (stage I) of the sacroiliac joints. We subclassified the pathology according to the types and effects of applied physical therapies. The applied physical therapies included manual therapy to normalize sacroiliac joint movement, stretching of soft tissues (ligaments and muscles) of the pelvis and buttock, manual therapy for adjacent joints (spine and hip joints), and exercise therapy of the transversus abdominis and gluteus maximus muscles. Treatment was to be terminated when no relapse of pain was observed, and the treatment duration was set for a maximum of 6 months.

Results:

Manual therapy to normalize the sacroiliac joint movement was effective in 212 patients (17%), stretching of soft tissues (ligaments and muscles) of the pelvis and buttock in 586 patients (48%), manual therapy for adjacent joints (spine and hip joints) in 148 patients (13%), and exercise therapy of the transversus abdominis and gluteus maximus muscles in 15 patients (1%).

Discussion:

The results of this study indicate that there are four subtypes of stage I pathology. In addition to simple sacroiliac joint pseudolocking, slight pseudolocking of sacroiliac joints caused by hypertonic soft tissues (ligaments and muscles) around the pelvis, dysfunction of adjacent joints (spine and hip joints), and functional failure of the transversus abdominis and gluteus maximus muscles can lead to sacroiliac arthropathy.

Conclusion:

The detailed pathological classification of stage I sacroiliac arthropathy is important for determining appropriate treatment strategies.

09:40 - 09:50

Osseointegration of minimally invasive sacroiliac joint fixation implants – a human retrieval study

Authors:

Engelke Marie Randers1,2, Thomas Johan Kibsgård1,2, Liebert P. Noguerira3, Trygve Kjensjord4, Stephan M. Röhrl1,2, Lars Nordsletten1,2, Britt Stuge1,2

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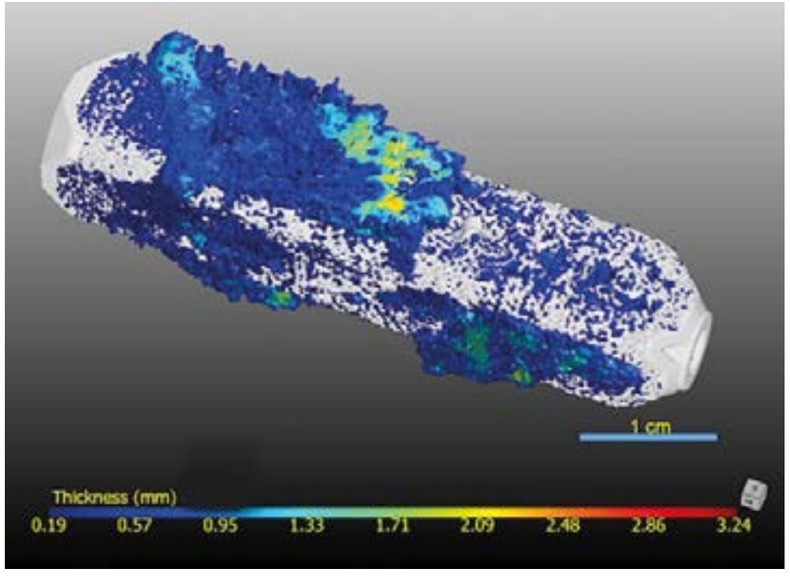


Background:

Minimally invasive sacroiliac joint fusion has become increasingly prevalent and is described to reduce pain and improve function. In some patients, pain can recur several months after primary surgery. Lack of early implant osseointegration might be a cause of pain and hence an indication for revision surgery. Triangular titanium implants are the most documented implant for minimally invasive sacroiliac joint fusion. There is, however, no knowledge of how triangular titanium implants osseointegrate in humans and whether fusion is induced over the sacroiliac joint.

Method:

During planned revision surgery due to recurrent pain, six triangular titanium implants were retrieved from six different patients at median 9 months from primary surgery. All six implants were scanned using microcomputed tomography. The presence or absence of bone in-growth, on-growth and through-growth of the implants was evaluated as an indication of implant osseointegration.

Results:

Three of six implants showed no or minor signs of osseointegration. Of the three remaining implants, one showed partial osseointegration and two implants showed high degree of osseointegration.

Conclusion:

This study showed that triangular titanium implants can osseointegrate into host bone in humans. When osseointegration occurs, triangular titanium implants can give fusion across the sacroiliac joint.

Disclosures:

The Authors have no disclosures

09:50-10:00

Treatment outcomes after minimally invasive sacroiliac joint surgery. A cohort study based on the Swedish Spine registry.

Authors:

Engelke Marie Randers [1,2], Thomas Johan Kibsgård [1,2], Britt Stuge[1,2],Andreas Westberg[3], Freyr Gauti Sigmundsson[4,5], Anders Joelson4, Paul Gerdhem[6,7].

Affiliations:

[1.]Division of Orthopaedic Surgery, Oslo University Hospital, Oslo, Norway; [2.]Insititute of clinical medicine, University of Oslo, Oslo, Norway; [3.]Västmanlands county hospital, Västerås, Sweden; [4.]Department of Orthopaedics, Örebro University Hospital, Sweden; [5.]School of Medical Sciences, Faculty of Medicine and Health, Örebro University, Sweden; [6.]Department of Surgical Sciences, Uppsala University, Sweden; [7.]Department of Ortopaedics and Hand surgery, Uppsala University Hospital

Background:

There is conflicting evidence regarding treatment outcomes after minimally invasive sacroiliac joint fusion as a treatment for long-lasting severe sacroiliac joint pain. The aim of the current study was to investigate treatment outcomes after minimally invasive sacroiliac joint surgery in daily practice measured by patient reported outcome measures (PROMs) in the Swedish Spine registry.

Methods:

Data from the Swedish spine registry was collected for patients with first-time sacroiliac joint fusion, age 21 to 70 years, with PROMs available at 1 or 2 years after last surgery. PROMs included Oswestry Disability Index (ODI), Numeric Rating scale (NRS) for low back pain (LBP) and leg pain, and EQ-VAS, in addition to demographic variables. We calculated mean change from pre- to postoperative and the proportion of patients achieving minimal clinical important difference (MCID) and patient acceptable symptom state (PASS).

Results:

68 patients had available pre- and postoperative data, with a mean age of 45 years (range 25 to 70) and 59 (87%) were female. At follow-up the mean reduction was 2.3 NRS points (95%CI 1.6 to 2.9; p<0.001) for NRS LBP(baseline: 6.7 NRS points (95%CI: 6.2 to 7.2)), and 14.8 points (95% CI 10.6 to 18.9; p<0.001) for ODI (baseline: 49.3 points (95%CI: 45.3 to 52.4)). Approximately half of the patients achieved MCID and PASS for pain (MCID NRS LBP: 38 of 65 (59%) patients. PASS NRS LBP: 32 of 66 (49%) patients) and physical function (MCID ODI: 27 of 67 (40%) patients. PASS ODI: 24 of 67 (36%) patients).

Conclusion:

The current registry-based cohort study showed moderate treatment outcomes after minimally invasive sacroiliac joint fusion when applied in daily practice with moderate pain relief and small improvements in physical function.

Disclosures:

The authors have no disclosures.

Coffee Break - 30 min.

Workshop

Room1: Manual Therapy Specific for SIJ Dysfunction

10:30-10:45 Kaneuji mobilization

The Pelvic Mobilization – Kaneuji method for sacroiliac joint dysfunction patients
- A new simple and easy manual therapy -

Ayumi Kaneuji A, MD. Ph.D, Yusuke Sanji Y, MD., Eiji Takahashi, MD. Ph.D, Makoto Fukui, MD., Hiroaki Hirata MD. Ph.D

Introduction:

In patients of sacroiliac joint dysfunction, it is suggested that slight misalignment of the sacroiliac joint or excessive tension in the posterior sacroiliac ligaments can cause lumbogluteal pain and inguinal pain. The Pelvic Mobilization – Kaneuji method (PM-K method) is considered a therapy that provides pain relief and relaxes muscle tension around the hip joint and ipsilateral lower limb by inducing relaxation of the posterior sacroiliac ligaments. I will introduce this simple and easy technique in the meeting.

Methods:

With the patient lying on the bed with the healthy side, both hips are flexed to approximately 45 to 60 degrees, and the knees are flexed to approximately 90 degrees. The therapist sits on the bed behind the patient's back, facing the head end. Subsequently, the therapist performs additional external rotation with the patient hip joint while maintaining knee flexion and keeping the sole of the foot in contact with the bed. The therapist supports patient's proximal thigh of the affected limb between the inner aspect of own upper arm and the trunk. It is essential that the patient completely relaxes during this maneuver, and the abducted and external rotation position should be maintained in close contact with the therapist's upper arm and trunk to ensure proper support.

Once proper positioning is achieved, the therapist applies vibration to the pelvis by placing the palm and palm of their hand on the anterior superior iliac spine (ASIS) and around the SIJ, respectively, and moving the pelvis in a circular motion. If the affected side is the right side, the therapist uses their right palm to manipulate the ASIS and their left palm to manipulate the area around the SIJ, inducing a circular motion in a clockwise direction with the right hand and counterclockwise direction with the left hand, gradually shifting the palms towards the direction of pelvic opening. The procedure is reversed if the left side is affected. Throughout this process, the therapist should avoid forcibly external rotation of the patient's hip joint in the direction of pelvic opening and should continually inquire about the patient's comfort. If the patient experiences hip pain during the manipulation, the maneuver should commence within the range that the patient can tolerate. If a patient feels pain during PM-K method, most patients have no effect by this manipulation.

Although patients may require more than 20 seconds of rotational vibration to achieve pelvic opening in some cases, therapists feel a sensation of the lower limb falling towards the direction of pelvic opening after providing rotational vibration for about 10 to 20 seconds in typical cases. The therapist should maintain rotational vibration while leaning their body towards the direction of pelvic opening to facilitate further pelvic opening without obstructing hip external rotation. The procedure is concluded once hip external rotation has increased by approximately 20 degrees. Following this, the patient is asked to lie supine, and the increase in hip external rotation is confirmed. In many cases, straight leg raising also shows improvement, along with elongation of the treated limb, surprisingly.

However, excessive pelvic relaxation can lead to subsequent weakness in the affected lower limb during walking, resulting in difficulty walking. This is attributed to the relaxation of the posterior sacroiliac ligaments. In such cases, improvement is often achieved by applying a counterforce to the pelvis. Once again, with the patient in the lateral position, the therapist slowly applies an inward force to the patient's ilium while simultaneously applying a force in the posterior direction to the sacroiliac joint.

Results:

In our study involving 18 patients treated solely with PM-K method, immediate pain relief was achieved in 15 cases (82%), while no effect was observed in 3 cases (18%). In 21 patients treated with a combination of SIJ posterior ligament block and the PM-K method, 100% pain relief was achieved.

Conclusion:

The PM-Kaneuji method was considered to be a useful manual therapy for patients with SIJ dysfunction, despite being simple and easy to perform.

10:45-11:15 AKA-Japan method technique

AKA-Japan method

Hiroko Hashimoto, MD

Clinic Hakata, Fukuoka, JPN

The patiant is placed supine on the examination table and stands directly next to the patient.First,check the endfeel of both hip joints by SLR as a diagnosis.With the patient in the lateral position,stand spontaneously with the patient relaxed ventrally near the patient's hip.Place the radial tip of one thumb on the sacroilliac joint for less than 2 seconds at S1 to S5 without pushing.Treat the contralateral side in the same manner. that's all

The abstracts are listed in Speakers order

11:15-12:00 Austrian manual medicine specific for sacroiliac joint dysfunction

Manual therapies specific for SIJ dysfunction

Schmid Gerhard, MD

Osterreichischen Arbeitsgemeinschaft fur Manuelle Medizin, AUT

The aim of this workshop is to present diagnostic and treatment of SIJ dysfunction in the way of manual medicine. The Explanation and Application of MIP-Diagnostic (Mobility, Irritation, Provocation) and treatment through to mobilization and manipulation (HVLA – high-velocity low amplitude) get trained

by each participant. HVLA means rapid use of small force over a short duration and distance (and/ or rotation) within the anatomical range of motion of a joint.

This techniques are very useful in treatment of SIJ dysfunction.

12:00-13:00 Lunch Break

13:00-13:45 An integrated conservative approach to recovery of lasting pelvic -girdle pain

An integrated conservative approach to recovery of lasting pelvic -girdle pain

JP van Wingerden, PhD, Director Spine & Joint Centre, the Netherlands

ABSTRACT:

There can be a lot of talking about SI joint pain. The best thing to do is to experience first hand how to test and how to practice aspects of treatment. That is exactly what we are going to do in this workshop. We will practice palpation of the long dorsal ligament, look at one leg stance (load transfer test) and perform an Active Straight Leg Raise (ASLR) test. And we will do some additional helpful observations while performing this test.

From these experiences we will discuss the further conservative therapy setup.

An important aspect that will be addressed is how to approach motivational aspects within distinct cultural backgrounds. This workshop does not have the intention of a full therapy layout. But will help to setup integrated conservative therapies for SI joint pain worldwide.

13:45 - 14:00 Discussion

The abstracts are listed in Speakers order

Workshop

Room2: Training on human tissues for surgeons

13:00 - 14:00 Medacta: Presentation: 15min + Practice 45min

Medacta: Presentation: 15min + Practice 45min

Clement Werner
Ortho Clinic Zurich, Spine and Pelvic Surgery, Zurich, CHE

Demonstration of the implants and its features, connecting it to the washer, and cadaver demo on how it is placed.

14:00 - 15:00 Presentation: 15min + Practice 45min

NADIA Presentation. Theory and Technique

Stark John

Backpain Clinic, Minneapolis, MN, USA

1. The pain of the SIJ is likely multifactorial. The underlying process is also likely multifactorial, including degenerative articular changes, instability-related deformity and impingement-caused neurologic symptoms. An SIJ fusion surgical method should address all components: separating the painful articular surfaces, restoring the collapse-subluxation, and relieving the related neurologic impingement. As with the lumbar disc disease, collapse-related SIJ deformities and related neurologic symptoms are best addressed by the restoration of anatomy.

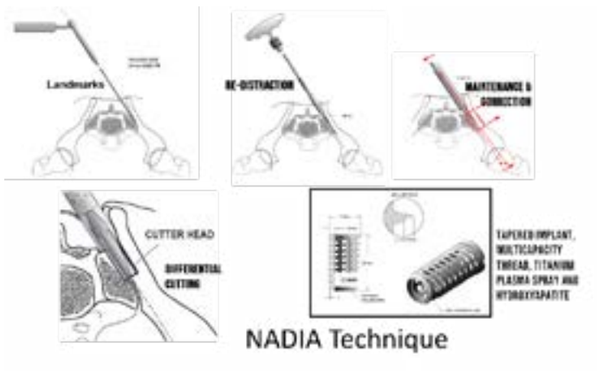
2. The SIJ surgical region is complicated, surrounded by threatening neurovascular anatomy, which includes some of the largest nerves and vessels in the body. All must be avoided and protected by any surgical technique which approaches the SIJ.

3. As forces pass from the hip to the spine, mechanics of the SIJ include longitudinal, rotational and translational elements. All must be addressed and controlled by a fusion method which distributes its corrective forces evenly throughout the SIJ.

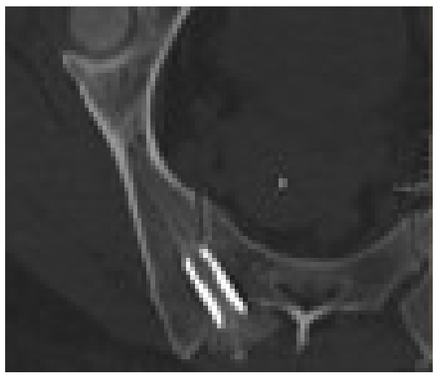
4. An orthopedic surgery method must provide for an insertion method which allows reproducible control, reliable healing. Revision and removal should also be designed into the procedure.

The NADIA method provides for all these critical considerations, following common orthopedic principles applied specifically to the SIJ. The method is teachable, reproducible and heals reliably. It provides for its own revision. The NADIA approach is described as safe and gentle (Fuchs, 2017).

Simple steps follow the goals of defining the individual anatomy, correcting the deformity, and preparing receptive bone surfaces to create a healing biologic milieu. Pain relief is dramatic, and function is restored.



NADIA Technique



The abstracts are listed in Speakers order

15:00 - 16:00 Presentation: 15min + Practice 45min

LUMIBIRD MEDICAL

Robert van Seventer, MD

Research Center for Pain Medicine, Rotterdam, NLD

Interventional Pain Treatments with Needlescopy

The techniques will be demonstrated for lumbar nerve roots and sacroiliac joints using actual needlescopy on human tissue.

Can the sacroiliac joint cavity be seen by needlescopy?

16:15-17:15 Members meeting

Non-members may leave after last lab or whenever they are done. They are not to attend the member-only meeting. Course Adjourn at 17:15.

Industry and Exhibition

Development of SIJ Fusion technology

The idea for founding SIMEG eV in 2013 arose from the lack of knowledge and research results at the time regarding biomechanics, anatomy, diagnosis and treatment of SIJ. Some companies hoped for a profitable global market; technologies were developed based on “predicate devices” known from traumatology. Now, after a decade of market activity, new insights could help take your engineering to the next level of SIJ fusion technologies.

We invite you to communicate and present your products and knowledge and learn from international experts to develop the next generation of SIJ treatment options for the benefit of our patients.

Industrial exhibition

The exhibition offers participants valuable information about developments, products and services related to their interests and tasks. We ask you to visit the exhibition area. Without this support this event would not be possible.

Time schedule Exhibition

- Friday, September 20th: 12:00 - 18:00
- Saturday , September 21st: 08:30 - 18:00
- Sunday , September 22nd: 08:30 - 13:00

We thank our sponsors

Venue/Organization

Venue:

Macroscopic and Clinical Anatomy
Gottfried Schatz Research Center
Medical University of Graz

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Organization:

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SIMEG
sacroiliac medical expert group

Travel:

Graz airport can be reached directly from Frankfurt/M airport (for example).

If you arrive by car, parking spaces are available for a fee in the Stiftingtalstrasse visitor parking garage or in the Entrance Center visitor parking garage.

Credits

The meeting is awarded with a total of 30 CME credits by Swiss Orthopedics (16), Swiss Society for Interventional Pain Medicine (SSIPM, 9) and the Sports and Exercise Medicine of Switzerland (SEMS, 5) for on site participation.

Fees & Registration

Please register online at https://www.simeg-event.com/registrierung/

On-site conference participation without workshops:

- €300,00 excluding lunch (snacks during breaks and conference drinks are included).

Join online (the streaming link will be provided in time ahead):

- €120.00 / entire conference including video download
- €60.00 / day

Lunch and Dining:

- Lunch voucher: €15,00 per on-site lunch (non-alcoholic drinks, coffee/tea included)
- Friday and Saturday night dinner is on your own expense.
- **Workshop participation, Please register for free.**

Pioneers In Therapy And Research

SIMEG e.V. is a recognized non-profit association of people who have been dealing with the therapy of the sacroiliac joints and the pelvic girdle in clinic, practice and research for decades in a surgical, conservative or advisory manner. The members‘ task is to represent the group‘s goals scientifically and practically and to promote experimental and practical research in this area by exchanging and imparting their own knowledge and experiences.

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