The Bulletin of German-Japanese Society for Orthopaedics and Traumatology (GJSOT)

Vol. 2, 2019

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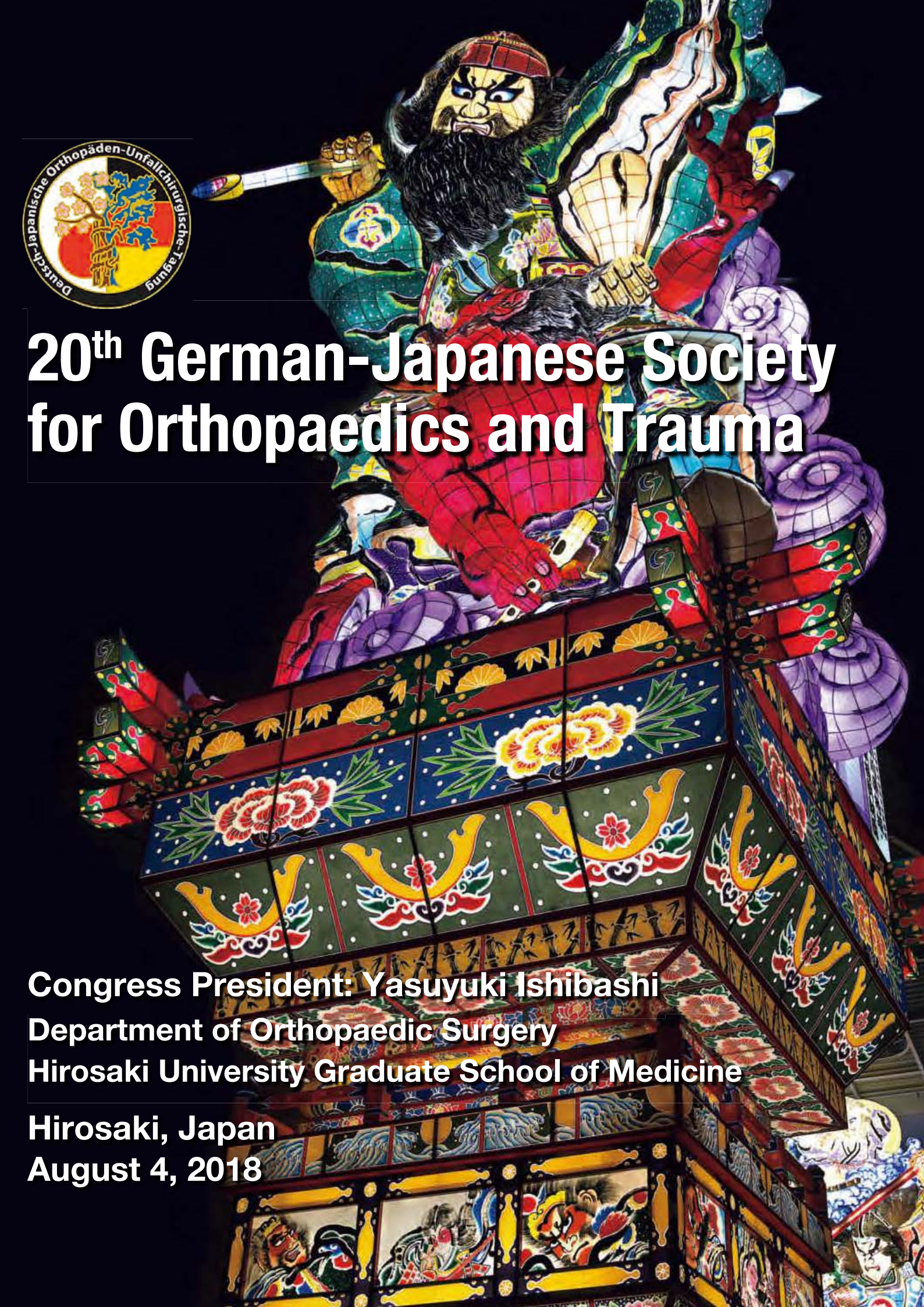
Greetings GJSOT 2019
from Kurume

Naoto Shiba, M.D., Ph.D.
Japanese President of GJSOT
Chief Professor and Chairman
Department of Orthopaedic Surgery
Kurume University School of Medicine

Participating in GJSOT is not only an excellent opportunity to interact with German Orthopedic doctors and medical staff, but it is also a very good opportunity to discover that there are many people who are interested in Japan in Germany spanning the generations. Even in the age of IT, there are many things that cannot be understood without face to face communication. In GJSOT, we can meet and talk with German Orthopedic doctors directly and we often notice that there is much to learn from German Orthopedics and Germany itself as a nation.

As for Orthopedic surgery, its basic philosophy is identical. However we sometimes find differences in German medical technology or surgical techniques, and we also find that the German medical system is more systematic. I feel that the position of the German Orthopedic doctors is more established than that of Japanese, but I'm afraid that this may be a matter of only my facility. Reform of working style and an increase in female Orthopedic doctors have become two of the major topics in Japan. In Germany, the proportion of female medical students is 70%, and that of orthopedic surgeons is 40%. In Japan, these proportions are 34% and 4.8%, respectively. Not only a deeper knowledge of Orthopedics, but also a discovery of the German medical system is valuable for us.

For GJSOT, it has been a long-awaited desire to be an official session of JOA, and this will be realized in the 92nd JOA meeting hosted by professor Yamashita from Sapporo university in 2019. I strongly hope that JOA and DKOU will start a new relationship from this 92nd JOA symposium not only for Japanese and German Orthopedics but also for the two countries.



20th German-Japanese Society for Orthopaedics and Trauma

Congress President: Yasuyuki Ishibashi
Department of Orthopaedic Surgery
Hirosaki University Graduate School of Medicine

Hirosaki, Japan
August 4, 2018

The Report of the 20th Annual Meeting of GJSOT in Hirosaki on August 4th, 2018

Yasuyuki Ishibashi, M.D., Ph.D.
President of 20th GJSOT
Professor, Department of Orthopaedic Surgery
Hirosaki University Graduate School of Medicine

On 4th August 2018, the 20th annual GJSOT meeting was held in Hirosaki City, Aomori, Japan, combined with the 31st meeting of the Japanese Association of External Fixation and Limb Lengthening.

This society was established by Professor Amako of Kyushu University. The first meeting was held in Kyoto by President Professor Amako, and since 1977, we have been continuing through the efforts of many friends and colleagues. It is very important that Germany and Japan closely interact and continue to make efforts to provide better medical care for locomotor diseases.

In this meeting, there were 19 excellent scientific presentations and 3 special lectures (Photo.1 and Photo.2). The special lectures from the German side were very attractive to Japanese orthopaedic surgeons. Dr. Mittelmeier presented current topics of total hip replacement, and Dr. Kilian showed us the techniques for reconstruction of the craniovertebral junction. Dr. Penning taught us how to treat elbow fracture dislocation in adolescents. I thank all the participants for gathering at this meeting and for your active discussion.

After this meeting, German and Japanese members went to the Goshogawara Tachineputa Festival in Goshogawara City. We enjoyed seeing the huge Tachineputa Festival floots and hearing the traditional soulful music. After that, a reception dinner was held, and we deepened the exchange while eating sushi, drinking Japanese sake, and listening to Tsugaru Jamisen music (Photo.3).

The next meeting will be held in May, 2019 in Yokohama, combined with the annual meeting of the Japanese Orthopaedic Association. We are sincerely looking forward to seeing you again at the next meeting.

第20回
日独整形災害外科学会

20th German-Japanese Society for Orthopaedics and Trauma

プログラム・抄録集

会　長　**石橋 恭之**

弘前大学大学院医学研究科整形外科学講座　教授

会　期　**2018年8月4日（土）**

会　場　**アートホテル弘前シティ**

〒036-8004　青森県弘前市大町1-1-2

TEL 0172-37-0700

The 20th Annual Meeting of the German-Japanese Society for Orthopaedics and Trauma

Congress President

Professor Yasuyuki Ishibashi, MD, PhD

Dear Friends and Colleagues,

It is my honor and pleasure to invite you to the 20th Annual Meeting of the German-Japanese Society for Orthopaedics and Trauma on August 4th, 2018 in Hirosaki, Japan.

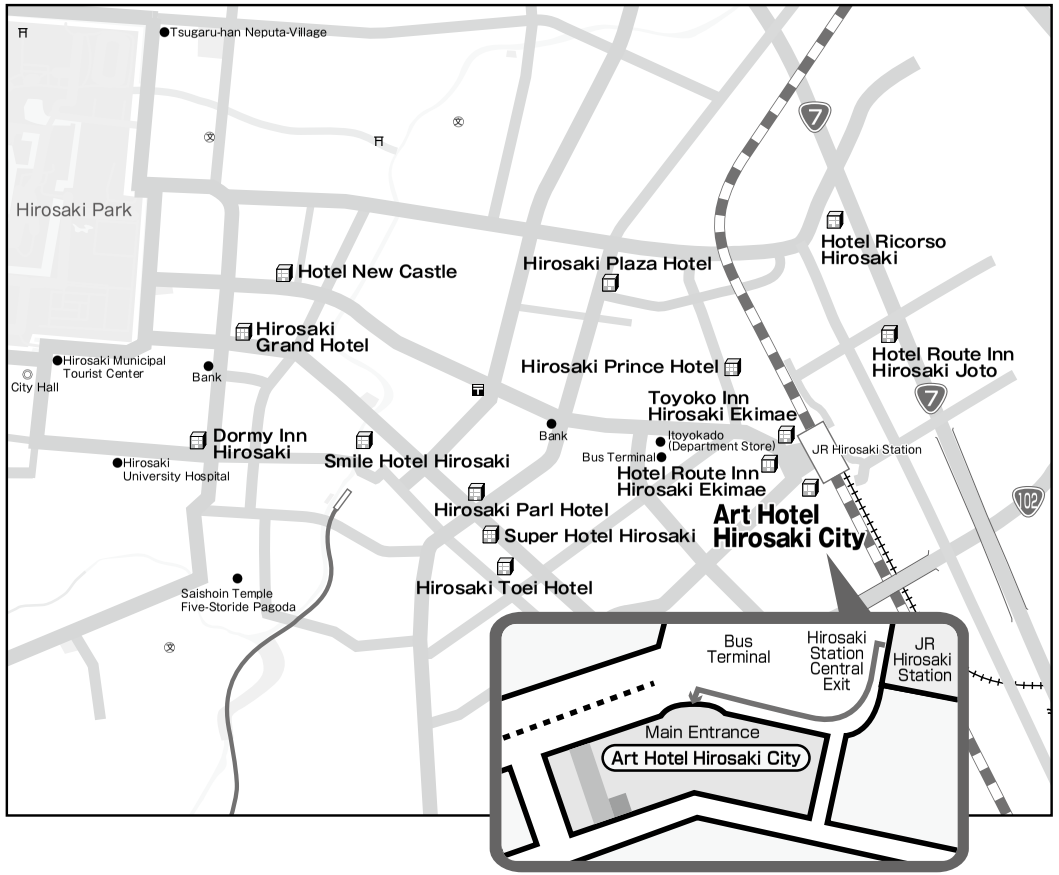
This society was established by Professor Tammikazu Amako of Kyushu University. The first meeting was held in Kyoto by President Professor Amako, and, since 1977, we have been continuing with the efforts of many friends and colleagues. It is very important that Germany and Japan closely interact and continue to make efforts to provide better medical care for locomotor diseases.

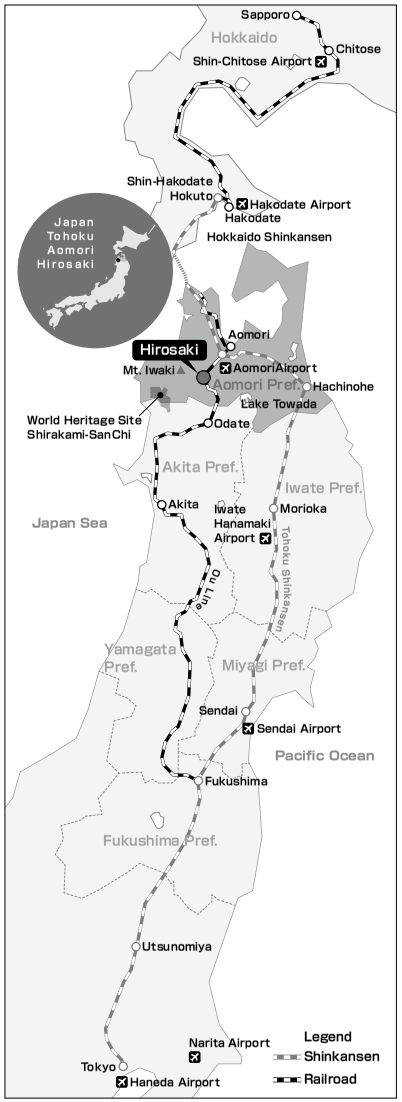
We have registered many abstracts from various fields of Orthopaedics and Trauma. I would like to thank you for your active discussion at the venue on the day.

There will be many summer festivals in Aomori, Japan at the time of the conference. Many tourists and local residents enjoy and participate in the Hirosaki Neputa Festival in Hirosaki City, Aomori Nebuta Festival in Aomori City, and Goshogawara Tachineputa Festival in Goshogawara City. We hope you will enjoy these summer festivals during your stay in Japan.

Once again, we look forward to welcoming you to Hirosaki and the 20th Annual Meeting of the German-Japanese Society for Orthopaedics and Trauma. We sincerely look forward to an informative and excting meeting.

access





Aomori Airport | **Shin-Aomori St.**

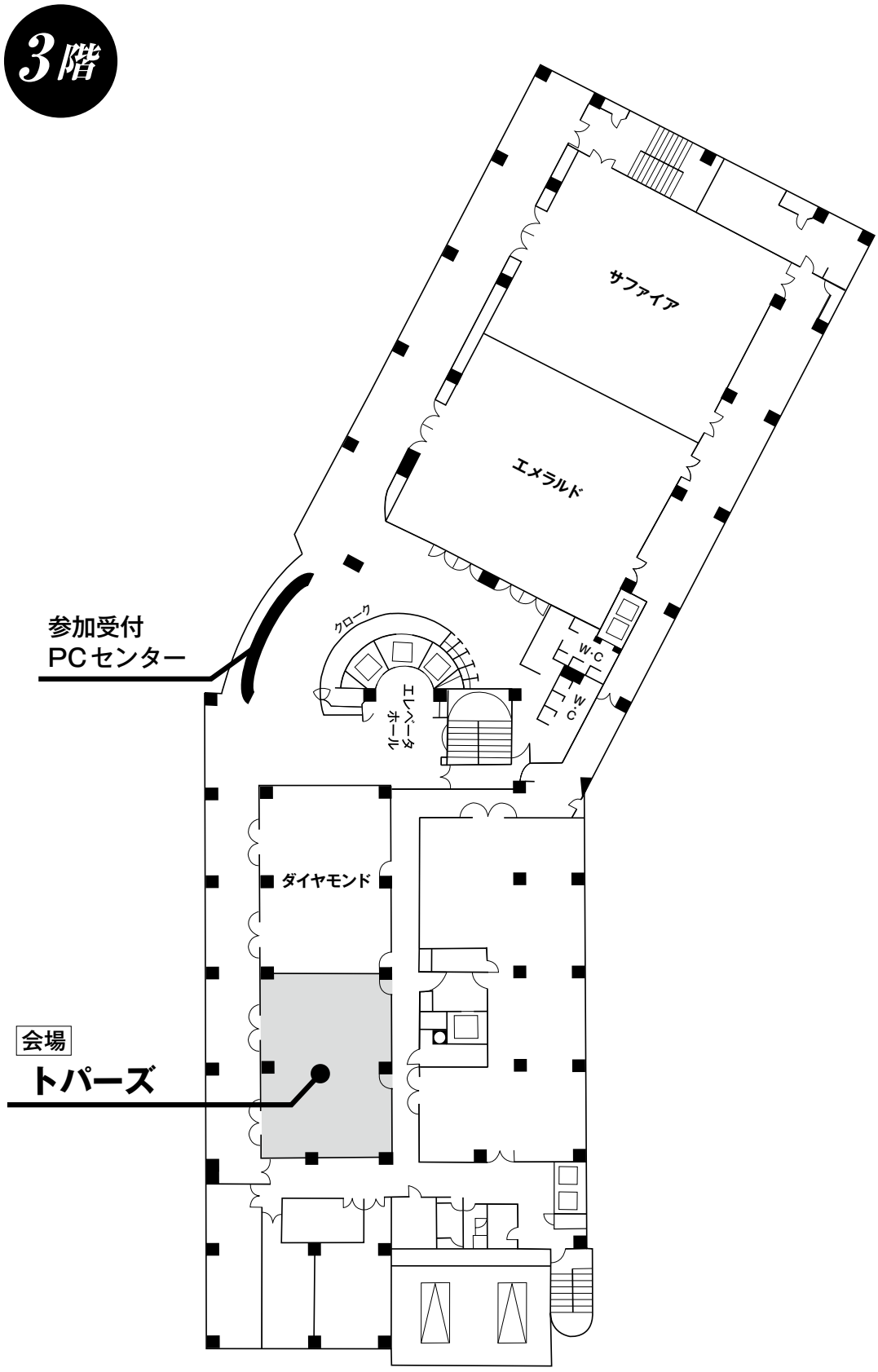
Bus 55min ↓ | Express Train 30min ↓

Hirosaki

Art Hotel Hirosaki City

1-1-2 Omachi, Hirosaki-shi, Aomori, 036-8004 Japan
+81-172-37-700

会場図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トパーズ

Saturday, August 4, 2018　13:00 start

Speakers have been allotted 5 minutes to present their talks and 3 minutes to answer questions.

Speakers of special lecture have 15 minutes to present and 5 minutes to answer questions.

13:00～13:10　Opening Ceremony　Congress President Yasuyuki Ishibashi
Prof. Dr. med. Dietmar Pennig

13:10～13:50　Session 1　Joint 1　Knee

Moderator　Wolfram Mittelmeier, Yasuyuki Ishibashi

1. Intraoperative analysis of the knee passive flexion kinematics of UKA using CT-free navigation
Takatoshi Morooka …… 10

2. Accuracy of Osteotomy using Patient Specific Instrumentation in Total Knee Arthroplasty with Minimally Invasive Surgery
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3. Patient matched instrument on the femoral side alone has less rise in postoperative fibrinolytic marker compared to intramedullary rod for TKA
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5. The efficacy and potential complications of a central patellar portal technique
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13:50～14:45　Session 2　Joint 2　Hip

Moderators　Wolfram Mittelmeier, Naoto Shiba

6. Femoroacetabular impingement after slipped capital femoral epiphysis
Yukinao Ishibashi …… 20

7. Hip offset and leg length reconstruction after total hip arthroplasty with reduced proximal flare stem and dual offset option: 10-year results for Crowe I to III hip dysplasia
Tomofumi Nishino …… 22

8. Superiority of SuperPath Approach Compared to Posterior Approach for THA
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9. Postoperative change in sagittal spinopelvic alignment and low back pain after total hip arthroplasty

Kazuya Kishima …… 26

Special lecture 1.
Metal surfaces in joint replacement: Last mistakes and future perspectives

Wolfram Mittelmeier …… 28

14:45〜15:00 Coffee Break

15:00〜15:20 Traveling Fellowship Reports

Moderator Naoto Shiba

Toru Funayama, Sachio Hayama, Yukinao Ishibashi, Shugo Maeda

15:20〜16:20 Session 3 Spine

Moderators Francis Kilian, Masashi Yamazaki

10. Short term surgical results of using stand-alone interbody PEEK cage for Anterior Cervical Discectomy and Fusion in one- and two- level cases: A retrospective study with 270 primary patients in Germany

Junichi Murakami …… 30

11. Intraoperative computed tomography myelography for the evaluation of indirect neural decompression in lateral lumbar interbody fusion

Sachio Hayama …… 32

12. Clinical features for spine injuries associated with diffuse idiopathic skeletal hyperostosis

Toru Asari …… 34

13. Eating device to aid C5 level cervical spinal cord injury patients. Based on previous experiences of the prosthetic study for amelia

Takashi Suto …… 36

14. Efficacy of gait training using HAL after surgery for severe myelopathy due to thoracic ossification of the posterior longitudinal ligament

Tetsuya Abe …… 38

Special lecture 2.
Reconstruction of the Craniovertebral Junction

Francis Kilian …… 40

16:20～16:35　Coffee Break

16:35～17:35　Session 4　Fracture and Others

Moderators　Dietmar Pennig, Masashi Neo

15. Clinicopathological and prognostic value of transforming acidic coiled-coil-containing protein 3 (TACC3) expression in soft tissue sarcomas

Kotaro Matsuda …… 42

16. Results of Locomotive Syndrome Assessment in Medical Checkup Center of Edogawa Hospital

Ryoichi Izumida …… 44

17. Association between core muscle strength and tightness and back pain in high school baseball players

Shugo Maeda …… 46

18. Surgical Treatment for the fragility fractures of the pelvis

Yuka Sugiura …… 48

19. Distraction ankle arthroplasty in the treatment of severe posttraumatic ankle osteoarthritis

Hiroaki Shima …… 50

Special lecture 3.
Elbow Fracture Dislocation in Adolescence: Acute and Chronic

Dietmar Pennig …… 52

17:35～17:45　Closing Remarks

18:10　Bus Transport to Tachineputa

1. Intraoperative analysis of the knee passive flexion kinematics of UKA using CT-free navigation

Takatoshi Morooka, Shigeo Fukunishi, Hiroshi Nakayama, Takuya Iseki, Ryo Kanto, Makoto Kanto, Shinichi Yoshiya

Dept. of Orthopaedic Surgery Hyogo College of Medicine

INTRODUCTION

High postoperative satisfaction has been reported for unicompartmental knee arthroplasty (UKA) that preserves the ligaments of the knee joint. Further, indications for this surgery have been established in recent years, and the number of operations has increased. Although there are scattered reports on analysis of motion of the knee joint after total knee arthroplasty (TKA) targeting knee joints in which physiological movement had failed, reports on analysis of movement after UKA are few. Therefore, we herein report on analysis of knee movement before surgery and after implant placement in UKA using CT-free navigation.

MATERIALS AND METHODS

Study population

Twenty knee joints of 20 patients who underwent UKA (Triathlon PKR, Stryker) using a CT-free navigation system (OrthoPilot TKA Version 4.2 Kobe version) were enrolled.

In all knees, preoperative weight-bearing radiograph showed varus type osteoarthritic changes corresponding to Kellgren–Lawrence Grade III or IV.

Kinematic analysis using the navigation system

Intra-operative passive flexion kinematics were measured by the Orthopilot® system and analyzed by the dedicated software (OrthoPilot). This software allows data acquisition of three-dimensional kinematics intraoperatively. Kinematic recording was performed both before and after UKA implantation. During the kinematic measurement, the assistant surgeon held the thigh to align it perpendicularly while the operating surgeon gently held the heel and passively moved the knee from full extension to full flexion by inducing unconstrained motion.

RESULTS

Regarding the internal and external rotation, preoperatively, the tibia showed mild external rotation during the initial phase of flexion (flexion of 0–40°) from maximum extension. Thereafter, the movement showed a tendency toward internal rotation in all cases. The postoperative pattern of internal and external rotation reflected the preoperative tendency. Regarding anterior-posterior translation, preoperatively, the femur showed a pattern of posterior translation (i.e. posterior femoral rollback) after first moving forward during the initial phase of flexion. Postoperatively, a similar pattern was seen, in which the tibia tended to move continuously forward from 60° flexion during the middle phase of flexion. The difference between the preoperative and postoperative amounts of forward translation of the tibia after mid-flexion was only 1.01 mm.

DISCUSSION and CONCLUSION

In this study, the intraoperative rotation and the preoperative and postoperative anterior–posterior translation showed the preoperative tendencies in all cases.

The movement after UKA may have acquired better physiological movement due to preserving the ligaments and replacing the surfaces compared to after TKA.

2. Accuracy of Osteotomy using Patient Specific Instrumentation in Total Knee Arthroplasty with Minimally Invasive Surgery

Toshiya Morita[1)], Masayoshi Okuda[1)], Katsuya Ito[1)], Yuki Nishimura[1)], Yasuhito Tanaka[2)]

1) Dept. of Joint Replacement Center, Ishinkai-Yao General Hosp.
2) Dept. of Orthop. Surg., Nara Medical Univ.

【Aims】

PSI (Patient Specific Instrumentation) is said to enable elaborate and accurate surgery for Total Knee Arthroplasty (TKA) and to improve postoperative performance. We examined the accuracy of osteotomy in TKA which we have performed with Minimally Invasive surgery(MIS) by using PSI.

【Material and Method】

We targeted 53 patients (6 men and 47 women), 75 knees osteoarthritis with PSI or normal TKA in our hospital from 2015 to 2017. The average patient age is 75.1 years old. The preoperative plan was prepared by MicroPort PROPHECY. The component installation angles (α angle, β angle, γ angle, δ angle) of the X - ray image after surgery were measured.We also examined the accuracy of osteotomy, surgical time and predicted bleeding volume after surgery, compared with normal TKA. For the analysis, a retrospective study was conducted using χ^2 test and one-way analysis of variance.We also examined about adverse events.There were no significant difference in body weight, preoperative Hb, and male and female ratios between groups.

【Result】

The mean value of the installation angle was 94.8° ± 2.4°, 88.6° ± 2.3°, 1.29° ± 6.7°, 85.1° ± 2.1° for PSI, and 95.7° ± 2.1°, 89.7° ± 1.9°, 0° ± 4.5°, 86.4° ± 2.6° for normal TKA, respectively. When it was defined as Outlier that exceeds ± 3° from the preoperative planned installation angle, a significant difference was observed only in the γ angle. There was also a significant difference in the predicted bleeding volume, but no significant difference was found in the operation time.

【Discussion】

There are many reports stating that TKA's good or bad alignment greatly affects postoperative clinical outcome, and it has been said to be important to fit within 3° error in alignment.

In the present study, a significant difference was observed only in the γ angle. Since the condyle shape is rounded, it is easy to contact anywhere when setting the PROPHECY Guide in the distal of femur. With the MIS method, the incision of the quadriceps muscle is small and the shaft of femoral bone can not be exposed much. Therefore, the guide may not be adapted precisely forward, and there is a fear that errors are likely to occur in the anteroposterior direction.

3. Patient matched instrument on the femoral side alone has less rise in postoperative fibrinolytic marker compared to intramedullary rod for TKA

Yoshinori Okamoto, Shuhei Otsuki, Tomohiko Murakami, Kosuke Nakagawa, Hitoshi Wakama, Nobuhiro Okuno, Masashi Neo

Department of Orthopedic Surgery, Osaka Medical College, Takatsuki, Osaka

Although significant concerns have been expressed about the patient matched instrument (PMI), there are still unknown findings of perioperative fibrinolytic markers in total knee arthroplasty (TKA). To clarify the perioperative change in D-dimer due to difference of femoral osteotomy guide, we aimed to compare D-dimer of the intramedullary rod with PMI.

Between 2015 and 2017, we identified 175 patients who underwent primary unilateral cemented TKA (FINE CR) for osteoarthritis without history of osteotomy or meniscectomy. Sixty knees were excluded because of pre-existing femoral vein thrombus (8 knees), the case of contralateral TKA performed before or during the study period (20 knees), and 1.0 μg/ml of preoperative D-dimer or more (32 knees). On the basis of this exclusion criteria, 115 knees were finally selected for the analysis. The mean age of the patients at the time of surgery was 73 years. Between 2015 and 2016, we used the conventional intra- and extramedullary rod (92 knees) for femoral and tibial osteotomy, respectively. In 2017, we utilized CT-based PMI (23 knees) on the femoral side alone and the extramedullary tibial rod. We examined the perioperative D-dimer and investigated the postoperative radiographic component angle and the outlier defined as different from the preoperative plan by 3° or more. Based on the type of femoral cutting guide, we designed a case control study in which patients were matched by age (±2 years) and sex, and divided into two groups between subjects with intramedullary femoral rod using group (group C, 40 knees) and femoral PMI using group (group P, 20 knees). There was no significant difference with respect to age, body mass index, preoperative femorotibial angle and D-dimer between groups.

The median of D-dimer at 7 and 14 days after TKA was 19.8 in group C and 10.6 μg/ml in group P ($p = .023$); and 24.1 and 11.4 μg/ml, respectively ($p = .014$). Outlier of group C had an α angle of one knee and a γ angle of two knees, however, these were not in group P ($p > .05$).

Our study with matched pair sampling at the age of surgery showed that PMI would have less rise in postoperative fibrinolytic marker compared to intramedullary rod over 7 days postoperatively, and the superiority of PMI. We suggested that PMI on the femoral side alone can reproduce to prevent perioperative venous thromboembolism as well as the installation angle comparable to conventional cutting guide.

4. Comparison with Bi-cruciate retaining TKA and conventional TKA

Yuki Nishimura[1], Masayoshi Okuda[1], Katsuya Ito[1], Toshiya Morita[1], Yasuhito Tanaka[2]

[1] Dept. of Joint Replacement Center, Ishinkai-Yao General Hosp.
[2] Dept. of Orthop. Surg., Nara Medical Univ.

Aims

Recently, bi-cruciate retaining (BCR) total knee arthroplasty (TKA) that preserves both ACL and PCL has acquired joint stability by retaining anatomical knee motion. It has improved activity of daily living because of stability at mid flexion range. In the past, MOS 36 Short-Form Survey (SF-36) was not used to compare the postoperative results of BCR-TKA and conventional cruciate substituting/posterior stabilized (CR/PS) TKA. The purpose of this study was to compare the postoperative results of both groups including patient-based outcome.

Patients and Methods

We performed surgery using BCR-TKA (Vanguard XP, Zimmer Biomet, Warsaw, IN, USA) for 15 cases that consisted 17 knees surgeries from July 2016 to August 2017 and using CR/PS TKA (EVOLUTION, Microport Orthopedics, Arlington, TN, USA) for 15 cases that consisted 20 knees surgeries from May 2013 to May 2014 in our hospital. The range of motion (ROM), the Timed Up & Go test (TUG), Japanese Orthopaedics Association score for Knee Osteoarthritis (JOA score), SF-36 were all investigated. In preoperative factors, there were no significant differences between the two groups expect for the flexion range ($p < 0.05$).

Results

In the BCR group, the flexion range decreased from the preoperative average of $136 \pm 9.5°$ to the postoperative average of $129 \pm 10°$ ($p < 0.05$). In the CR/PS group, the flexion range increased from the preoperative average of $128 \pm 13.6°$ to the postoperative average of $131 \pm 14.1°$ ($p = 0.24$). TUG showed no significant difference before and after surgery in either group. Both groups in JOA score improved postoperatively and showed a significant difference ($p < 0.001$). In SF-36, there was a significant difference about Bodily pain and Mental health in the BCR group ($p < 0.05$). On the other hand, in the CR/PS group, there was a significant difference about Physical function, Bodily pain and Vitality ($p < 0.05$). There was an only significant difference in the score improvement of Physical function between the two groups ($p < 0.05$), which it was higher in the CR/PS group than in the BCR group.

Discussion

Because of the presence of ACL and PCL, the feeling of more physiological knee function was stronger. We thought that it worked on the mental side. There was a limitation of this study that patients with a relatively mild preoperative osteoarthritis were selected for the BCR-TKA procedure. BCR group had better preoperative ROM than CR/PS group. Therefore, there was a significant difference in the preoperative flexion range between both groups was observed, and postoperative ROM tended to deteriorate slightly in the BCR group.

5. The efficacy and potential complications of a central patellar portal technique

Kazumi Goto, Naofumi Shimizu

Department of Orthopedic Surgery, Toshiba-rinkan Hospital, Kanagawa, Japan

Background

The central patellar (CP) portal is a very useful portal to look at the native femoral insertion site of the anterior cruciate ligament (ACL). It aids in the drilling of an anatomic tunnel; however, the impact of the patellar tendon or the infrapatellar fat pad remains a concern. The aim of this study was to investigate potential complications of the CP portal for arthroscopic ACL reconstruction (ACLR).

Methods

A total of 121 patients (123 knees), who underwent ACLR using the CP portal technique ACLR from 2012 to 2017, were included in this study. The mean patient age was 28.2 years amongst 58 male and 63 female patients. The mean follow-up duration was 21 months. All surgeries were single bundle reconstructions with hamstring tendon autografts using a trans tibial technique via the CP and anteromedial portals. We investigated the post-operative events that were potential complications of a CP portal.

Results

There was one case of fibrosis of the infrapatellar fat pad, one report of anterior knee pain, and three patients with hypertrophy of the ligamentum mucosum. There were no incidents of patellar tendon rupture or tendinitis.

Discussion

Previous studies have reported complications, such as tendinitis, tendon granuloma or anterior knee pain. However, those findings were not prevalent in our study. Although it is not clear whether the CP portal has a direct effect, there were few extension deficits due to fibrosis of the infrapatellar fat pad or ligamentum mucosum hypertrophy.

Conclusion

The CP portal is a useful portal technique for arthroscopic viewing, but the impact of the patellar tendon and infrapatellar fat pad should be considered.

6. Femoroacetabular impingement after slipped capital femoral epiphysis

Yukinao Ishibashi[1], Shinichiro Kume[1], Takahiro Okawa[1], Naoto Shiba[2]

[1] Department of Orthopedic Surgery, Kurume University Medical Center
[2] Department of Orthopedic Surgery, Kurume University School of Medicine

[**Introduction**] Slipped capital femoral epiphysis (SCFE) is a relatively rare disease. The objective of treatment is to minimize the likelihood of future complications, such as deformations and femoral head necrosis. In recent years, there have been increasing concerns regarding secondary femoroacetabular impingement (FAI) as a consequence of residual osseous deformities after SCFE treatment. This complication can damage the hip labrum and cartilage and progress to early hip osteoarthritis (OA). Moreover, even some well-remodeled hips (Jones type A: concavity in the femoral head-neck transition region as seen in normal hip joints) exhibit cam-type FAI based on X-ray measurements. This finding is a reminder of the necessity of follow-up to monitor the remodeled hip joint region closely over time in cases of SCFE and corrective measures as necessary.

[**Purpose**] Our hospital operated on 18 hip joints with SCFE between March 2001 and March 2017. This study evaluated 15 of them with follow-up observations available until the time of epiphyseal line closure, in terms of the degree of remodeling (Jones classification), osseous bumps, and Nötzli α angle. The cam-type FAI (defined as $\alpha > 55°$) prevalence was analyzed with respect to the Jones classification. Early hip OA was also evaluated and tested for associations with other variables.

[**Cases**] The subjects were aged from 9 to 21 y (mean: 11.9 y) and treated as follows: corrective osteotomy, n = 3; gentle reduction and pinning, n = 2; and in situ pinning, n = 10.

[**Results**] According to the Jones classification, 10 joints were classified under type A, three joints under type B, and two joints under type C. Cam-type FAI was observed in two type A joints (20%), two type B joints (67%), and two type C joints (100%). Its prevalence was largely similar to that in a previous study, where cam-type FAI was present in 20% of the type A (well-remodeled) joints. Both cases of SCFE were acute on chronic type: one had a preoperative slip angle of 48° and underwent one-stage corrective osteotomy, while the other had a preoperative slip angle of 22° and underwent in situ pinning. Hip OA was observed in two cases: one type B and one type C joints, both with $\alpha > 55°$.

[**Discussion**] Acetabular and femoral retroversions are considered inherent to SCFE, and efforts to remodel affected hip joints can worsen FAI if they result in a type B or C classification, increasing the risk of early hip OA. Further investigation is necessary to determine the best method to deal with residual deformities. One of our type C cases also had AHI of < 80% and acetabular dysplasia, suggesting that residual deformities promote the onset of early-stage OA. Our results confirm that some Jones type A hip joints exhibit cam-type FAI despite being currently asymptomatic and suggest that patients with acetabular dysplasia will likely require long-term follow-up and suitable corrective measures if necessary.

7. Hip offset and leg length reconstruction after total hip arthroplasty with reduced proximal flare stem and dual offset option: 10-year results for Crowe I to III hip dysplasia

Tomofumi Nishino, Hajime Mishima, Hisashi Sugaya, Masashi Yamazaki

Department of Orthopaedic Surgery, Faculty of Medicine, University of Tsukuba, Tsukuba, Ibaraki, Japan

Background

The etiology of hip osteoarthritis in Japan was found to be developmental dysplasia of the hip (DDH) in most patients. However, only a few cementless stems have been designed specifically for dysplastic femurs. The adjustment of leg length and offset is difficult in these cases. In most DDH cases, the center of hip rotation moves in the superior and lateral direction. Movement of the center of hip rotation in the inferior and medial direction causes an increase in leg length and a decrease in acetabular offset.

Methods

To accommodate the morphology of the proximal femur, a reduced proximal flare stem with dual offset has been developed based on CT data of dysplastic Japanese femurs. Secondary osteoarthritis due to DDH was subjected in this study. Except for severe cases with Crowe IV, moderate cases with Crowe I to III were included, which were frequently observed in Japan. Two cementless tapered stems with the same length but different proximal geometries and coating ranges were compared. Use of a reduced proximal flare or standard stem was decided based on preoperative two-dimensional templating. The offset option was also considered based on preoperative templating and intraoperative soft tissue balance tests. A reduced proximal flare stem was used for 21 hips in 17 patients, and a standard stem was used for 34 hips in 33 patients. The minimum follow-up period was 10 years.

Results

Both groups showed excellent clinical results. A high-offset stem was used in 62% of the reduced proximal flare stems and 59% of the standard stems. No postoperative dislocations were observed in either group. The biological fixation was stable in all cases. The bone reaction around the stem and the degree of stress shielding were not different between the groups. The hip offset was restored without excessive leg lengthening in both groups. Proximal femoral anteversion was increased in the group with standard stems more than with the proximal flare stems.

Conclusion

The reduced proximal flare stem is suitable for Japanese patients with DDH if two-dimensional X-ray templates fit the shape of the proximal femurs. Similar to the standard stem, it had excellent clinical results and biological fixation. The dual-offset option might be useful to adjust leg length and offset for DDH patients. We believe that a reduced proximal flare stem with a dual-offset option is a suitable option for patients with DDH.

8. Superiority of SuperPath Approach Compared to Posterior Approach for THA

Masayoshi Okuda[1)], Katsuya Ito[1)], Toshiya Morita[1)], Yuki Nishimura[1)], Yasuhito Tanaka[2)]

[1)] Dept. of Joint Replacement Center. Ishinkai-Yao General Hospital. Osaka. Japan.
[2)] Dept. of Orthopaedics Surg. Nara Medical University. Nara. Japan.

Aims

Recently, various minimally invasive approaches with less muscle damage have been reported for total hip arthroplasty (THA). Our aim, in this study was to compare the short-term results for posterior approach (PA) and for Supercapsular Percutaneously Assisted Total Hip (SuperPath) which had been done in the lateral position.

Patients and Methods

We performed surgery using PA for 14 patients from April 2012 to April 2016 and using SuperPath for 14 patients from July 2016 to August 2017 in our hospital. Surgery time, bleeding volume, hospitalization, postoperative complications, the Japanese Orthopaedics Association score for Knee Osteoarthritis (JOA score), the Times Up and Go test (TUG) were all investigated. There were no significant differences in preoperative factors between the two groups.

Results

The operation time was significantly different from PA group 53.4 ± 7.5 minutes and SuperPath group 75.6 ± 13.6 minutes ($p < 0.001$). The hospital stay also showed a significant difference from the PA group 34.9 ± 13.1 days versus 26.9 ± 5.3 days in the SuperPath group ($p < 0.05$). The JOA score was significantly different both two groups before and after the operation ($p < 0.001$), but there was no significant difference between the two groups after the operation ($P = 0.067$). TUG was improved from 19.1 seconds to 10.5 seconds in the SuparPath group ($p < 0.05$). There was no significant difference between the two groups at the intraoperative bleeding volume. As a postoperative complication, two cases of the posterior dislocation were observed in the PA group, but there was no dislocation in the SuperPath group.

Discussion

Some authors reported that THA using SuperPath leads to reduction of medical expenses due to reduction of blood transfusion rate, low dislocation rate, and shortened hospitalization periods because of early functional recovery. Almost the same results were obtained in our cases. It was considered that the reason why there was no difference in bleeding volume was that the cannula penetration from another skin incision area was a blind operation, and the hemostasis procedure was difficult. Furthermore, skin incision length was 6 to 8 cm and it was somewhat difficult to operate, so we thought that the operation times were extended.

Conclusions

SupePath is easy to accept for the operators who were performing by PA because it is a same lateral positional operation. We believe SuperPath is a useful technique for patients when we considered postoperative complications and functional recovery.

9. Postoperative change in sagittal spinopelvic alignment and low back pain after total hip arthroplasty

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INTRODUCTION: There have been several reports regarding improvement of low back pain (LBP) after total hip arthroplasty (THA). Recently, many studies have demonstrated sagittal spinopelvic alignment to be correlated with health-related quality of life scores. However, the relationship between LBP and the change in spinopelvic alignment after THA is still unknown. The aim of this study is to identify the prevalence of pre- and postoperative LBP in patients undergoing THA as well as to assess the influence of spinopelvic parameters on the improvement of LBP after THA.

METHODS: This prospective cohort study involved end-stage hip osteoarthritis patients who underwent THA between 2013 and 2014 at our institution. We collected radiographic and questionnaire data at the preoperative period and 1 year after THA. The level of LBP was assessed by VAS score. The sagittal anterior pelvic plane angle (SAPPA) is defined as the angle between the anterior pelvic plane and the vertical plane. A positive value is pelvic retroversion. Radiographic parameters included thoracic kyphosis (TK), lumbar lordosis (LL), pelvic incidence (PI), sacral slope (SS), sagittal vertical axis (SVA), and sagittal anterior pelvic plane angle (SAPPA). LBP of more than 30 mm (VAS score) was defined as LBP (+) group.

RESULTS: A total of 45 patients (8 men, 37 women) with an average age of 60.7 ± 13.8 years agreed to participate in the study. The prevalence of preoperative LBP was 56% (24/45). At 1 year postoperatively, the prevalence of LBP decreased by 27% (12/45). The mean VAS score for LBP significantly decreased from 39 mm before surgery to 23 mm at 1 year after THA. There were no significant changes in lumbar or pelvic alignments including LL, TK, PI-LL, SS, and SAPPA at 1 year after THA; however, only SVA significantly increased after THA (26 mm vs. 39 mm, P= 0.007). Postoperative TK, LL, SS, SVA, and SAPPA was similar between the LBP (+) and the LBP (-) group. However, postoperative PI-LL mismatch was significantly larger in the LBP (+) group (21.6° vs. 7.8° , P＜0.001). There was no significant correlation between the change in the SAPPA and the postoperative VAS score for LBP (R= -0.031, P= 0.839).

DISCUSSION AND CONCLUSION: THA did not result in any significant change in the sagittal spinopelvic alignment. Postoperative change in sagittal pelvic rotation did not influence postoperative LBP. Postoperative PI-LL mismatch was the only predictive factor associated with persistent low back pain after THA.

Metal surfaces in joint replacement: Last mistakes and future perspectives

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Joint replacement during the last centuries underwent a stepwise development. Starting from basic material and design problems the pioneer period was able to solve many problems. Metal on Polyethylene combinations were successful for many thousand patients in different joint systems. Increasing life expectancy and body weight in many countries and trend sport activities enforced the claims fort the joint components. A real step forward has been the cross linked PE principle for hip joints and probably for knee joints too.

Some innovative ideas have not been able to increase the quality of joint replacement so as some short stems or different cup prosthesis. While small heads of MoM couples have been worthfull for many years especially the large diameter head showed high revision rates. These implant combinations attract negative attention as pseudotumor and adverse reaction describing a many years known problem of foreign body reaction.

High pseudotumor rates by were observed in large MoM couples in combination with thin cups and standard stems including taper sleeves. While the gold standard of hip prostheses today is the ceramic head combined with polyethylene liner or alternative a ceramic liner, the knee replacement is still based on cobalt chromium alloys combined with PE.

Studies in the literature are showing metal ion load after TKR at unexpected high level. Additionally the increasing allergy problem is causing the permanent discussion about better surfaces without relevant ion release. Monobloc ceramic condyles reached good 10 years results but they suffer from high costs and low variability including the absence of revision solutions. Typical one layer surfaces of TKR are very thin and the stability against wear is not guaranteed over more than 2 years use according to the ISO standard tests. Oxidation methods of the surfaces are reaching yet longer good results. New multilayer surfaces are promising a longer wear resistance and offer a solution against allergy problems for longer use periods.

We are reporting about our experiences using a multilayer ceramic coated knee system (Emotion AS, CR and PS kinematics) as a standard implant in TKR since 6 years in a prospective monocenter study. The future of joint replacement has to avoid high metal ion release and allergy problems and has to reach long term results over 95 % surviving implants in 10 years including revision solutions.

10. Short term surgical results of using stand-alone interbody PEEK cage for Anterior Cervical Discectomy and Fusion in one- and two- level cases: A retrospective study with 270 primary patients in Germany.

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Anterior Cervical Discectomy and Fusion (ACDF) is a widespread treatment for cervical pathologies. In Germany, ACDF with PEEK cage without plate, using stand-alone cage (sACDF) is also often used as a good alternative treatment for one- or two- level ACDF surgeries. In this study, we report the short-to-middle term results of sACDF cases in a single institution.

Materials and Methods: In SPINE CENTER Catholic Hospital Koblenz - Germany, we use PEEK cage without plate, and also without bone grafts in ACDF for the patients with normal cervical alignment. No orthopaedic collar was applied postoperatively. In the most cases, the middle-term follow-ups were done by the general practitioners. If the patients have suspected complications, they were sent back to the outpatient unit of our hospital. We underwent 461 anterior cervical surgeries from Jan.2011 to Aug.2016, and the following groups of patients were excluded from this study: plate-implantation, artificial disc-implantation, corpectomy, surgery of above three levels, and revisions. There ware 270 sACDF for one- and two- level surgeries. Main collected data was: age, sex, main diagnosis, operating time, number of levels, complications, return to the operating room, last follow up date in our outpatient department and others.

Result: Time frame of the research 6.7yrs, average follow up time 1yrs (332days, 4–2335), average age 52 (29–88) yrs, male sex 51%. Forty-eight patients (18%) diagnosed with myelopathy, 122 cases (45%) with one-level sACDF. Average operating time 51 min (30–78) for one-level , and 81 min (48–168) for two-level surgeries. Average duration of hospital stay 6.6days (3–30). Preoperative severe comorbities and conditions (e.g.tetraplegia) extended the hospitalization. Six cases (2.2%) returned to our operating room: two because of hematoma and one with pseudoarthrosis, and three were operated years after (1.6yrs, 3.7yrs, 3.8yrs) on an adjacent level.

Discussion: The aim of our study was to proof the results of sACDF. The advantages of sACDF are shorter operating time, reduction of postoperative dysphagia, no donor site pain, less medical expenses on implants. 6 patients returned to our operating room by our medical network. Shortages of the sACDF which should be mentioned are the sagittal malalignment or the cage-subsidence, especially in cases with osteoporosis. Careful selection of patients and appropriate postoperative follow-ups are desirable.

11. Intraoperative computed tomography myelography for the evaluation of indirect neural decompression in lateral lumbar interbody fusion

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Background

Lateral lumbar interbody fusion (LLIF) has been extensively used as a minimally invasive surgery for degenerative lumbar disease, nevertheless, the effect of indirect neural decompression, one of the crucial advantages of LLIF, remains unclear. The purpose of this research is to evaluate the radiological parameters immediately after LLIF cage placement using intraoperative CT myelography (iCTM), and to analyze the actual effect of indirect decompression with LLIF.

Materials and Methods

In this retrospective study, we enrolled 28 patients who underwent LLIF at 53 levels using iCTM. We compared radiological parameters of the segmental correction between iCTM taken immediately after LLIF cage placement and preoperative CTM. In addition, we compared the preoperative and intraoperative cross-sectional area of the spinal canal (C-CSA) and that of the bilateral foramen (F-CSA) to assess neural decompression. The status of canal stenosis in axial CTM was classified into three grades (grade A: no or mild stenosis; B: moderate stenosis; and C: severe stenosis) according to the Schizas's MRI grading. Furthermore, we examined the necessity for additional decompression procedure.

Results

We observed significant improvements in all the radiological parameters of the segmental correction in only LLIF cage placement ($P < 0.0001$). In addition, both C-CSA and F-CSA were significantly enlarged ($P < 0.0001$), and the decompression status of the CTM grade almost improved (preoperative grade A: 0; grade B: 18; grade C: 35 improved to intraoperative grade A: 34; grade B: 10; and grade C: 9). However, 11 levels (21%) exhibited insufficiency of the neural decompression status with the iCTM grade, requiring further direct decompression during the same surgery.

Conclusions

This study demonstrated that indirect decompression with LLIF was not necessarily attained in all cases, and iCTM could facilitate precise early feedback to determine the necessity of additional direct decompression during LLIF surgery. It should be concluded that iCTM evaluation in the hybrid operating room reduces the risk of reoperation and improves surgical outcome.

12. Clinical features for spine injuries associated with diffuse idiopathic skeletal hyperostosis

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[Introduction]

Recently, there is an increasing number of patients with diffuse idiopathic skeletal hyperostosis (DISH) treated for spine injuries. The prevalence of DISH rises with older age, and it is reported that early diagnosis is delayed due to coexistence of ankylosing spine and osteoporosis, and the risk of deterioration of paralysis is high. The purpose of this study was to investigate clinical features of spine injuries associated with DISH.

[Methods]

Twelve consecutive patients (9 males and 3 females) with spinal fractures related to DISH underwent spinal surgery between February 2014 and February 2018. The average age at injury was 69.5 years. Medical records were reviewed and the following data were collected: medical history, mechanism of injury, damage level, paralysis at the time of injury according to ASIA classification, deterioration of paralysis, delay to diagnosis, and the reasons for delay before diagnosis. Data on surgical method, number of instrumented vertebrae, and perioperative complications were also collected.

[Results]

Diabetes was the most common (4 cases) of patient comorbidities. There were 7 cases of falls from the standing position, 4 cases of falls from several meters high, and 1 case of bruising the forehead in the mechanism of injuries. T12 was the most frequent injured level (4 cases), and vertebral fractures were observed in two separate vertebral levels at the same time in 3 cases. Paralysis at the time of injury due to ASIA classification was B in 1 case, D 4 in cases, and E in 7 cases. Three cases were worsening paralysis during the waiting period until the surgery. There were 6 cases that showed a delay to diagnosis, 3 of which were Doctor's delay. As for surgical procedure, MISt (minimally invasive spinal stabilization surgery) was performed for 5 cases, and the conventional open posterior fusion surgery for 7 cases. The number of instrumented vertebrae was 6.4 (4–13) on average (4–13). As perioperative complications, the most frequent was deep venous thrombosis of the lower limbs which occurred in 3 cases.

[Conclusions]

Spinal fractures related to DISH occur with minor trauma and it is reported that initial diagnosis is difficult because of minor dislocation. In addition, conservative therapy has a high incidence of non-union and it is highly likely that paralysis will deteriorate, therefore, it is considered necessary to perform the surgical treatment. In this study, Doctor's delay was observed in 25% of cases and multiple vertebral fractures at the same time occurred in 25% of cases. When encountering a case of DISH, it is thought that doctors should be careful of spinal fractures, including multiple fractures, at all times.

13. Eating device to aid C5 level cervical spinal cord injury patients. Based on previous experiences of the prosthetic study for amelia (arm missing due to a side-effect tragedy of the sedative drug Thalidomide).

Takashi Suto

Orthopedic Department, Saijo Citizen's Hospital

In accordance with a recent increase in the population of the elderly, the number of cervical spinal cord injuries in this group is increasing.

The patients with C5 level quadriplegia (below C5, at C6 injury) have difficulty eating independently and, therefore, require assistance at meal times.

Eating independently and enjoying our meals is a daily pleasure we should all experience. This can be highlighted by the following representative cases:

Patients who have lost the function of wrist and fingers, yet retain small movement of the shoulder joint, flexion of the elbow joint and supination of the forearm. These movements are essential for being physically able to bring food to the mouth.

The following measures will all help to support these motions:

1. Prosthetic study for the patient who has congenital bilateral total arm missing. (Zustand nach der Beschaedigung von Beruhigungsmittel Contergan)
2. Soft forearm and hand orthotics to support pronated position.
3. Design spoon, fork or chopsticks for relevant part of the hand.
   - The handle of the spoon to be made flexible to allow food to be brought horizontally to the mouth.
   - Chopsticks, being important in Japanese food culture, could be opened by elbow flexion at the opposite side.

This presentation will be accompanied by videos in order to aid your understanding of these new developments.

14. Efficacy of gait training using HAL after surgery for severe myelopathy due to thoracic ossification of the posterior longitudinal ligament

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Background:
The neurological recovery would be slow for myelopathy with ossification of the posterior longitudinal ligament in the thoracic spine (T-OPLL) after surgery. Gait training must be needed for these patients. However, it may be too difficult because of their severe myelopathy and the high burden on treatment assistants. We have a wearable exoskeleton robot so-called '*HAL*®: Hybrid Assistive Limb' that was developed by the engineer group at University of Tsukuba. It is an exoskeleton robot that support gait motion by power units in the hip and knee joint and force-pressure sensors in the shoes.
Purpose:
The aim of this study was to assess the efficacy of gait training using *HAL*® after surgery for severe myelopathy due to T-OPLL.
Methods:
Eight patients (4 men, 4 women) who did not stand even with any support were enrolled in this study. The mean age was 61 years. Gait training using HAL was performed twice a week for total 10 sessions. They were performed as soon as possible, when the patient can keep stand for 2 minutes by any support after surgery. We measured the lower extremity motor score (LEMS) of International Standards for Neurological Classification of Spinal Cord Injury (ISNCSCI), Functional Independence Measure of motor function (FIM) on 13 items and Barthel Index (BI) for activity of daily living. The Walking Index for Spinal Cord Injury 2 (WISCI2), Japanese Orthopaedic Association for thoracic myelopathy and Complications were also evaluated. Statistical analyses were performed by Wilcoxon signed rank test. A P value within 0.05 was defined as significant.
Results:
Initial gait training using HAL was started at the mean 28 postoperative day. The mean LEMS total of ISNCSCI about pre- and post-training was 34 and post 42. The mean FIM about pre- and post-training was 49 and 80. The mean BI about pre- and post-training was 53 and 89. The mean WISCI2 about pre- and post-training was 8.6 and post 14.6. All measurements were significantly improved after HAL training. Orthostatic hypotension was observed once in 1 patient during gait training. Gait training was restricted over 4 weeks by perioperative complications including acute epidural hematoma, surgical site infection, and transient worsening of paralysis in 4 patients.
Conclusion:
Gait training using a wearable robot (HAL) would enhance the improvement of motor function and ADL for the patients with sever myelopathy due to thoracic OPLL.

Reconstruction of the Craniovertebral Junction

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Spine Center Catholic Hospital Koblenz-Germany

The craniovertebral junction is a mechanical part of the spine that offers the most significant amount of mobility when compared to other segments. The stability and mobility is facilitated by unique morphology of the upper cervical vertebrae. The concept of surgical stabilization for fracture was introduced in 1891 by Hadra using wires wrapped around the spinous processes. Since then multiple stabilization techniques with anterior and posterior approaches was invented. The principle of anterior screw with load support and posterior compression-stabilization was introduced. In our series we prefere during anterior procedures the use of perimesh cage in combitation with plates. For posterior stabilization and reconstruction we use mainly the C1-C2- technique accorded to Goel and Harms with lateral mass screw on C1 and pedicle screw on C2. This construct allows an excellent primar stability with reconstruction and reduction of the segment. In cases of medullar compression an additional laminectomy of C1 can be performed without loss of stability.

In our collective we treated since 2/2007 47 patients accorded to Goel/Harms: There were 26 females and 21 males, age 41–89 years with av. Age of 67,8. The indications for surgery was: trauma in 33 cases, PCP in 7, malformation in 3 and Tumors in 4 cases. In all cases we achieved a very good primar stability, no loosening of the implants was observed. In 4 cases additional construct prolongation up to the occiput was required. The patient satisfaction was improved by reduction of initial neck-pain and improvement of the neurological status. Complication occurred in 4 cases with hypalgesia of the occiput, one medial malposition of the axis leaded to neurological worsening – the screw was repositioned on the same day with recover of the patient. In one case a neck-hematoma and in one case a superficial wound infection occurred.

The modern stabilization techniques- with our preference of the Goel/Harms- technique – allows a very good anatomical reduction with a high stability of the upper cervical spine. If required – a long construct with fixation up to the occiput can be performed. In our long-term results- a very good stability and high patient tolerance was observed. The specifical complication rate is low – no vascular complications was observed.

15. Clinicopathological and prognostic value of transforming acidic coiled-coil-containing protein 3 (TACC3) expression in soft tissue sarcomas

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Abstract

Transforming acidic coiled-coil-containing protein 3 (TACC3), a microtubule regulator, is associated with various cancers. However, the relationship between TACC3 and soft tissue sarcomas (STS) remains unclear.

We investigated the expression of TACC3 in 136 STS patient samples using immunohistochemical (IHC) staining, and the statistical associations between TACC3 expression and clinicopathological characteristics were evaluated. Additionally, the expression levels of the tumor suppressor p53 and of the cell proliferation marker Ki-67 were also assessed by IHC.

High TACC3 expression was detected in 94/136 of STS cases (69.1%), and significantly correlated with higher grade according to the French Fédération Nationale des Centres de Lutte Contre le Cancer system ($P < 0.0001$), poorer tumor differentiation ($P < 0.0001$), increased mitotic counts ($P < 0.0001$), advanced stage per American Joint Committee on Cancer guidelines ($P < 0.0001$), higher p53 expression ($P = 0.0487$), higher Ki-67 expression ($P < 0.0001$), and undergoing postoperative therapy ($P = 0.0001$). Disease-free survival (DFS) and overall survival (OS) of patients with high TACC3 expression were significantly shorter ($P<0.0001$ and $P<0.0001$, respectively). On multivariate analyses, high TACC3 expression was an independent negative prognostic factor for both DFS and OS (hazard ratio [HR]: 3.074; $P=0.0235$ and HR: 8.521; $P=0.0415$, respectively).

Our results suggest that TACC3 is an independent prognostic factor and may be a novel therapeutic target for the treatment of STS.

16. Results of Locomotive Syndrome Assessment in Medical Checkup Center of Edogawa Hospital

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Keiyu Joint Reconstruction Center Edogawa Hospital

[Objective]

To address Japan's super-aging society, the Japanese Orthopaedic Association promotes countermeasures against locomotive syndrome. However, younger generations do not show much interest in this issue, and data of that generation are still insufficient. This paper reports the results of locomotive syndrome assessment , involving relatively young participants, of the medical checkup center conducted in the author's facility.

[Methods and Results]

Locomotive syndrome assessment was conducted for 204 (male: 83; female: 121; mean age: 49.3 and 52.4, respectively) participants with consent. Their locomotive syndrome grade was 1 (23 males and 55 females) or 2 (4 and 11, respectively); the grade was generally higher in females.

On comparing the positive rate among the 3 assessment scales used, the positive rate was the highest when using the Locomo-25 Checklist. In females, the rate was also high when using the Two Step Test and Standup Test.

Among the 78 participants classified as grade 1, the positive rate was the second highest when using the Standup Test, following the Locomo-25 Checklist. Among those classified as grade 2, most associated factors were the Locomo-25 Checklist .

To a simultaneously conducted questionnaire, 102 responded, revealing their high-level interest in locomotive syndrome assessment in medical checkup center , as 90% were willing to continuously participate in such assessment.

[Discussion]

Among the 204 participants, 38% and nearly 7% were classified as grades 1 and 2, respectively; thus, the prevalence of locomotive syndrome was 45%. The positive rate was the highest when using the Locomo-25 Checklist, possibly reflecting the participants' high scores for questions regarding pain and decreased social participation, which precede declines in physical functions.

[Conclusion]

As there may have been a sampling bias, the results should only be used as reference data. However, the finding that locomotive syndrome is present in nearly half of males and females at the age of around 50 is important, and it indicates the necessity of further enhancing awareness of this issue among younger generations.

17. Association between core muscle strength and tightness and back pain in high school baseball players

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[Background] Back, shoulder, and elbow pain are common in high school baseball players. Among various underlying factors associated with back pain in baseball players, few reports have analyzed this association with a focus on core muscle strength. This study investigated back pain among high school baseball players, and examined the association between core muscle strength and core and leg tightness.

[Method] This study included 91 high school baseball players who underwent both 2017 and 2018 off-season medical examinations. The 2018 survey assessed the presence of back pain and the association between measured core muscle extension and flexion strength and core and leg tightness. Forward trunk motion (finger to floor distance) and quadriceps (heel-hip distance), hamstring (straight leg raising angle), and iliopsoas (Thomas test) tightness were assessed. The leg muscles as a group were assessed using the squatting test, and hip range of motion and external rotation were measured. Measurement of tightness and hip joint mobility on both the dominant and non-dominant sides was performed. Subjects were divided according to the presence or absence of back pain and core muscle strength was compared between the two groups. For multivariate analysis, the independent variable was presence or absence of back pain, and the dependent variables were core and leg muscle tightness.

[Results] Back pain developed in 32 players (35.2%). The mean core muscle extension strength was 6.9 ± 0.7 Nm/kg in those with back pain and 7.3 ± 0.8 Nm/kg in those without back pain, with a statistically significant difference ($p = 0.03$). The mean core muscle extension:flexion ratio was 2.2 ± 0.2 in those with back pain and 2.3 ± 0.4 in those without back pain, with no significant difference. Tightness was not a factor associated with the onset of back pain, based on multivariate analysis.

[Discussion] Players with back pain reportedly have a low core muscle extension:flexion ratio and frequently develop back pain when the ratio is decreased. No significant differences were observed between the two subject groups in the core muscle extension:flexion ratio, but core muscle extension strength was low in the group with back pain. Thus, core muscle strengthening may be important for prevention of back pain in high school baseball players.

18. Surgical Treatment for the fragility fractures of the pelvis

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Introduction: Fragility fractures of the pelvis (FFP) are increasing frequency and some cases are requiring an operating treatment. However there are not standard treatments for fragility fractures of the pelvis. We used classification by Rommens, and treated by operative 22 cases of fragility fractures of the pelvis.

Methods: Between January 2014, and January 2018, 22 patients with FFP were treated either with posterior plate fixation or with iliac screw and connected rod. The mean age of the patients was 79.5 (range of 65 to 95). Fractures pattern were 1 case of FFP Ⅱb, 5 cases of Ⅱc,12 cases of Ⅲa, one case of Ⅲb, 2cases of Ⅳa, 1 case of Ⅳb. Although in patients with sacral fracture, posterior plate fixation was implemented, iliac screw and connecting rod was used for iliac fracture. The patient is placed in the prone position with only small bilateral longitudinal skin incisions to the pelvis. Either posterior plate or iliac screw and connecting rod were inserted.

Results: On average, surgery was performed 6.1 days after injury. Surgical time was averaged 118 minutes, and blood loss averaged 207.8 ml, excluding 4 cases which underwent ORIF of other parts. All patents were started sitting immediately after operation. All the patients could walk with assistance at the time of discharge except for 4 cases, which all had fractures in their lower extremities. One case suffered from delayed surgical wound, but there were not other major complications.

Conclusion: Fragility fractures of the pelvis were difficult to treatment. Our surgical treatment for FFP enabled our patients to experience decreasing pain and lead to quick recovery after operation.

19. Distraction ankle arthroplasty in the treatment of severe posttraumatic ankle osteoarthritis

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【Introduction】 Distraction ankle arthroplasty (DAA) is performed to enable short-term distraction of the talus and tibia in order to prevent contact between the articular surfaces and expect cartilage repair. Since 2007, we have performed DAA in patients with severe posttraumatic ankle osteoarthritis (PAO). This study aimed to evaluate the clinical and radiographic findings of patients undergoing this procedure.

【Methods】 This series included 12 patients (mean age, 47 years; range, 25–69 years) treated with joint debridement and microfracture, followed by distraction of the ankle using the Ilizarov apparatus (mean follow-up duration, 50 months). This procedure was indicated in patients with PAO (Takakura's classification: 2 patients in stage 3b and 10 in stage 4). In 5 patients, low tibial osteotomy was performed in combination with this procedure. The Japanese Society for Surgery of the Foot (JSSF) ankle-hindfoot scale and visual analog pain scale (VAS) were used for clinical assessment. Weight-bearing radiographs as well as magnetic resonance images (MRIs) of the ankle were evaluated.

【Results】 The mean pre- and postoperative JSSF scores were 62 and 81, respectively ($P < 0.001$). The mean VAS score statistically decreased from 70 preoperatively to 36 postoperatively ($P = 0.002$). The mean pre- and postoperative ranges of motion (ROM) of the ankle were 41 and 42, respectively ($P = 0.812$). On anteroposterior radiograph, the mean joint space widths of the ankle (JSWA) were statistically increased from 0.29 mm preoperatively to 2.97 mm postoperatively ($P < 0.001$). On lateral radiograph, the mean JSWA were statistically increased from 1.05 mm preoperatively to 3.10 mm postoperatively ($P = 0.005$). The postoperative radiographs showed widening of JSWA by more than 1 mm as compared to the preoperative width in 7 patients and by less than 1 mm in 5 patients. Postoperative MRIs (3DSPGR) of these 7 patients showed high-intensity signal areas on the bone surfaces of the tibia and talus.

【Discussion】 Our results showed that the preoperative ankle pain decreased significantly and ROM was preserved postoperatively. With regard to the postoperative JSWA in stage 4 PAO, 7 patients (70%) showed an increase postoperatively. Moreover, the postoperative MRIs of these 7 patients showed an area with high-intensity signal on the bone surface of the ankle. This finding suggests that the articular cartilage in the ankle might have undergone repair. Therefore, the results of our study indicate the usefulness of DAA for the treatment of patients with PAO, especially those with stage 4.

Elbow Fracture Dislocation in Adolescence: Acute and Chronic

Dietmar Pennig

St. Vinzenz-Hospital / Albertus-Magnus-University of Cologne

Elbow trauma in adolescence including fracture dislocation is not uncommon. It does however present diagnostic difficulties and requires an adequate management protocol. Post-traumatic incongruence is to be avoided and a detailed analysis of the bony and cartilage as well as ligamentous injury pattern is the key to a good clinical outcome.

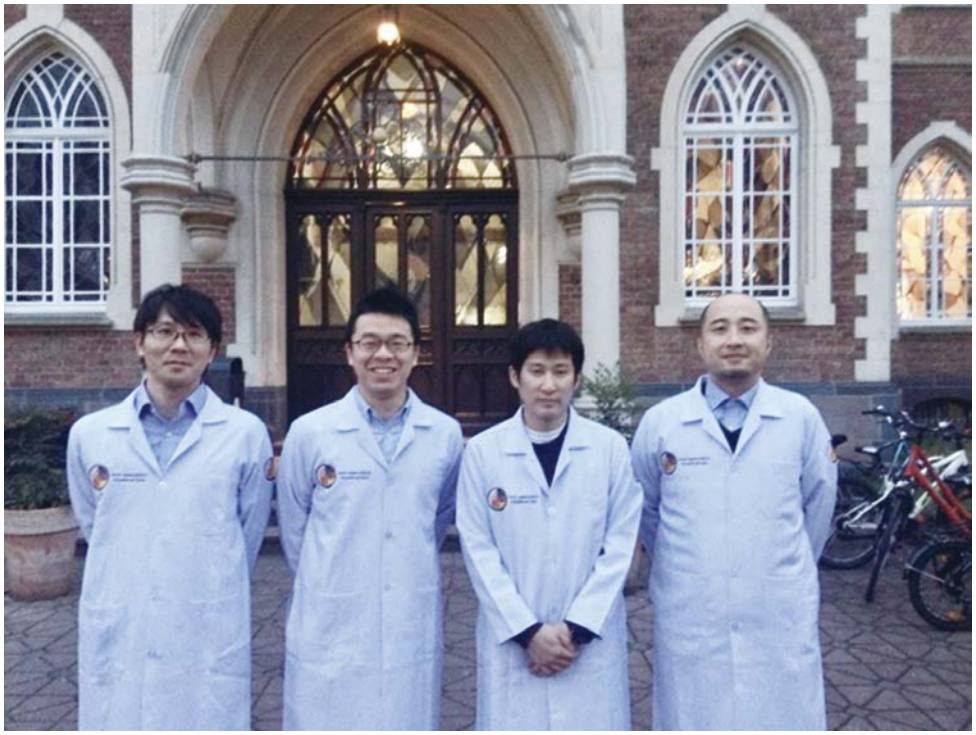
The development of elbow stiffness in adolescence is frequently seen after poor diagnosis, poor treatment and overtreatment.

Elbow contracture is a recognized sequela of elbow injuries in children and adolescents, but previous studies of operative treatment with formal capsular release have demonstrated unpredictable outcomes and unfavorable results.

Forearm deformities in children and adolescents may be congenital or developmental, or result from trauma. They may cause pain and decreased function of the wrist and hand.

GJSOT Fellowship Program

From November 12 to November 30, 2018



GJSOT travelling fellowship program 2018

Toru ASARI
Department of Orthopaedic Surgery (Spine Group)
Hirosaki University Graduate School of Medicine

We participated in the German-Japanese Society for Orthopaedics and Trauma fellowship program for about three weeks from November 12 to December 2, 2018. The GJSOT Fellowship Program has sent a total of 21 young Japanese doctors to each German facilities for training in the 10 years from 1997 to 2009. There was a temporary suspension, but the program has been resumed from 2016, and Dr. Yamamoto and Dr. Maeda have participated in the past from Hirosaki University. The current application qualification is orthopedic specialists under 40 years old, and four spine and joint specialists in total.

The members in this fellowship were Dr. Fujishiro (Osaka Medical University, Spine surgeon), Dr. Yoshizawa (Tsukuba University, Hip surgeon) and Dr. Kamatsuki (Okayama University, Knee surgeon). We were able to get along with each other as we are similar ages and all love alcohol. We deepened our mutual exchange with the Welcome Dinner held every evening, and were able to carry out a substantial training.

【Rostock University and Sana Kliniken Sommerfeld】

Moving from Berlin to Rostock University, I reunited with Professor Mittelmeier who visited my town Hirosaki to attend the 20th GJSOT meeting in August 2018. We were given a tour around the hospital and their laboratory, and that night we had the Welcome Dinner at a restaurant facing the Baltic Sea.

The joint team trained at Rostock University and the spine team moved to Sommerfeld to visit Sana Kliniken Sommerfeld. At a hospital in a mountainous area like a fairyland, which I at first did not think was a hospital, we were trained by Dr. Koppenstedt. We attended many spine surgeries, hit a pedicle screw, and had a valuable experience. Dr. Kroppenstedt was kind to us and had excellent techniques to perform several surgeries a day. The indications for surgery were almost the same as for Japanese spinal surgeons. Dr. Kroppenstedt took us to Neuplin for sightseeing and had a delicious dinner.

【St. Josef-Stift Hospital (Sendenhorst)】

After spending the weekend in Hamburg, we moved to Sendenhorst. Sendenhorst was not a big city, but it was a quaint town and we loved it very much. In the St. Josef-Stift Hospital, at 8 am, the patient was admitted to the operation room, and the operation was performed from early morning to night. Dr. Brinkmann and Dr. Shaultz organized the spine team as a senior doctor, and the young residents worked with each doctor. Moreover, there were many specialists in rheumatoid and joint surgery, and many patients from all over Germany had come to the hospital for excellent treatments. Dr. Platte took me to Münster and introduced its historic city churches and brewery. We enjoyed German beer and traditional German cuisine.

【Catholic Hospital in Koblenz】

Before moving to Koblenz, we stayed for 2 nights in Cologne, saw a Bundesliga match, drank beer at the famous Kersh beer branch, and visited tourist sites such as the World Heritage Site Cologne Cathedral. Although Koblenz is a small city with a population of about 100,000, it was a very important place in the military where the Rhine and Moselle rivers meet, and it was a historic and lively city that had a great deal of interaction with other cities. We loved Koblenz, because it was a very beautiful city.

The last training hospital we visited, Catholic Hospital, was a historical hospital next to the church, with approximately 2,000 artificial joint surgeries annually, and a hospital with many spine surgeries. The spine team was welcomed by Dr. Kilian, who is also very famous in Japan, as a host, and he demonstrated many special operations for us with detailed explanations. We had a welcome party in an excellent restaurant with a view of the castle on the river-side, and enjoyed German beer, wine and food. At the Traveling Fellowship Dinner, we talked much about the culture and history of each other names and the differences in the medical systems.

【B. Braun Aesculap company in Tuttlingen】

After completing the entire schedule, we finally moved to Tuttlingen where the Aesculap company was located, made a factory tour, and held a retrospective review of this fellowship. Each one took a look back at each facility and confirmed the future direction of the fellowship.

And then, we moved to Switzerland and had a farewell supper at Zurich. We ate cheese fondue, went out to the Christmas market in the town of Zurich, and felt the Christmas mood then began on our way home.

【Conclusion】

Finally, I would like to thank the GJSOT members for giving me this opportunity. Also, I would like to thank Professor Ishibashi and the Drs (in particular the spine team) of the Department of Orthopedic Surgery at Hirosaki University. I would like to thank Dr. Fujishiro, Dr. Yoshizawa and Dr. Kamatsuki who were with me for this trip.

I would like to make use of this experience for future medical treatment. Finally I hope for the further development of GJSOT.

Thank you so much. I love Germany.

Surgery with Dr. Koppenstedt

St. Josef-Stift Hospital with Dr. Platte

Catholic Hospital in Koblenz with Dr. Kilian

German-Japanese Society for Orthopaedics and Trauma fellowship program 2018

Yusuke Kamatsuki
Department of Orthopaedic Surgery, Okayama University

This report is based on our experiences on our three weeks in Germany. We visited three institutions: Rostock University Hospital, St. Josef-Stiff Hospital, and Katholisches Klinikum Bruderkrankenhaus Hospital. The fellowship members consisted of two spine surgeons and two joint surgeons; the former were Dr. Toru Asari from Hirosaki University and Dr. Takashi Fujishiro from Osaka Medical College, and the latter were Dr. Tomohiro Yoshizawa from Tsukuba University and myself.

We departed from Haneda Airport on November 11th and arrived in Berlin via Munich. We stayed in Berlin on the first night. Dr. Yoshizawa and I visited the Berlin Wall East Side Gallery the next morning. We were able to see some famous wall paintings. After that, we left Berlin for Rostock by car. The first institution we visited was Rostock University. Rostock city is located in the northeast part of Germany and used to be a part of East Germany. It has a very beautiful beach. Some people in Berlin have villas to stay there during summer vacation. Professor Wolfram Mittelmeier and his colleagues welcomed us willingly and showed us around the hospital and the laboratory. We had a chance to give a presentation about ourselves and our studies individually. After that, we had dinner at a good local restaurant. From the second day, four fellowship members were divided into the spine group and the joint group. Dr. Yoshizawa and I observed and joined joint surgeries. Because it is a university hospital, most of patients who underwent surgeries were complicated cases, such as revision TKA and infected THA. I am very interested in knee surgery; therefore, I was very excited to observe anterior cruciate ligament (ACL) reconstruction and meniscal repair in Germany. There were some interesting points that differed from our methods such as a graft type and a graft fixation. Professor Thomas Tischer, a head of Orthopaedic Sport Surgery, showed us some techniques in knee and shoulder arthroscopic surgeries. Between surgeries, we rested in a refresh room and ate big sausages with mustard. I was surprised not only with the sausage boiling machine because I had never seen it in Japan, but also the amount of mustard they ate as if they ate mustard with sausage. Needless to say, those sausages were very delicious with crunchy texture. Professor Mittelmeier invited us to his house. After a coffee break there, we had dinner with his friends: a gold medalist and a former doctor of the East German national football team at a good restaurant near the Baltic Sea. The next day, Dr. Martin Ellenrieder, a chief joint surgeon, took us to a rehabilitation center. In that center, patients can train using exercise bikes and a pool. We experienced Moore, which is thermotherapy for patients with rheumatoid arthritis or other diseases. It is similar to hot spring therapy in Japan. Everything new to me, the first week passed by fast.

Our second training facility was St. Josef-Stiff Hospital, which is located in Sendenhorst and a center of Rheumatology. Dr. Ansgar Platte, a sub-chief rheumatoid arthritis surgeon, took us to the hospital tour. It was a well-equipped hospital with large advanced operating rooms as well as rehabilitation rooms and many prosthetists and orthotists. Once patients are admitted to the hospital, they undergo surgery and have enough postoperative therapies there until they go back home. I joined a lot of TKA and THA surgeries. The system of operating rooms was very

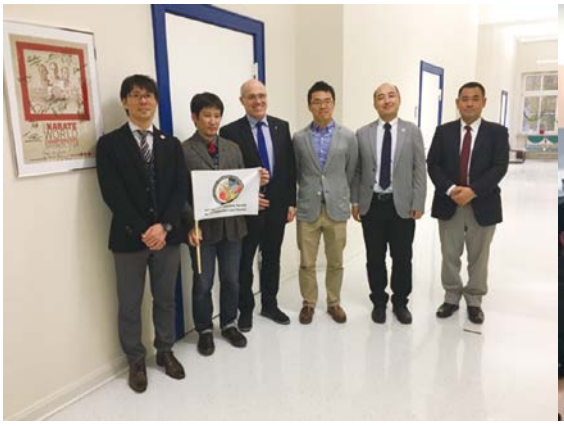
sophisticated in order to perform many surgeries. It was impressive that surgeons in the department of rheumatoid arthritis surgery were able to perform arthroplasty and arthrodesis to all joints as well as arthroscopic surgeries. On Wednesday's night, Dr. Platte took us to Münster City and a short trip around the old town such as St. Paulus Dom. After that, he filled us with good local food and beer at a famous brewery restaurant.

Our final training institution was Katholisches Klinikum Bruderkrankenhaus Hospital. The first night, we had dinner with Dr. Francis Killian, a chief spine surgeon, and Dr. Martin Haunschild, a chief joint surgeon, at a nice restaurant along the Rhine River. It is very interesting for me that an operating room is divided into three cabins, each in which an operation is individually performed. I had opportunities to not only join primary TKA and unicompartmental knee arthroplasty but also observed ACL reconstruction and other arthroscopic surgeries in the department of sport orthopaedic surgery through the good offices of Dr. Haunschild. After the surgery, we went out to explore Koblenz City. We visited 'Deutsches Eck', which is the confluence of the Rhine and Mosel Rivers. Fortunately, the Christmas market was held that time, so we were able to enjoy the atmosphere while drinking hot sweet wine.

Between the fellowship training program, we enjoyed our weekends. On the first weekend, we stayed in Hamburg. Hamburg is the second biggest city in Germany, and I enjoyed the shopping. On the second weekend, we visited Cologne. Since Cologne is located near Leverkusen, we went to watch a Bundesliga game (Bayer 04 Leverkusen vs. Vfb Stuttgart) in a roofed soccer-specific stadium 'BayArena.' I was very surprised with the good atmosphere of that stadium as well as some supporters continuing to drink beer before and during the game in spite of the cold night, at least to me. Of course, we were satisfied with Kölsch beer and German food on the other days. We visited a chocolate museum, which is the biggest one in the world, and a store specializing in mustard.

Finally, we visited the head office of AESCULAP in Tuttlingen, which is a small town located in the south part of Germany. We gave a final presentation about this fellowship program following the factory tour. After that, we moved to Zurich and went back to Japan.

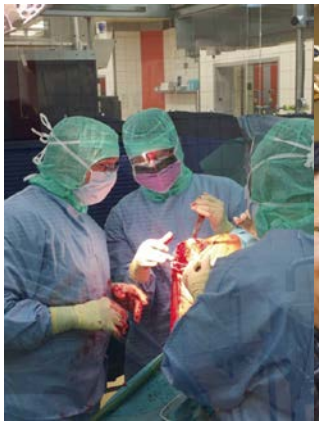
Through this fellowship program, I am grateful because I had a lot of exciting and precious experiences with orthopaedic surgeries as well as seeing the lifestyle in Germany. The German people were very kind and showed us great hospitality, so I felt this fellowship program was very comfortable without any big problems. I would like to thank all the people who supported me to have such a valuable opportunity: the host doctors, the members of the German-Japanese Society for Orthopaedics and Trauma secretariat and AESCULAP, Professor Toshifumi Ozaki and other orthopaedic surgeons of Okayama University, and of course, my family. I would like to make use of this experience and hope to keep in touch with the people I have met in Germany.












Memory of 2018 German-Japanese Society for Orthopaedics and Trauma Fellowship Program

Takashi FUJISHIRO
Department of Orthopaedic Surgery, Osaka Medical College

I participated in the fellowship program from 11 November to 2 December 2018, supported by the German-Japanese Society for Orthopaedics and Trauma. During the stay in Bordeaux, France, my family and I had visited Berlin and greatly enjoyed ourselves. I had seen some common features between Germany and Japan, and I was looking forward to visiting Germany, especially somewhere other than Berlin, again.

We departed from Haneda International Airport and arrived at Berlin Tegel Airport on 11 November. The next day, we travelled to Rostock. Dr Asari and I boarded a car, with Mr Mario driving. We drove on the Autobahn at extremely high speeds, immersing ourselves in the quintessential German experience and blowing off the jetlag.

Rostock is a lovely port town, located northwest of Berlin. We saw many seabirds and were pleased with the atmosphere. We started the fellowship program at Rostock University. Professor Mittelmeier, the Director of the German-Japanese Society for Orthopaedics and Trauma, is a Japanophile and a cheerful man. He has visited Japan many times and knows Japanese culture very well. We conducted presentations about ourselves and our specializations to him and his team. Afterwards, they invited us to a welcome dinner at a fantastic restaurant near the harbour. Our first day in Rostock was delightful and an excellent start to the fellowship program.

On 13 November, Dr Asari and I and a team of spinal surgeons moved to Kremen, a very small town near Berlin, where we visited Sana Kliniken Sommerfeld. This hospital had a special atmosphere and was housed in refurbished old buildings. We felt as if we had stepped into an old European town. In contrast, the interior of the hospital was highly modern and spacious. I felt that the hospital was a wonderful place for patients to recuperate.

Dr Kroppenstedt is the Chief of Spine Surgery at Sana Kliniken Sommerfeld. He is a large man, almost 2 m tall, but his operating procedure was very delicate. He used a microscope skilfully. At the end of his surgeries, he would always say, "Incredible!!"

On 15 November, Dr Kroppenstedt took us to Neuruppin, near Kremen, where he treated us to dinner. On the way to Neuruppin, he drove through some of the cities of East Germany and described the history of German unification and the fall of the Berlin Wall. We were impressed.

Next, we went to Sendenhorst, via Hamburg, by train. During this fellowship program, we took many trains. We found the limited express trains particularly comfortable, and I will never forget the magnificent landscape we saw from the train windows. In Hamburg, we ate dinner at an old-style brewery, which ended up being the best restaurant we frequented on this trip.

At Sendenhorst, we visited St. Josef-Stift Hospital. There, Drs Brinkmann and Schultz took

terrific care of us. Both Drs Brinkmann and Schultz were calm and philosophical; they represented Germany exactly as I had expected. On the first day, Dr Shultz told the staff in the operating room to speak only in English for us, which relieved our tension. At this hospital, I saw many PLIF cases. Dr Schultz completed his surgeries with a practiced hand. He told me to "do the same thing every time," a lesson that I took to heart.

Every day in the afternoon, they held a meeting, where all the team members discussed the patients before their operations and reviewed them after their operations. I got the impression that the team was well organized.

On the weekend, we moved to Cologne. Cologne is famous for its cathedral and also for beer. Not only in Cologne but everywhere during the fellowship program, we drank a lot of beer. Moreover, German food goes extremely well with beer, so we felt we could drink without any limits. I have never been a lightweight, but Drs Asari, Yoshizawa, and Kamatsuki were tremendous drinkers. They drank so much beer as I could not expected.

After leaving Cologne, we went to Koblenz. Koblenz is a beautiful town, crossing the Mosel and the Rhine rivers. When we arrived at Koblenz, the Christmas markets were open, and the town was in Christmas mode. In Koblenz, we visited the Catholic hospital, where we were warmly welcomed by Dr Kilian, the Chief of Spine Surgery. He operated very skilfully, completing a 3-level ACDF in only 1.5 hours. He was right-handed but used his left hand well. I asked him why he was able to use his left hand so smoothly, and he told me that it was because spinal surgeons in Germany are trained so that they can operate alone, and he had practiced the operation so that he could use both hands.

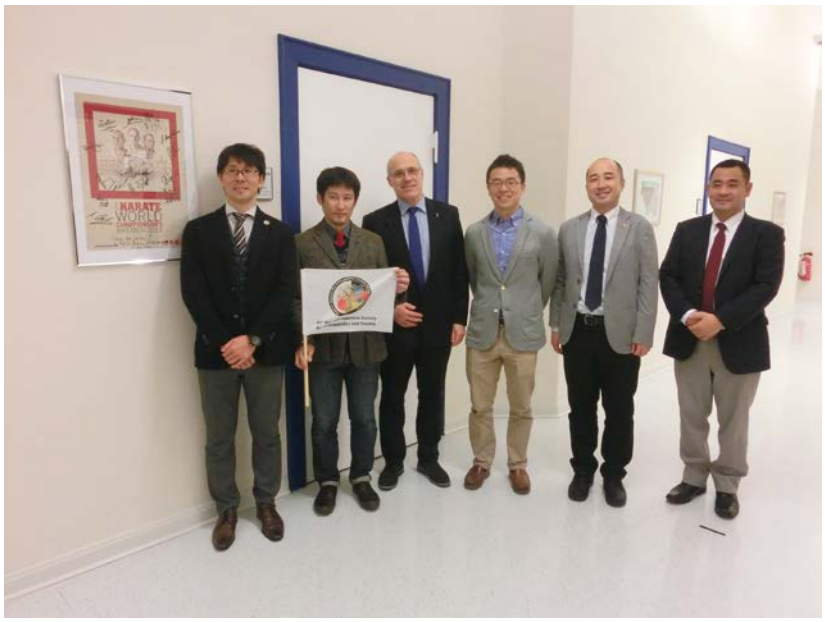
Finally, we went to Zurich, where we boarded a plane for Narita International Airport, Japan. At every site we visited, the hospitals worked systematically. Patients were transferred from their hospital rooms via electronically controlled beds, and modifications were made to reduce labour. Anaesthetic was given in the front chamber, and patients were transferred to the recovery room to awaken after the surgery was completed. Thus, the preparation for surgery was extremely smooth. The preoperative explanations to patients were conducted with the regular forms. Further, co-medical staff were well trained, especially the surgical nurses, and the surgeries were executed smoothly.

Spinal surgeons in Germany are trained so that they can operate alone, as Dr Killian said. Now, sagittal alignment is one of the main topics in the arena of spine surgery. German spinal surgeons, of course, were extremely knowledgeable about sagittal balance; however, I was impressed that they did not attach too much importance to sagittal balance but rather placed greater emphasis on the importance of regional neural decompression and spinal fusion. I sympathised with this concept.

I greatly enjoyed this fellowship program and am grateful to the surgeons who welcomed us. Aside from visiting these hospitals, I was able to experience a great deal of German culture, food, and scenery during the three weeks of this fellowship program. In Europe, the culture and lifestyle change when you cross the border between countries. We Japanese can never experience this at home because Japan is an island country. I was able to make numerous new discoveries by visiting Europe.

Finally, I would like to thank Professor Neo for giving me such a wonderful opportunity. I am

also grateful to Mr Yoshitane Soma and Mr Mario Serpa for arranging our fellowship program. And I also thank the joyful members of fellowship program, Dr Toru Asari, Dr Tomohiro Yoshizawa, and Dr Yusuke Kamatsuki, for the happy time we spent together.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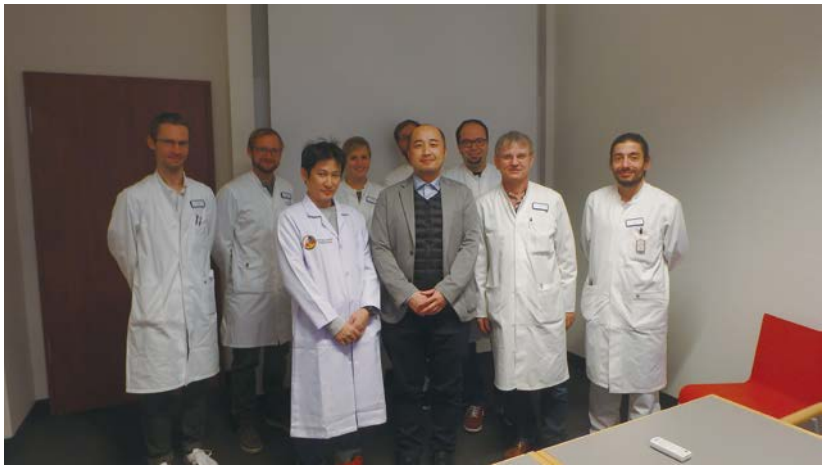


German-Japanese Society for Orthopaedics and Trauma fellowship program 2018

Tomohiro Yoshizawa
Department of Orthopedic Surgery (Hip group), University of Tsukuba

In February 2016, we visited Berlin because one of my bosses studied there. This was my first visit to Germany. We went to several places of operations in Germany. I felt that the Germans were very friendly and kind to us Japanese. I became interested in German medicine and culture because of that visit. This is the major reason I am applying for the Fellowship Program.

Before leaving for Germany, my hope was that I would be able to study various orthopedic operations in Germany. However, I also felt uneasy about spending a life abroad for three weeks with doctors who I will be meeting for the first time. I was also worried about whether I could communicate in English well with German doctors.

Our first destination was Rostock, located in the north of Germany. My first impression of Rostock was that it was calmer and more beautiful than Berlin.

At Rostock University Hospital, Professor Mittelmeier, the president of the German-Japanese Society for Orthopaedics and Trauma, welcomed us. Prof. Mittelmeier is a very kind and friendly person and eased our nervousness with his smiles and jokes. Dr. Kamatsuki and I were both fellows who specialized in joints, and we were trained at Rostock University Hospital on our first week. Two other fellows who were with us (Dr. Asari and Dr. Fujishiro), specialized in spines and were trained at another hospital.

Various types of operations were performed at the Rostock University Hospital. We saw a lot of cases of removal of infected total hip arthroplasty (THA) and one- and two-stage revisions of THA and total knee arthroplasty (TKA). Prof. Mittelmeier and Dr. Ellenrieder, the chief doctor of hip and knee surgery, had various technical skills for these types of procedures. They seemed to be able to handle difficult cases and complex revisions like they were just a normal primary case.

Some cases left a strong impression on me. There was a revision case in aseptic loosening with a large bone defect that was marvelously performed by Prof. Mittelmeier. If I had performed a similar case in Japan, I would have performed the reconstruction with a Kerboull cross-plate and allografts. However, Prof. Mittelmeier used a large and sturdy cementless cup with an integrated plate on the proximal part. I had never seen such an implant before, but I got very interested in it after hearing from Prof. Mittelmeier that this type of implant provided good long-term results.

Another impressive case was that of a removal of infected THA components performed by Dr. Ellenrieder. He removed a fully hydroxyapatite (HA)-coated cementless stem with a special instrument. After the surgery, he took us to dinner where we were able to discuss revision surgery of THA. In particular, he was concerned with the significant reduction in patient function during the period between removal and revision because there were few good cement spacers and spacer molds. Therefore, he never used cement spacers and spacer molds for infected cases. I feel that this is a common problem in Japan. Then, we talked about a special implant used in revision surgery in Germany, and the use of support cages in Japan (e.g., Kerboull cross-plate, Burch-Schneider cage). I have experienced several revision cases in our hospital recently, so learning about revision

surgeries in Germany was very meaningful to me.

While we were in Rostock, Prof. Mittelmeier invited us to his house. We were very happy to experience German culture. We are also grateful to Dr. Ellenrieder and Dr. Tischer, a specialist in sports and arthroscopy, for teaching us a lot of things even though they were so busy. The first week of our stay in Germany was very impressive and exciting.

We left Rostock and headed for Sendenhorst via Hamburg and Münster. The St. Joseph-Stift Hospital where we trained was a very traditional building with a quaint appearance and a church. However, the interior was very modern and the operation room was also equipped with the latest equipment. The hospital had a department of orthopedic surgery where 2,000 to 3,000 operations were performed annually. There were seven operation rooms and seven or more anesthesia rooms. I was surprised that there were separate rooms for operations and anesthesia in all the German hospitals we visited.

As for THAs, about six cases per day were performed at the hospital, so I was able to study many of them. The distinctive feature of this hospital was that there was a rheumaorthopedics team and an orthopedic and trauma team. Both groups performed THAs. Because of the characteristics of each group and the large number of surgeons, I was fortunate to be able to learn many variations of THA technique.

The approach used by the orthopedic and trauma team was unified to the OCM (Orthopadische Chirurgie Munchen) approach in the lateral decubitus position. They operated with OCM approach smartly using short stems for large-sized patients. Although there was not any significant difference between their technique and ours, there was some difference depending on the surgeon. Dr. Horst, the chief of the orthopedic and trauma team, had a lot of delicate ingenuity and techniques, and I was very interested in them. There were a lot of discoveries that I would like to incorporate in my future clinical practice.

Dr. Platte, a member of the rheumaorthopedic team, helped us a lot. He coordinated the training. When I said that I specialized in hip surgery, he coordinated with Dr. Horst. Thanks to him, I was able to study many THAs. Dr. Platte also gave us an overview of the entire facility as well as the history of the hospital. Because many patients come from all over Germany to undergo surgery, St. Joseph-Stift Hospital provided a rehabilitation center where patients could stay for a few days. The hospital also had many rheumatic patients, so there were many prosthetists in the facility. We learned a lot from this week's training, as the hospital had completely different characteristics from Rostock University Hospital.

After finishing our training at Sendenhorst, we went to Koblenz via Cologne. Koblenz was a small city where the Rhine and Mosel meet. It was a very beautiful city. We received training that week at the Catholic Hospital Koblenz, which also had a single department of orthopedic surgery. Dr. Killian, the chief of spine surgery, and Dr. Haunschild, the chief of joint surgery, welcomed us. The arthroplasty surgeries in this hospital were very diverse. Dr. Haunschild performed various operations such as primary THAs, revision THAs against infection, and aseptic loosening. The nurses were assigned to each specialized operation, such as arthroplasties, arthroscopes, and spines. Therefore, the relationship between the operation nurse and the surgeon was exquisite, and the operation progressed speedily and rhythmically.

Dr. Haunschild performed THAs with OCM approach in the lateral decubitus position, and all surgical techniques were refined. He also used fluoroscopy to confirm the alignment of stem

and cup during surgery, even in the lateral decubitus position. Since the nurse who operates the fluoroscopy was used to the procedure, the operation itself was smooth even using fluoroscopy. He used to do navigation as well, but he does not use it anymore for two reasons: one, it was time consuming, and two, using fluoroscopy provided close to the same effect as navigation.

Another feature of this hospital was that daily surgery was planned to be completed around 3 o'clock in the afternoon. The patient would enter the operating room at 8 o'clock in the morning, and around 8:30 am, the first surgery would begin. Such a system tended to be similar in all the German hospitals we visited. I felt that the system should be adopted in Japanese hospitals.

This hospital was characterized as having a balance between the University hospital in Rostock and the hospital in Sendenhorst.

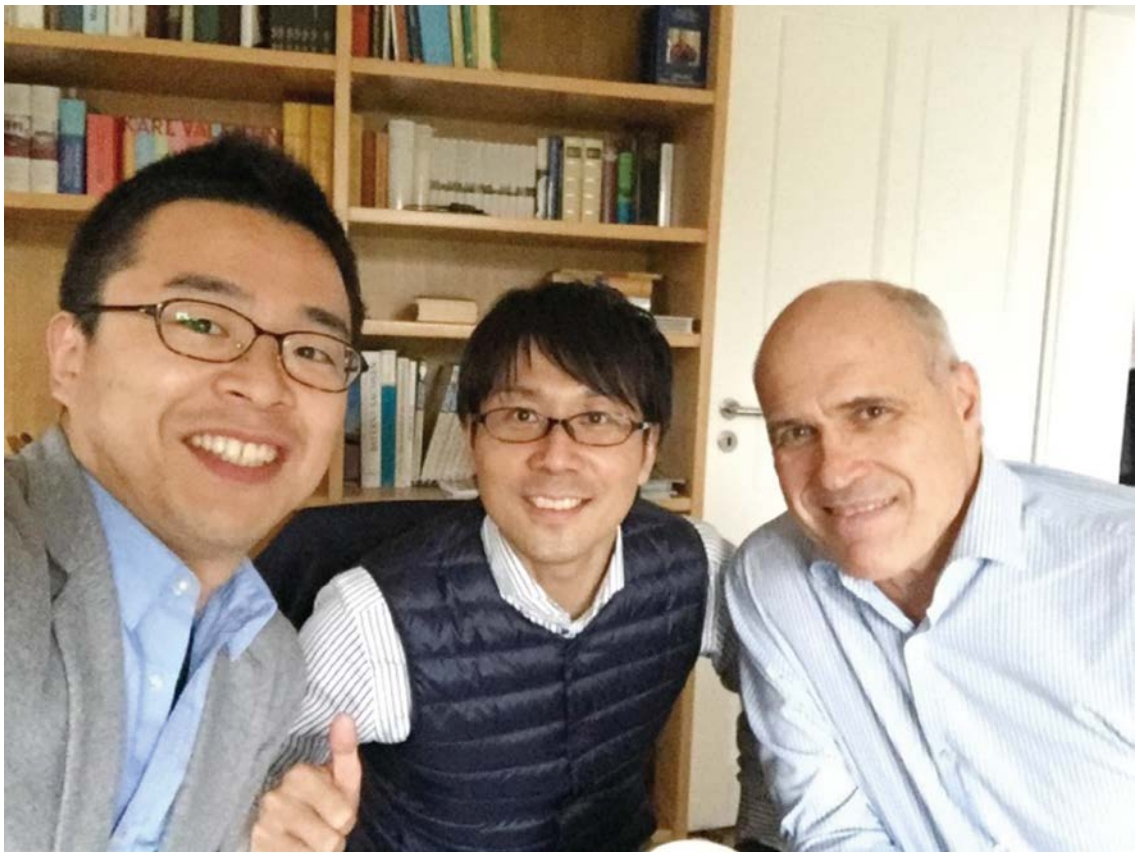
We spent almost a day in the hospital during the daytime on weekdays, but we had some free times on the weekends.

We were lucky enough to buy tickets to the football game on the second weekend, so we went to Leverkusen to watch the game. We had a toast with beer before the game, but after the kick off, the temperature got colder, and we couldn't drink beer anymore. We turned to drinking coffee near the end of game. At the stadium, I felt the German people's passion for football and realized that football was a part of life for the German people.

The third week of our training in Koblenz was the last week of November. There were a lot of Christmas markets lined up in the city, and we were able to experience the German Christmas atmosphere, which is different from that of Japan. After the training on weekdays, we went to the town and drank hot wine at the Christmas markets. The hot wine was a great match to the harsh cold and overcast skies of Germany.

The most impressive thing during the three weeks of training in Germany was the integrity and kindness of German doctors. All the doctors were so kind that we learned a lot. Those three weeks of training had become a precious treasure for me. I also would like to thank the three doctors who went together with me to Germany as fellows. Because all of us were of the same age, it was easy for us to understand each other, and to discuss various things. It might be another factor that all of us liked German beer.

I would like to thank the staff members of Aesculap who cooperated with this program, as well as the doctors who responded to my patients during my absence. I also would like to thank my family who accepted my long absence for three weeks. I would like to use this experience I learned in Germany for the future. I am relieved this training program finished smoothly and I am grateful for everyone's cooperation.

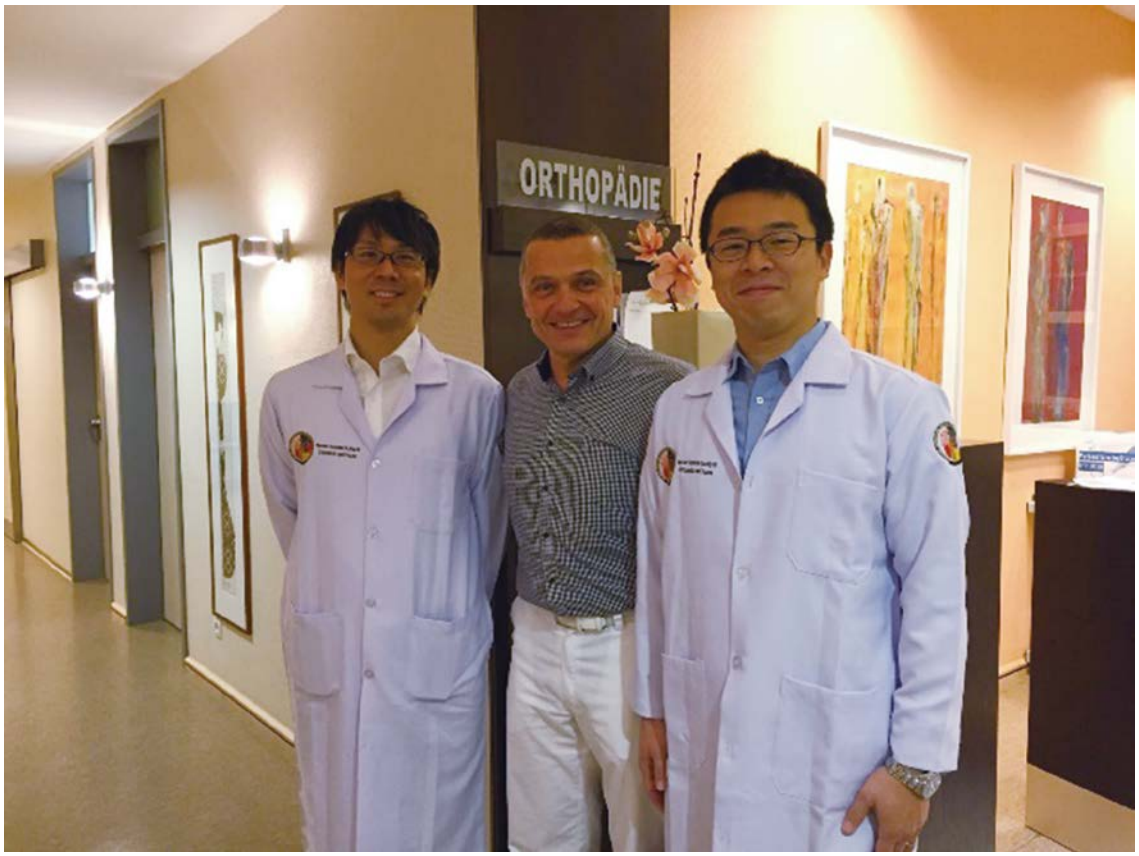


Professor Mittelmeier (Rostock)

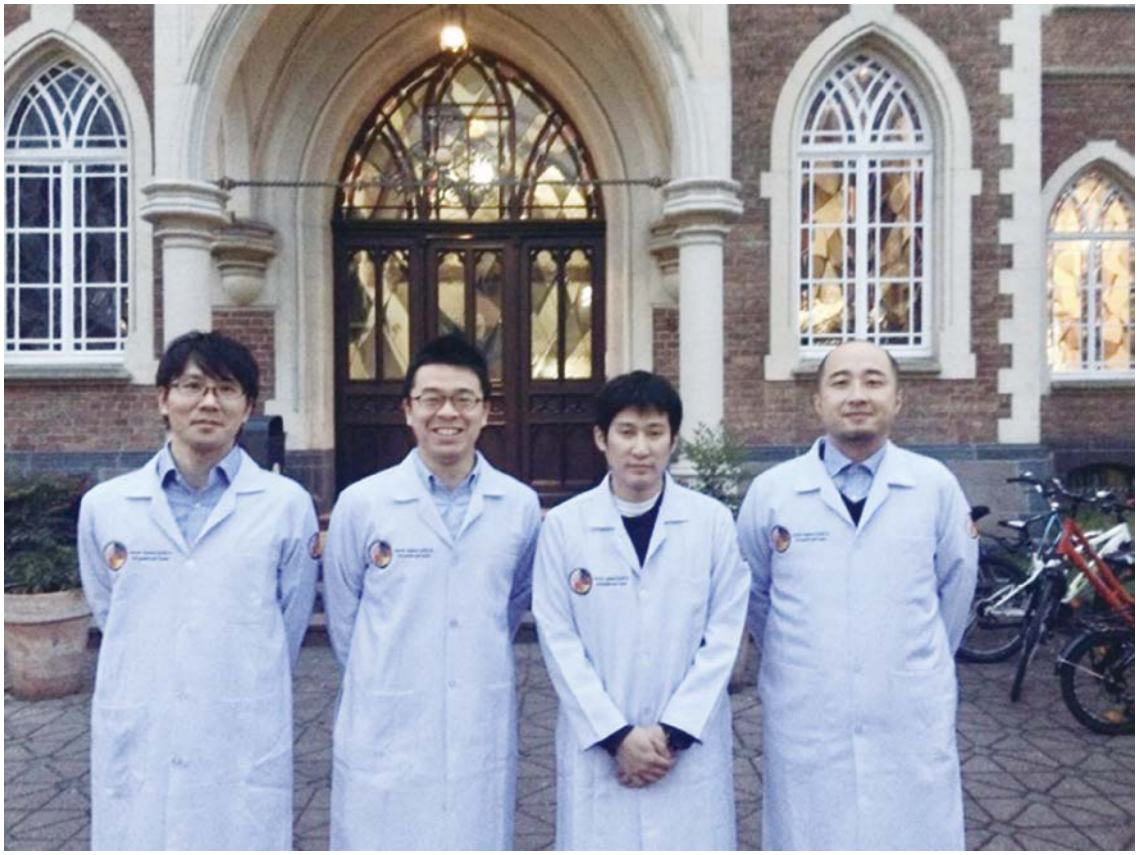
Dr. Ellenrieder and Dr. Tischer (Rostock)

Dr. Horst (Sendenhorst)

Dr. Platte (Sendenhorst)



Dr. Haunschild (Koblenzs)



Members of this fellowship program

German-Japanese Society for Orthopaedics and Traumatology (GJSOT) Articles of Incorporation

German-Japanese Society for Orthopaedics and Traumatology, general incorporated association Articles of Incorporation

Chapter 1　General rules

(Name)

Article 1　This corporation assumes the name of "German-Japanese Society for Orthopaedics and Trauma".

(Main office)

Article 2　This corporation holds its main office in Kurume City, Fukuoka Prefecture.

Chapter 2　Objective and activities

(Objective)

Article 3　This corporation has the objective of promoting academic exchange between Japanese and German orthopedic surgeon and neurosurgeon.

(Activities)

Article 4　In order to reach the objective stated in the preceding article, this corporation performs the following activities:

(1)　Holding German-Japanese orthopaedics and trauma surgery meetings

(2)　Holding German-Japanese orthopaedics and trauma surgery symposiums

(3)　Collecting and sharing information related to medicine and medical care

(4)　Any secondary activity related to the preceding items

Chapter 3　Members

(Types)

Article 5　The members of this corporation shall be divided into the following three types, and a full member shall be considered a legal employee of the general incorporated association and general foundation.

(1)　Full member　Japanese orthopedics and neurosurgery physicians who joined the corporation to support its objective

(2)　Associate member　Non-physician individuals or groups who joined the corporation to support its objective

(3)　Supporting members　Individuals or group who joined the corporation to support its activities

(Enrollment)

Article 6　Those who intend to become members of this corporation must apply according to separately stipulated requirements and must receive the approval of the representative director.

(Enrollment fee and membership fee)

Article 7　All employees of this corporation are required to pay an enrollment and membership fee

according to the regulations separately stipulated by a general employee assembly in order to cover the expenses necessary for the corporation's activities.

(Withdrawal)

Article 8　Members can withdraw of their own volition with the approval of the representative director. However, members who fall under the removal requirements set forth in the following Article cannot withdraw arbitrarily.

(Expulsion)

Article 9　A general employee assembly can expel employees who fall under any of the following from the association:

(1) The employee has violated these articles of association or other rules of the association.

(2) The employee has undermined the honor of this corporation or has acted contrary to its purpose.

(3) There are other legitimate reasons for expulsion.

(Disqualification of members)

Article 10　In addition to the preceding two cases, members lose their membership if they fall under any of the following:

(1) The member has resigned.

(2) The member has become an adult ward or a person under curatorship.

(3) The member has died or has been declared disappeared, or, in the case of a group, the group has disbanded.

(4) The member has failed to pay their due fees for more than six months.

(5) The member has been expelled.

(6) The consent of a general member assembly has been obtained.

(Rights and obligations associated with loss of membership)

Article 11　When a member loses his membership under Article 10, they lose their rights as a member of this corporation and are exempted from its duties. However, they are not exempted from unfulfilled obligations.

2　Even if a member loses their membership, the corporation will not return any already paid enrollment fees, membership fees, or any other contributions.

Chapter 4　General employee assembly

(Constitution)

Article 12　The general employee assembly consists of the full members of the association.

(Authority)

Article 13　The general employee meeting has authority over the following matters:

(1) Member expulsion

(2) Appointment or dismissal of the board members

(3) Amount of remuneration, etc. of the board members

(4) Approval of balance sheet and income statement (statement of changes in net assets)

(5) Change of the Articles of Incorporation

(6) Dissolution and disposal of residual property

(7) Other matters stipulated by the law or the Articles of Incorporation to fall under the authority of the general employee assembly

(Assembly)

Article 14 The general employee assembly is held as a regular meeting of employees within three months after the end of each business year, and when necessary.

(Convocation)

Article 15 Unless otherwise prescribed by laws and regulations, the general employee assembly will be convened by the representative director based on the decision of the board members.

Article 16 Any employee who holds at least one-tenth of the voting rights of all employees can request the representative director to call the general employee assembly by specifying its purpose and the reason for assembly.

(Chairman)

Article 17 The chairman of the general employee assembly is selected from among the employees of the assembly.

(Voting rights)

Article 18 Each employee has the right to one vote at the general employee assembly.

(Resolution)

Article 19 The resolution of the general employee assembly shall be made by the majority of the voting rights of the employees who attended, with the quorum being comprised of the majority of the total number of employees, unless otherwise specified in the law or the Articles of Incorporation.

2 Notwithstanding the provisions of the preceding paragraph, the following resolutions shall be adopted with a majority that is more than half of the total number of employees and at least two-thirds of the voting rights of all employees.

(1) Expulsion of full members

(2) Change of the Articles of Incorporation

(3) Dissolution

(4) Other matters stipulated by laws and regulations

(Minutes)

Article 20 With regard to the proceedings of the general employee assembly, the minutes shall be prepared in accordance with laws and regulations.

2 The chairman and an employee selected from those present at the assembly shall sign and seal the minutes described in the preceding paragraph.

Chapter 5 Officials

(Appointment of officials)

Article 21 This corporation will have at least 3 board members.

2 One of the board members shall be the representative director.

(Election, etc.)

Article 22 The board members shall be elected by resolution of the general employee assembly.

2 The representative director is selected from among the board members by the board members' mutual election.

3 No more than one third of the total of board members (including liquidators, the same shall apply hereinafter,) shall be comprised by members who are related by blood or have other special relationships specified by laws and regulations.

(Duties and authority of the board members)

Article 23 Board members shall execute their duties in accordance with laws and regulations and the Articles of Incorporation.

2 The representative director shall represent this corporation and execute its operations in accordance with laws and regulations and the Articles of Incorporation.

(Term of office)

Article 24 The term of office of the board members shall be until the conclusion of the regular general employee assembly for the last fiscal year two years after their appointment.

2 The term of office of board members appointed as substitutes shall be until the expiration of the term of the board member for whom they are substituting.

3 The term of office of board members appointed as an increase of members shall be until the expiration of the term of the other incumbent board members.

4 If the number of board members falls short of the number specified in Article 21, board members whose office has ended either due to retirement or completion of their term retain their rights and obligations until a new board member is appointed.

(Dismissal of officials)

Article 25 Board members can be dismissed by resolution of the general employee assembly.

(Compensation etc. of officials)

Article 26 The amount calculated according to the standard for payment of compensation etc. separately defined by the general employee assemble can be paid to board members as compensation for the execution of their duties by resolution of the general employee assembly.

Chapter 6 Assets and accounting

(Fiscal year)

Article 27 The business year of this corporation starts on April 1st and ends on March 31st of the following year.

(Business report and closing)

Article 28 Regarding business reports and financial results of this corporation, the representative director prepares the following documents after every business year and submits the first, third and fourth to the regular general employee assembly. The representative director must report the content of the first document and obtain approval for the third and fourth.

(1) Business report

(2) Business statement supplementary statement

(3) Balance sheet

(4) Income statement (statement of changes in net assets)

Supplementary statements for the balanc

(5) e sheet and income statement (statement of changes in net assets)

2 In addition to the documents reported or approved in accordance with the provisions of the preceding paragraph, the Articles of Incorporation shall be kept in the main and subordinate offices, and the employee roster shall be kept in the main office.

(Restriction of distribution of surplus)

Article 29 This corporation cannot distribute surplus.

Chapter 7　Funds

Article 30　This corporation can recruit funds from external parties.

2　The donated funds will not be refunded until the date agreed with the donor.

3　With regard to the fund return procedures, in addition to the resolution of the regular general employee assembly for the total amount of funds to be returned, the board members shall separately specify the place and method for returning the funds and other necessary details.

Chapter 8　Change of the Articles of Incorporation and dissolution

(Changes to the Articles of Incorporation)

Article 31　The Articles of Incorporation may be changed by resolution of the general employee assembly.

(Dissolution)

Article 32　This corporation can be dissolved by the resolution of the general employee assembly or other events defined by the law and regulations.

(Assignment of residual property)

Article 33　In the case of liquidation, the remaining property possessed by this corporation shall, by resolution of the general employee assembly, be donated to a national or local public nonprofit organization as defined by Article 5, Paragraph 17, items (a) through (g) of the Act on Authorization of Public Interest Incorporated Associations and Public Interest Incorporated Foundation.

Chapter 9　Method of public announcement

(Public notice methods)

Article 34　Public announcements made by the corporation shall be posted on an easy-to-see location within the corporation's main office.

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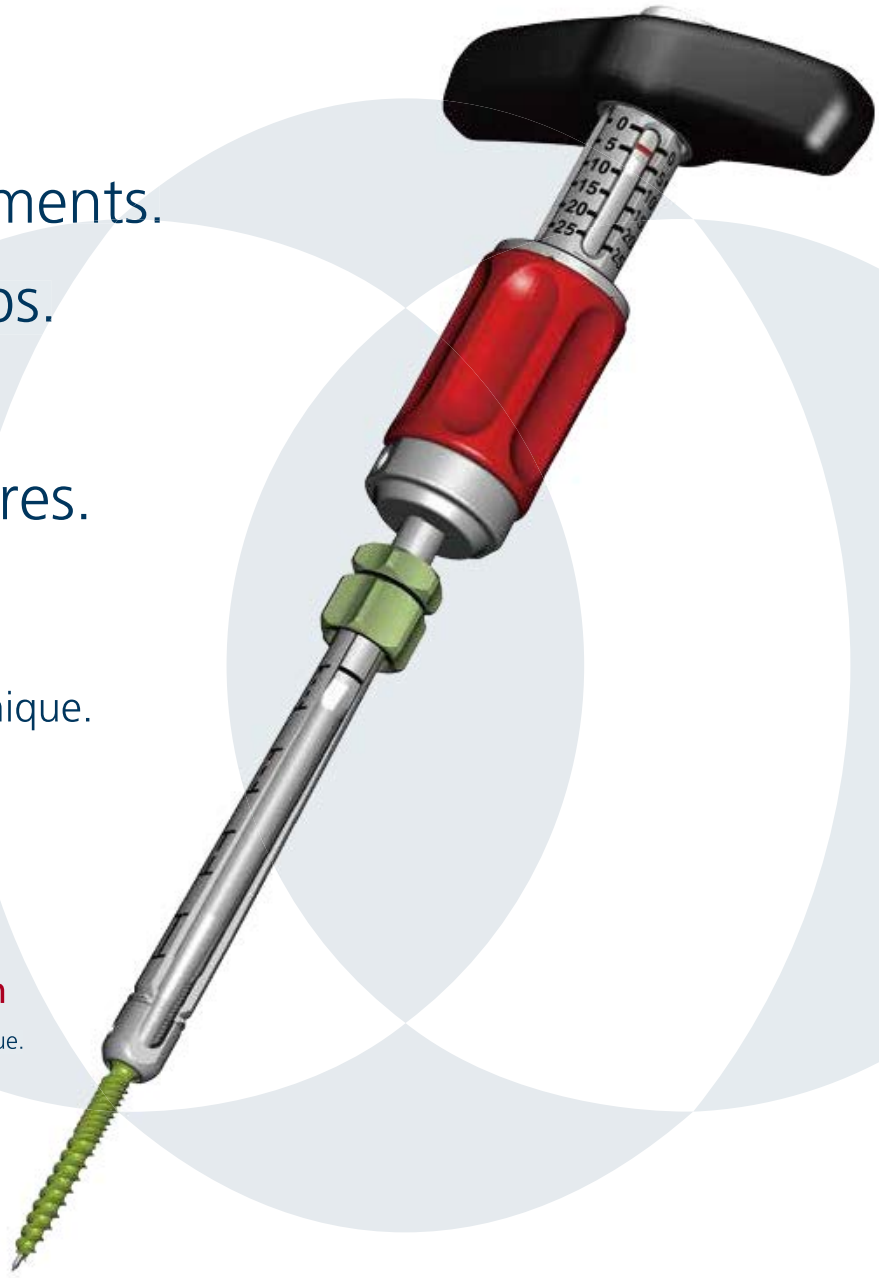

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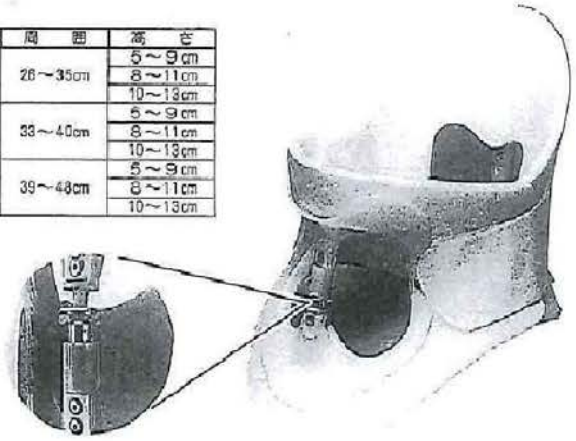
〈特　徴〉

① 前・後中央部のターンバックルにより、適応サイズに幅を持たせると同時に、若干の牽引効果が期待出来ます。
② 外殻フレームには丈夫なサブオルソレンを使用。長期使用にも形くずれなく頭部を支えます。
③ 内面にはプラスターソル発泡材を使用し、肌ざわりがソフトであります。
④ 前後面に大きな窓をあけ、通気性良くむれない構造としております。

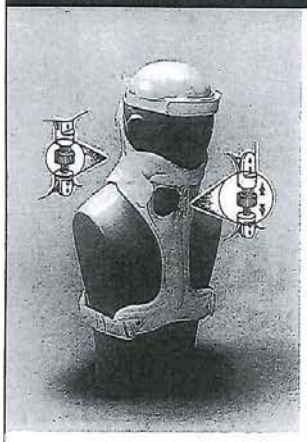
〈サイズ〉

サイズ	周　囲	高　さ
S－S	26～35cm	5～9cm
S－N		8～11cm
S－H		10～13cm
M－S	33～40cm	5～9cm
M－N		8～11cm
M－H		10～13cm
L－S	39～48cm	5～9cm
L－N		8～11cm
L－H		10～13cm

〈色〉　白、肌色



頸胸椎の簡易固定に　オルソ・ブレース



〈特　徴〉

・前後頸椎部のターンバックルの伸縮により、装具がよりフィットし、頸椎アラインメントの微調整が出来ます。
・側方部分は開放され、通気性が良く、又重さ約250grと軽量であるため、装着感が良い。
・上位頸椎、下位頸椎及び上位胸椎の固定性が良好である。
・装着にあたりハローブレースのような外科的処置が不要で、着脱が容易に行えます。
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〈サイズ〉

	首まわり(cm)
S	26 ～ 35
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L	39 ～ 48

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