Malaysian Arthroscopy Society Newsletter

SCOPE Insight

Vol.8 I March 2026

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Malaysian Arthroscopy Society

myarthroscopy

Message from the Chief Editor

Dear Members of the Malaysian Arthroscopic Society,

It is my pleasure to present the **8th issue of *Scope Insight***, the MAS Newsletter. This edition was led by our **Associate Chief Editor** for this issue, **Dr Amirah**, who conceptualised and prepared the issue with her own ideas and approach. Her efforts have brought a refreshing perspective to this edition, and I believe readers will enjoy the diversity and presentation of the content.

I would like to express my sincere appreciation to our previous editorial board members, **Dr Siva** and **Dr Farihan**, for their dedication and contributions since the formation of the initial editorial board in **April 2022**. Their efforts in establishing and developing *Scope Insight* from its first issue until September 2025 have been instrumental in shaping it into a valuable platform for sharing knowledge and experiences within MAS.

At the same time, I am pleased to welcome **Dr Uzir Ahmad Husni** and **Dr Johan bin Abdul Kahar** to the editorial board. We look forward to their contributions and fresh perspectives as we continue to grow this publication.

The past year was also highlighted by the successful **12th MAS Annual Scientific Meeting in November 2025**, which brought together renowned international faculty and leading local speakers. The meeting showcased the progress of Malaysian sports surgery and arthroscopy on the international stage while providing an important platform for trainees and young sports surgeons to present their work.

In this issue, readers will find a range of academic, clinical, and reflective articles, including a **MAS Member Spotlight** featuring **Dr Mohd Nizlan Mohd Nasir**, insights on the learning curve in arthroscopic surgery by **Dr Putra Vatakal**, experiences from the **Penang Knee Cadaveric Summit** by **Dr Chan Kok Yu**, and a case report by **Dr Uzir Ahmad Husni**. We also feature reflections from participants and award recipients of the **PG Quiz**, **AAL Award**, **Sanusi Ghani Award**, and **Innovation Award** during the 12th MAS ASM. Finally, readers will also find a unique reflective article titled **"Shared Rhythm: Music and Surgical Performance"** by **Dr Johan bin Abdul Kahar**, as well as a perspective piece on **Total Knee Arthroplasty from the viewpoint of a sports surgeon** by **Dr Chan Kok Yu**.

We hope this issue of *Scope Insight* continues to inspire learning, collaboration, and engagement among MAS members. My sincere thanks to all contributors and the editorial team who made this edition possible.

Warm regards,
Associate Professor Dr Teo Seow Hui
Chief Editor, Scope Insight (2025-2027)
Malaysian Arthroscopic Society
Universiti Malaya

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Universiti Teknologi Mara

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new editorial members

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Universiti Putra Malaysia

Dr Uzir Ahmad Husni
Universiti Malaya Medical Centre

Thank You
for your valuable contributions

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Bukit Tinggi Medical Center

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MALAYSIAN ARTHROSCOPY SOCIETY

MEMBER SPOTLIGHT

By Dr Sharifah Nor Amirah bt Syed Abdul Latiff Alsagoff

A conversation with

DR. MOHD NIZLAN MOHD NASIR

Current place of practice:
Sunway Medical Centre

Years in Practice:
22 years

Alma Mater:
Secondary : **Malay College Kuala Kangsar (MCKK) (Class of 1988)**
Undergraduate: **University Malaya(UM) (MBBS)**
Postgraduate: **National University of Malaysia (UKM) (MS Ortho)**
Fellowship: **Shoulder Arthroplasty & Arthroscopy, Western Australia (2008 - 2009)**

Past Leadership:
President, Malaysian Arthroscopy Society (MAS) (2023-2025)

Academic Legacy:
Associate Professor & Former Deputy Dean, Faculty of Medicine, Universiti Putra Malaysia (UPM)

Favourite procedure:
Any form of shoulder surgery

Go-to Arthroscopy Instrument:
That ever-reliable 30-degree 4mm arthroscope

One word that describes your operating style:
Teach-As-You-Work

OT music preference:
Beethoven..... (Ha ha ha, no lah!)
>> 80s and 90s Music

Favourite Sports Team:
Liverpool FC

Favourite Sports Figure:
Roger Federer

LIFE IS NOT A POPULARITY CONTEST

life motto

The photograph at the top dates back to 1995, taken during a medical student class outing with their lecturer and college master, Dato' Dr. Syed Abdul Latiff Alsagoff, who happens to be my father. And that little girl with the fringe standing close to him? yup that's me! Now, if you look closely in the back row, 3rd from the right, you'd see a young bright-eyed Dr. Mohd Nizlan.

Life has a poetic way of coming full circle. Decades after my father taught him the foundations of medicine, I found myself standing across the operating table from him as his fellow having witness firsthand his dedication to his craft and his love for teaching.

From his early days as a student at UM to his leadership as President of the Malaysian Arthroscopy Society (MAS), and his transition from the teaching halls of UPM to Sunway Medical Centre, Dr. Nizlan has remained a constant figure of excellence in our fraternity.

It is therefore, my distinct honour to feature our immediate Past President in this inaugural segment of the **MAS member spotlight.**

What first drew you to arthroscopy? or was there a specific “aha” moment when you knew arthroscopy was your calling?

“It was during my time as a registrar for the UKM Sports Team circa 2003–2004.
Mr. Samsudin Osman Cassim allowed me to perform diagnostic knee scopes independently under his supervision.From then on, i knew arthroscopy was my calling.”

Who was your most influential mentor, and what lesson from them still guides your hands in the OT today?

“That would undoubtedly be Dr. Peter Campbell from Western Australia. During my fellowship with him, he instilled in me a philosophy I carry to this day: **the more cases you do, the more new things you learn**. “

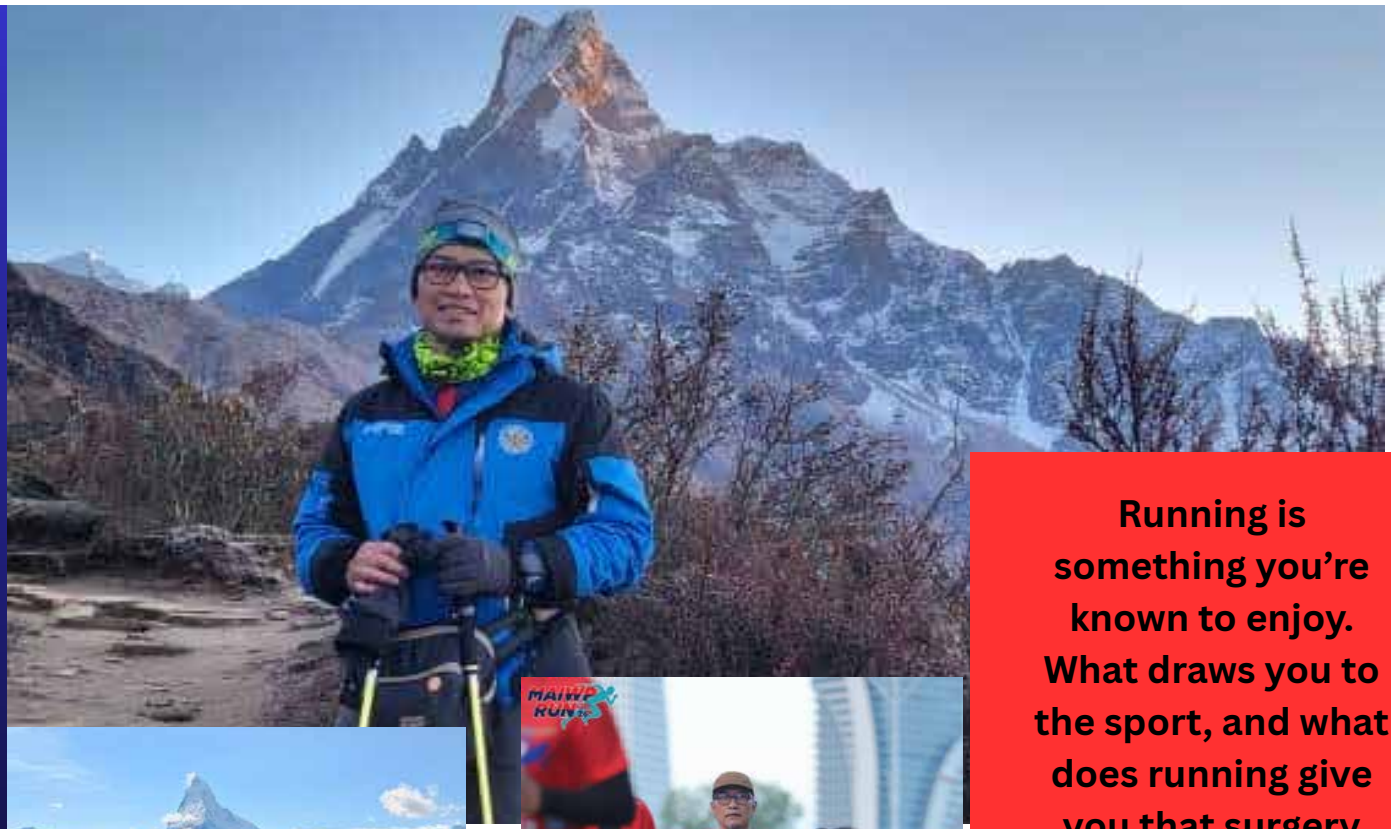
What is a common mistake you see among early arthroscopic surgeons and how can they correct it?

“First, I often see them give in to the temptation of choosing to take **shortcuts.** They need to understand that actual learning comes from the 'hard work' of the basics—it's about **learning the As before recognising the Bs.** There is no substitute for that foundational work.

Second, I see some going for their **'private adventure' a little too early,** ignoring a decent amount of time in **public service**. That time seasons a surgeon with volume of experience needed before stepping out on their own.”

With over two decades of experience, how do you continue to challenge yourself and improve your skills today?

“I believe in learning from everyone I encounter-my patients, my colleagues, and even my fellows and students.You would be surprised at how much you can learn simply by **opening your horizon** and being receptive to new perspectives during your working hours.There is always something to be gained from those around you.”



Running is something you're known to enjoy. What draws you to the sport, and what does running give you that surgery doesn't?

"It allows me to keep fit, but more importantly, I get to enjoy my music better during my runs. It's a different kind of rhythm and a mental reset that surgery doesn't provide."

Word on the street is that your patients gasp when you mentioned retirement from the university because you look far too young. What is your secret to the fountain of youth?

"(Laughs) I honestly don't know! Perhaps it's because ever since I met my wife (we were university sweethearts), I became less tense and a lot less 'garang'. That definitely helped! I think when you're less stressed and have that kinda support, it shows. Hahaha."

What is the one area that you believe young surgeons should start investing in right now?

Invest in the mindset of a lifelong student.**Never stop learning**.The day you think you know everything, is the day you stop learning.In a rapidly evolving field like ours, curiosity and willingess to learn is just as important as technical skill.

Maybe the real secret to Dr. Nizlan's "fountain of youth" isn't just the kilometers he clocks in or the fact that he's traded his 'garang' days (with the help of his wifey!) for a more relaxed approach.
It's the fact that he never stopped being a student.

By finding that balance between his love for arthroscopic surgery and the simple joys of family, fitness, and music, he proves that a long career in medicine is about a lot more than honing your skills—it's about keeping that same spark of curiosity and willingness to learn he had back in 2003.

For the next generation of surgeons, his advice is pretty clear: take the time to master your "As" before your "Bs," and never assume you've reached the finish line.

I hope you enjoyed this conversation in getting a closer look at the man so many of us have had the privilege to learn from.

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2008 – MONOVISC – International launch

2009 – Acquisition of Anika S.r.l – HYALOFAST – Malysia launch – CIMed Healthcare

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2014 – MONOVISC – Receives FDA approval in the US – Trial enrollment complete for CINGAL

2015 – CINGAL – Receives Health Canada approval & 2016 International launch – Trial enrollment started for fastTrack phase III clinical study – HYALOFAST

2017 – ANIKA – Celebrates 25 years – Build-out completed of newly expanded state-of-the-art manufacturing facility in Bedford, MA – tactoset – Receives FDA 510(k) clearance in US

2019 – MONOVISC & ORTHOVISC – Become the #1 prescribed Viscosupplement franchse in the US

2020 – tactoset – Launches in the US – Successfully established US hybrid commercial model

2023 – Completed enrolment in HYALOFAST fastTrack, the pivotal phase III clinical study – Received 510(k) clearance and limited market release of the Integrity™ Implant System

2024 – Full market release of the Integrity™ Implant System

2025 – Received MDR approval for HYALOFAST

2026 – Soft launch in Malaysia – Integrity™ Implant System

PARTNERING SINCE: 2009

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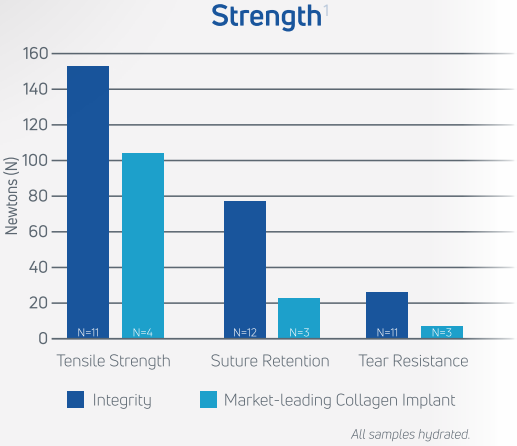

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SCAN TO WATCH

1. Badylak, S. F. (2024). Integrity™ implant system: Scientific white paper. Anika Therapeutics, Inc.

The Five Lessons

– Starting Out In Arthroscopic Surgery/ Beating The Learning Curve

By Dr Putra Vatakal
Beacon Hospital

When my phone pinged with Dr Sugesh Raghavan's Whatsapp message, I had to stop and think for a moment.

Dr Sugesh being on the MAS editorial board, I'm sure he sent some version of this message to a long list of people that day:

"Hi Putra. Wanted to ask if you are interested to write a piece for our upcoming MAS newsletter."

What troubled me was this: I suppose I could write something…. But what could a simple surgeon like me contribute to readers from the MAS- most of whom waltz for a living on the bubbly white-hot tip of the cutting RF probe of arthroscopic surgery.

Then I realised that though I couldn't offer the latest technique advances or the most exemplary cases, perhaps I did have something to offer… myself.

More precisely, my own adventures and misadventures in arthroscopy - because every young surgeon climbing the mountain of experience finds him or herself slipping down the slopes every so often.

And for a reader starting out in arthroscopic surgery -which is what the MAS is all about - it pays to form good habits early - which is why I think it is crucial to learn from your own mistakes - and (even better) the mistakes of others.

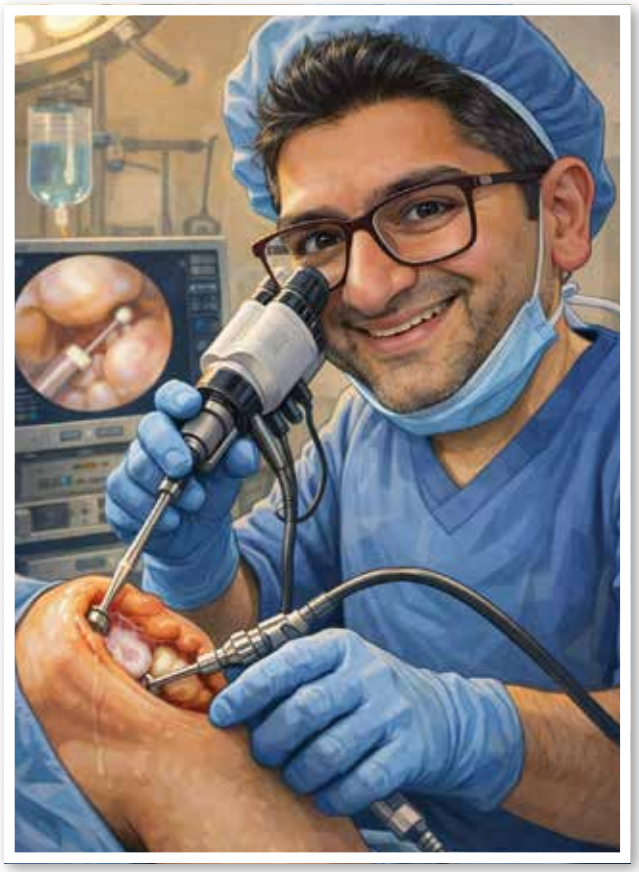
In this case: me.

**

My first experience with arthroscopy was most uninspiring. I was a junior medical- officer in what was definitely not a tertiary hospital.

Arthroscopies were rare - and the more senior medical-officers used every trick possible to escape - leaving us juniors (with our scrubs and underwear fully soaked) to burn our forearm muscles holding the leg in a figure-of-4 for what seemed like 12 hours.

So, when I joined the orthopaedic masters programme, my sights were set on arthroPLASTY instead. Forget repairing the knee. I was going to cut it out and replace it with a shiny new one.



It wasn't till late one afternoon in my 3rd year, when we were fooling around with an arthroscopic camera system - trying to rearrange little colourful bits of rubber hidden in a cardboard box - that it struck me that this was actually something I could see myself doing.

And now we jump forward in time.

I now possessed a certificate with an embossed UM logo that implied 'patients could trust me to repair their joints' stuffed in a file at home. And I have scrubbed up with the theatre lights dimmed. The arthroscopy tower glows like something Elon Musk might try to fly to Mars.

I have watched my senior consultants move through their cases with calm, effortless precision. Surely, I think, it can't be that hard…

I was wrong.

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The moment I inserted the scope, the ground fell from under my feet. Landmarks I had memorised seemed to shift. I'd planned to push my telescope around the Fat pad... but this wasn't a pad - it was the Great Wall of Fat! My hands trembled as I tried to make a second portal. Triangulation - which seemed simple in that cardboard box - was tricky, orientation confusing, and the smooth dance I had seen others do collapsed into a clumsy scramble.

I advanced into the medial compartment, trying to probe the meniscus. Streams of blood shimmered through the pale synovial fluid, catching the arthroscope's light angry fighting fish in a glass aquarium. My heart jumped — a minor nick from the portal, nothing serious, but enough to remind me how delicate this joint was.

The red ribbons swirled with each pulse of irrigation, hauntingly beautiful yet humbling- each surge a threat to my visual field - teaching me to move deliberately, to respect the tissue, and let the joint guide my hands without trying to force it into submission.

Literature suggests complication rates of 5-15% for trainees during their first 20- 30 arthroscopies. Relatively minor complications - portal hematomas, tiny iatrogenic cartilage scuffs, transient synovitis - minor perhaps, but each one a shot to the head for the young surgeon's ego.

My first medial meniscus repair was a perfect storm: a tight joint, hypertrophic synovium, and (I threw the scrub nurse a murderous look) who had selected these gigantic instruments? By the end of the case, my confidence had been stretched thin, but my respect for the joint had grown tenfold.

My first lesson was simple: The knee is not a drawing in a textbook. It is alive, pink, pulsating, sometimes angry, sometimes cooperative. What you think you know is constantly challenged.

My second lesson: Slow down. Patience over speed. Many trainees rush, hoping to finish cases quickly (and hopefully avoid the ire of the anaesthetist). But technique comes first - efficiency comes later.

What helped shorten my learning curve? Deliberate practice. Systematic inspection of each compartment - one step at a time. Triangulating instruments slowly. Spending hours reviewing recordings of cases - my own and those of my mentors - noticing subtle patterns, anticipating where tears in the menisci or cartilage might hide. Cadaveric workshops were invaluable of course (I still keep an eye out for every chance to practice on a cadaver) because no patient is as forgiving of mistakes as a cadaver. But the living play an even bigger role than the dead. Mentorship mattered. A calm senior standing by your side (even not scrubbed up) during a difficult case makes all the difference between panic and progress. I remain forever in the debt of the wonderful arthroscopic surgeons who watched my mistakes and helped me learn from them.

My 10th case was a lateral meniscus repair. By then, I had learned a little but thought I knew everything. The lateral joint space was tighter than I expected. I carefully widened the portals, positioned the knee, and began the repair. Midway through, my hand slipped - there on the (formerly) perfect lateral femoral condyle was deep unintentional gash.

I froze. For a long moment the world seemed dark. Then I remembered what a senior surgeon once told me *(though I have edited it to be print friendly).* "Complications @#%&*% happen - you can't always avoid them. What matters most is how you handle them."

..... *continue on page 13*

I adjusted my approach, completed the repair, the patient went on to recover well, and seeing him in the clinic some weeks later, for the first time I felt a glimmer of pride… and relief.

My third lesson: Anticipate the unexpected. Joints do not always behave as we expect. A large lateral meniscus bucket handle tear made me question my competence as a surgeon… and even my sanity. Each 'all-inside' stitch I placed cut through the joint capsule and before I knew it, I was down to my last repair device. I felt like walking out in my scrubs and taking a job in McDonald's - a feeling that I think nearly all surgeons have at some point in their careers - even if we don't often talk about it.

Well, thank God for 'inside-out' and 'outside- in' repairs. Which cements the lesson to prepare all the equipment you might need, and then some.

My fourth lesson: Humility. Early in my training, making mistakes in front of my consultants (or even scrub nurses) made me turn red in embarrassment. But the truth is each case is a teacher, each awkward movement trains muscle memory, and each mistake is a lesson.

Over time, patterns emerged. I stopped hunting blindly for pathology and started reading the joint systematically. Recognising what "normal" looks like in real life is as important as spotting the abnormal. Efficiency improves. Mistakes diminish.

Confidence grows. Even now, years later, every arthroscopy reminds me that the joint has the final word. The surgeon negotiates, but the knee decides.

My fifth lesson: Do not work alone. While working in private practice means that I usually operate alone nowadays, the care of a patient is a team effort. Sitting down with the radiologist to look over an MRI always yields valuable insight.

Taking the time to discuss rehab with your physiotherapists makes rehab more effective. And more than that, working as a team nourishes the surgeon's soul.

Sometimes I wish I repaired something else for a living… cars, air conditioners… something more predictable - with less than a patient's mobility and function at stake. Because every case - just like each hamstring tendon harvest - is never truly predictable, but it is the unpredictability that keeps the work humbling, engaging, and…if you let it be, joyful. And perhaps to me personally the most important lesson is to find joy in my work.

Because as people wiser than me have described, everyone comes naked from their mother's womb, and as everyone comes, so they depart, and yet to accept our role and be happy in our work- this in itself is a gift from God.

One truth I have found in medicine is that we as doctors do our best to help the patients - we repair and stitch and reconstruct - and then we surrender the recovery of the patient to God. We call it giving the meniscus time to heal, or allowing the graft time to incorporate into the tissues, but *really*, we cannot make the knee heal no matter how hard we try.

So maybe we shouldn't be beating ourselves up so hard.

Arthroscopic surgery is simple to watch. It looks effortless in senior hands. But for those learning, it can be a frustrating, sometimes exhilarating experience.

And so, as I reflect back on my earlier days, I realise that the first time the joint fights back is not just a rite of passage. It is a reminder that learning, patience, reflection, and respect are more important than ego or speed. Every scuff, every bleed, every moment of panic is a teacher, and every patient a collaborator.

ARTHROSCOPIONS

Champion - MAS Postgraduate Quiz

MAS Postgraduate Quiz

Team Summary

Team Members:

1. Dr Swarruben Ravi Chandran
2. Dr Leon Hui Ming
3. Dr Jedidiah Solomon

Institution / Hospital:
Universiti Malaya

Theme song:
Rock You Like A Hurricane by Scorpions

> "Winning isn't just about the score, it's about the anatomy of the game"

Preparation: How did your team prepare for the quiz — and what part of that preparation helped the most?
Our team focused on a mix of high-yield theory and practical simulation. We divided the syllabus by sub-specialties—focusing heavily on sports-related arthroscopy and clinical examinations. The part that helped most was conducting mock OSCE stations among ourselves. Simulating the pressure of the final round helped us refine our communication and clinical reasoning under a time limit.

Quiz Experience: How would you describe your team's overall quiz experience, from the BAQ preliminary round to the OSCE-style finals?
The journey from the BAQ (Best Answer Question) preliminaries to the OSCE finals was both challenging and exhilarating. The BAQ round tested the depth of our theoretical knowledge, but the OSCE-style finals really pushed us to apply that knowledge in a clinical context. It was a well-structured progression that mirrored the reality of surgical training, moving from the textbook to the patient.

Advice for Future Participants: One top tip your team would give future MAS Postgraduate Quiz participants.
Focus on the 'why' behind the 'what.' While memorizing classifications is important, the MAS quiz rewards clinical logic and the ability to think on your feet during the OSCE. Also, trust your teammates in a high-pressure final, having a rhythm with your team makes all the difference.

SOS TOMATO

1st Runner-up - MAS Postgraduate Quiz

Team Summary

Team Members:

1. Dr Sherwin Johan Ng
2. Dr Tan Shun Herng
3. Dr Tan Hong Keat

Institution / Hospital:
Universiti Malaya

Theme song:
The Ketchup Song (Asereje) by Las Ketchup

> "Love to ketchuppp"

Preparation: How did your team prepare for the quiz — and what part of that preparation helped the most?
For our preparation, we found that the most valuable resource was the frequent UM CME and the concise slides from every students. These were short, focused, and allowed us to grasp key facts quickly.

Quiz Experience: How would you describe your team's overall quiz experience, from the BAQ preliminary round to the OSCE-style finals?
Regarding the quiz experience, it's truly exhilarating—especially during the preliminary round when we almost lost. We had to quickly calm ourselves, trust our instincts, and respond swiftly to make up time.

Advice for Future Participants: One top tip your team would give future MAS Postgraduate Quiz participants.
Finally, our top tip for future MAS postgraduate participants is to trust both your instincts and UM CME.

HUNTR/X

2nd Runner-up - MAS Postgraduate Quiz

Team Summary

Team Members:
1. Dr Loh Linghui
2. Dr Suraya Binti Zulkhairi
3. Dr Nur Azhani Binti Indra Gunawan

Institution / Hospital:
Universiti Malaya

Theme song:
Golden from Kpop Demon Hunters

> "We are golden"

Preparation: How did your team prepare for the quiz — and what part of that preparation helped the most?
Suraya was a final year student and studied the most, hence was our brain. LingHui was our wild card who answered difficult questions. Azhani was the serial typist who ace on submitting our answers faster than the light.

Quiz Experience: How would you describe your team's overall quiz experience, from the BAQ preliminary round to the OSCE-style finals?
Questions were fair, related to clinical practice, and postgraduate exam questions. We learn a lot, especially about standard management of treatments globally, since the panel of judges was both local and international.

Advice for Future Participants: One top tip your team would give future MAS Postgraduate Quiz participants.
Don't be afraid and just join the quiz!

Penang Knee Cadaveric Summit

- A Great Experience Of Teaching A Cadaveric Lab In A Private Hospital

By Dr Chan Kok Yu
Gleneagles Hospital Penang

From the 2nd of August to 3rd of August 2025, Gleneagles Hospital Penang working in collaboration with the Malaysian Arthroscopy Society (MAS) successfully organised the Penang Knee Cadaveric Summit, which is a Knee Arthroscopy / Sports Surgery cadaveric hands-on workshop. I am extremely honoured to be involved in the event, both in the organising committee and also as facilitator / instructor. Immense credit goes to my senior colleague, Col (R) Dr Vejayan Rajoo, who is indeed a trailblazer and pioneer. Back in 2023, Dr Vejayan took upon the challenge to organise the first cadaveric workshop in Gleneagles Hospital Penang, which is the first of its kind in a private hospital in Malaysia. Prior to this, such hands-on workshops were only conducted in either the Ministry of Health Hospitals or the University hospitals.

The summit faculty / facilitators were Col (R) Dr Vejayan Rajoo (Chairman), Dr Vicknesh Anandan (co-chairman), Maj. Gen. Dato' Dr Mohammad Amirrudin Bin Hamdan, myself, Dr Soon Chee Khian, Dr Moganadass Muniandy, Prof. Dr Teo Seow Hui and Dr Sazali Bin Salleh. I am honoured to work alongside them as fellow facilitators to help teach the finer skills of arthroscopic knee surgery to the participants who showed tremendous enthusiasm to learn.

We held the workshop at the Auditorium (18th Floor) of Gleneagles Hospital Penang. It ran over two days, with the first day being the basic course and the second day being the advanced course. Each day had 12 participants. There were a total of six tables (stations) with each station having a cadaveric knee. Two participants were assigned to each table and each table had a facilitator to guide the participants.

Highlights of Day 1

Day 1 was the basic course which focused on basic knee arthroscopy, teaching the participants portal placements, ACL reconstruction including graft harvesting and meniscus repair (all inside, outside-

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Group photo of the facilitators (seated) and the participants.

in and inside-out techniques). Lectures were given by the facilitators in between the on-going hands-on cadaveric labs where the participants performed the procedures on their table cadavers guided by their facilitators. Dr Sazali gave the lecture on ACL graft harvesting techniques, Prof Teo lectured on ACL reconstruction and the meniscus repair talk was given by Dr Moganadass. Day 1 participants consisted mainly of newly qualified orthopaedic surgeons who wanted to learn the basic fundamentals of knee arthroscopy.

Highlights of Day 2

Day 2 was the advanced course in which the participants were mainly orthopaedic surgeons who wanted to learn more complex procedures. Most of them were also undergoing the sports surgery subspecialty programme under the Ministry of Health, Malaysia. As such, we taught them more advanced techniques. The Day 2 programme consisted of meniscus root repair, revision ACL reconstruction , PCL reconstruction, MCL reconstruction and PLC reconstruction. Dr Moganadass gave the lecture on meniscus root repair and centralisation, Maj. Gen. Dato' Dr Amirrudin presented on revision ACL reconstruction and Prof Teo's talk was on PCL reconstruction. Dr Sazali presented on MCL reconstruction and demonstrated the MCL reconstruction tunnels on a cadaveric knee which he had dissected earlier. I gave the lecture on PLC reconstruction and demonstrated the important part of the procedure on a knee cadaver which I had pre-dissected. It was another good day of learning for the participants through hands-on practice on the cadaveric knees.

It was two full days of an enjoyable experience for me. I was very happy to have had the chance to share my knowledge and experience in knee arthroscopy /sports surgery to the next generation of surgeons. Having benefitted from my mentors in the past who had taught me these skills, I count it a great privelege and responsibility to teach the juniors. I am glad that I was still able to be involved in surgeon education despite working full time in private practice. It is also a great achievement for my hospital (Gleneagles Hospital Penang) to be able to conduct this cadaveric lab training as a private hospital.

I wish to thank all my fellow facilitators and the operating theatre staff of Gleneagles Hospital Penang for their great effort to organise this summit. I want to record my appreciation to the Malaysian Arthroscopy Society (MAS) for their support and collaboration with my hospital in the smooth organising and running of this summit. Special thanks to ACES Academy, Arthrotech, Arthrofix and Smith & Nephew for supporting the event.

rejoin

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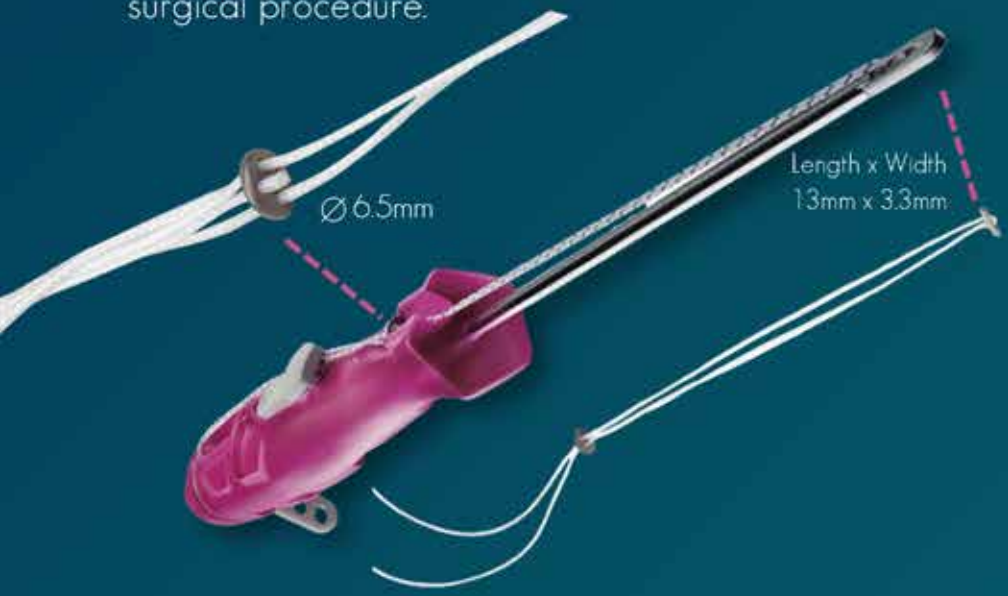

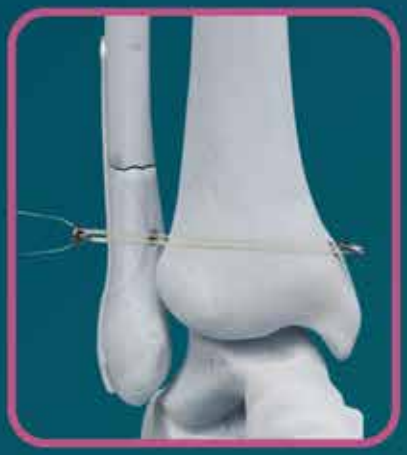

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Addressing Multifactorial Patellar Instability in a Hyperlax Patient:

A Combined Approach Using MPFL Reconstruction, Lateral Release, and Fulkerson Osteotomy

By Dr Uzir Ahmad Husni
Universiti Malaya Medical Centre

Abstract

Case: A 21-year-old woman presented with a 10-year history of recurrent left patellar dislocation. She was diagnosed with left patellar instability associated with trochlear dysplasia and hyperlaxity. She underwent a left medial patellofemoral ligament (MPFL) reconstruction with an ipsilateral hamstring autograft, combined with a lateral release and a Fulkerson tibial tuberosity transfer osteotomy.

Conclusions: This case highlights the clinical and radiological features associated with patellar instability and demonstrates the role of a combined surgical approach in the operative management of recurrent patellar instability.

Keyword: patellar instability; MPFL reconstruction; lateral release; Fulkerson tibial tuberosity transfer osteotomy

Introduction

Patellar instability is a multifactorial condition that commonly affects adolescents and young adults, with recurrent episodes of patellar dislocation often leading to pain, functional limitations, gradual cartilage degeneration in the patellofemoral joint, and subsequent early degenerative changes [1-2]. Established risk factors for this condition include a younger age, trochlear dysplasia, patella alta, lateral patellar tilt, increased tibial tubercle-trochlear groove (TT-TG) distance, excessive femoral anteversion and external tibial torsion [3-4]. Therefore, radiological assessment using computed tomography (CT) or magnetic resonance imaging (MRI) is essential to identify these predisposing factors and abnormalities in axial or rotational alignments, as well as to guide surgical planning.

The medial patellofemoral ligament (MPFL) is the primary passive restraint to the lateral patellar translation, providing approximately 50 to 60% of the restraining force against lateral displacement [5]. Consequently, injury or insufficiency of this structure is commonly associated with patellar instability [5]. MPFL reconstruction is therefore recommended as the cornerstone of operative management for recurrent patellar instability [5]. Nevertheless, isolated MPFL reconstruction may be insufficient to address the concurrent bony malalignment. In such cases, additional procedures such as lateral release and tibial tubercle transfer osteotomy are advocated to address the underlying anatomical predisposing factors and correct patellar maltracking.

Herein, we present a case of a 21-years-old female with a 10-year history of recurrent left patellar dislocation. She underwent a left MPFL reconstruction with an ipsilateral hamstring autograft, combined with a lateral release and a Fulkerson tibial tuberosity transfer osteotomy.

Case Presentation

This case involves a 21-year-old female, who presented with a 10-year history of recurrent left patellar dislocation following an initial traumatic event. Ten years earlier, her left knee was struck by a friend during a sports activity, resulting in a patellar dislocation. She was able to reduce the patella immediately after the incident and therefore did not seek medical attention at that time. However, she subsequently experienced recurrent episodes of patellar dislocation occurring approximately once per month, which she was able to self-reduce. These episodes were occasionally associated with pain and were exacerbated by exercise and sprinting thus

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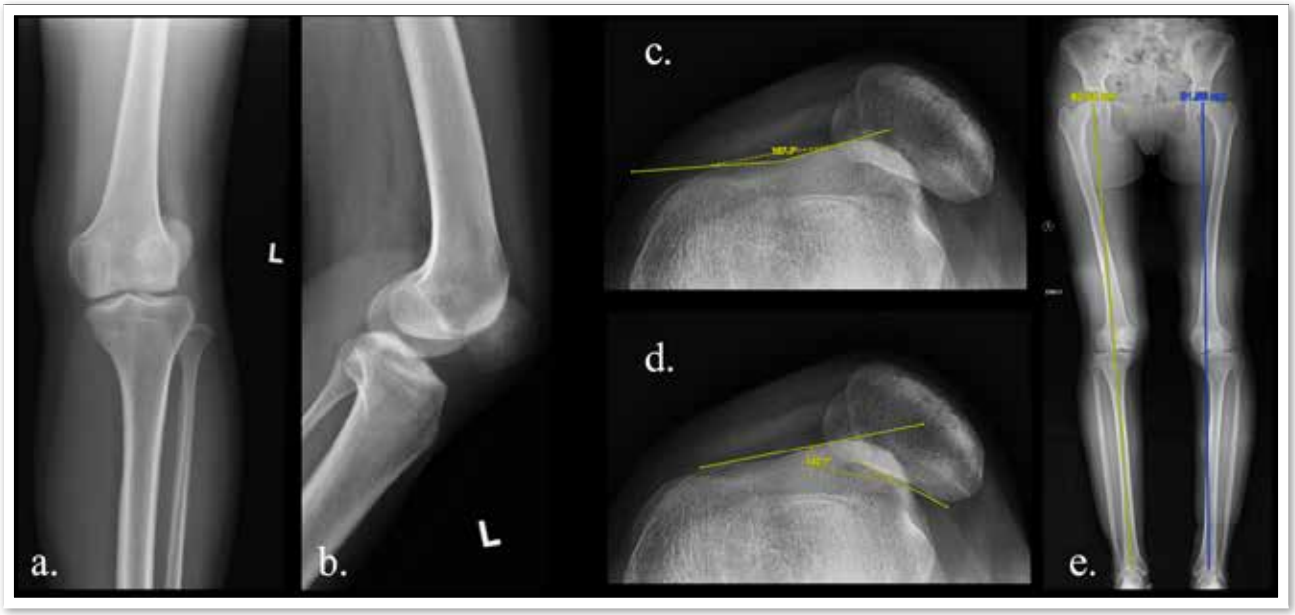

Figure 1. *Preoperative anteroposterior, lateral, and Merchant radiographs of the left knee demonstrating trochlear dysplasia, and lateral patellar maltracking.*

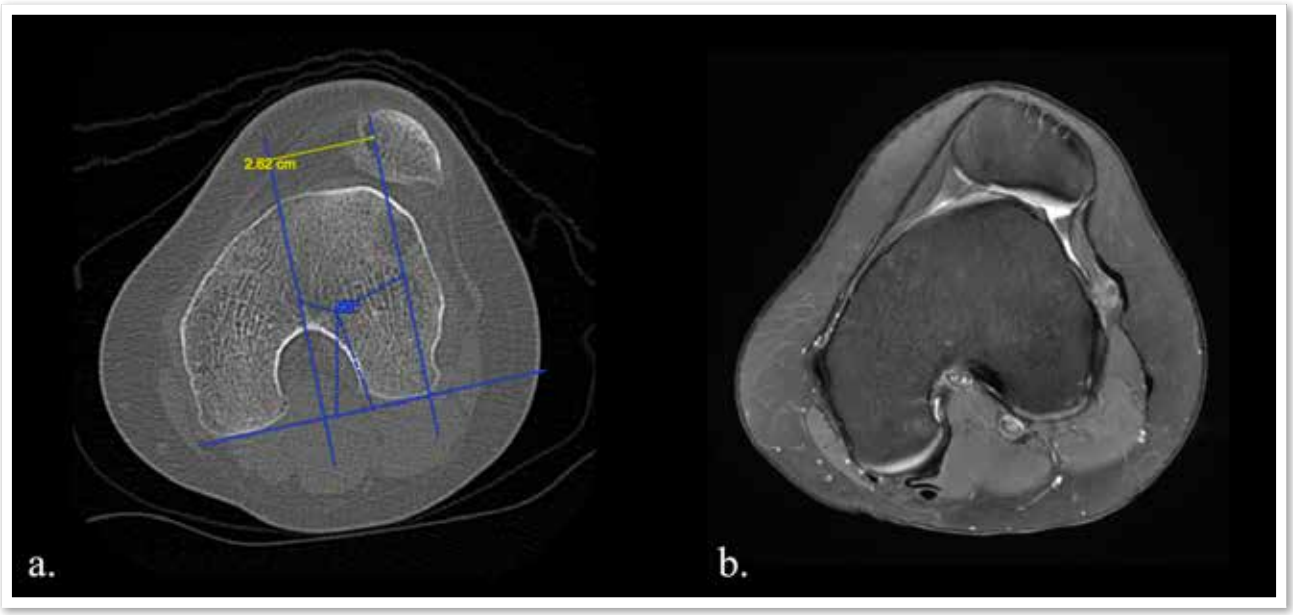

Figure 2. *Computed tomography (CT) demonstrating an increased tibial tubercle-trochlear groove (TT-TG) distance and magnetic resonance imaging (MRI) demonstrating an elongated medial patellofemoral ligament (MPFL).*

limiting her sports activities. The frequency of dislocation episodes gradually decreased over the years.

She did not report any other knee symptoms such as swelling, mechanical instability, or locking. The contralateral knee was asymptomatic, with no history of patellar instability. On examination, she had a normal gait, with no obvious varus or valgus deformity of the lower limbs. Examination of the left knee revealed a positive inverted J sign, suggestive of patellar maltracking. Active and passive ranges of motion were full. Anterior and posterior drawer tests, as well as varus and valgus stress tests, were negative. The femoral internal rotation angle was approximately 70°, with a normal thigh-foot angle. She had a Beighton score of 9, consistent with generalised hyperlaxity.

On the lateral view of the left knee radiograph, a crossing-sign and a supratrochlear spur were observed (Figure 1b), consistent with trochlear dysplasia (Dejour classification Type B). The Insall-Salvati ratio was 1.0, indicating a normal patellar

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Figure 3. *Intraoperative photographs demonstrating (a) MPFL reconstruction and (b-c) a 10mm Fulkerson tibial tuberosity transfer osteotomy.*

height. On the Merchant view, the sulcus angle measured 167° (Figure 1c), which was markedly increased, indicating trochlear dysplasia. The congruence angle was 100° and the lateral patellofemoral angle was -38° (Figure 1d), consistent with lateral patellar subluxation. A CT scan of the left knee demonstrated an increased TT-TG distance of 26mm (Figure 2a). Meanwhile, her MRI revealed an elongated but intact MPFL, without evidence of complete disruption (Figure 2b).

Based on the clinical and radiological findings, she was diagnosed with left patellar instability associated with trochlear dysplasia and hyperlaxity. To address the recurrent patellar instability and underlying maltracking, she underwent a left MPFL reconstruction with an ipsilateral hamstring autograft (Figure 3a), combined with a lateral release and a Fulkerson tibial tuberosity transfer osteotomy (Figure 3b-c). Postoperatively and during follow-up, she recovered well, with no further episodes of patellar dislocation.

Discussion

Recurrent patellar instability can lead to persistent pain, functional limitation, and impaired participation in daily and sports activities [1]. This can be very debilitating especially in young active adults. Repeated dislocations, as seen in this patient, may increase the risk of chondral injury, early patellofemoral osteoarthritis, and progressive maltracking, particularly in the presence of underlying anatomical abnormalities, such as trochlear dysplasia, a tight lateral retinaculum, and generalised hyperlaxity. Therefore, early recognition and comprehensive surgical management are crucial to prevent long-term sequelae and improve the patient's quality of life.

The primary goals of surgical management are to restore patellar stability, correct maltracking, and prevent further chondral injury [1-2]. Patellar instability is often multifactorial, necessitating a customized approach. In this patient, an incompetent and elongated medial patellofemoral ligament (MPFL) contributed significantly to recurrent dislocations due to medial laxity, making MPFL reconstruction with an ipsilateral hamstring autograft the foundational soft-tissue procedure. A critical consideration in this case was the patient's generalized joint hyperlaxity, indicated by a Beighton score of 9. Generalised ligamentous hyperlaxity is also one of the recognised risk factors for patellar instability and is associated with an increased risk of recurrence following isolated soft tissue procedures. Relying solely on MPFL reconstruction in this setting risks graft failure due to excessive strain on the reconstructed ligament. Therefore, incorporating a bony realignment procedure in her case was

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therefore relevant, as it can reduce the lateralising forces across the patellofemoral joint, protect the soft tissue reconstuction and able to improve surgical stabilisation in the setting of concurrent hyperlaxity.

To address the excessive lateralisation of the tibial tuberosity as evidenced by the increased TT-TG distance (26mm), a Fulkerson tibial tuberosity transfer osteotomy was performed to correct the TT-TG distance (Figure 3b-c). This specific osteotomy anteromedializes the tibial tubercle, optimizing patellofemoral biomechanics and reducing lateral vector forces. Additionally, a lateral release was also performed in this case to relieve the residual lateral tightness and further optimise patellar tracking. While a lateral release is no longer recommended as an isolated procedure, it remains useful as an adjunct in selected cases, especially those with persistent lateral retinaculum tightness or contracture [6-7]. The tailored combination of MPFL reconstruction, lateral release, and tibial tuberosity transfer in this case had successfully addressed the multifactorial nature of her patellar instability.

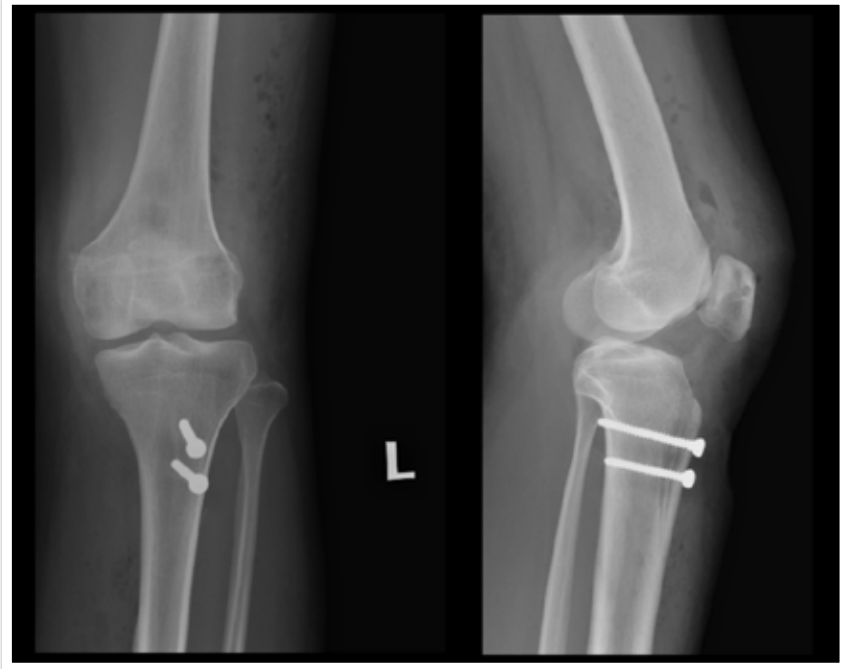

Figure 4. *Postoperative left knee radiograph demonstrating fixation screws following Fulkerson tibial tuberosity transfer osteotomy.*

Conclusion

This report highlights the importance of comprehensive clinical evaluation and radiological assessment in guiding a tailored, combined surgical approach for recurrent patellar instability. By addressing both soft tissue and bony anatomical risk factors, combined procedures such as MPFL reconstruction with tibial tuberosity transfer and selective lateral release can improve the patellar stability and functional outcomes.

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Learning, Growing, and Reflecting: My Journey to the Azmi Abdul Latif Award

Champion
Azmi Abdul Latif Award

By Dr Chuan Yin Xin
National Orthopaedic Center of Excellence for Research and Learning (NOCERAL), Department of Orthopaedic Surgery, Faculty of Medicine, Universiti Malaya

Winning the Azmi Abdul Latif Award Presentation represents a significant milestone in my medical journey. Beyond academic recognition, this honour reflects years of learning, growth, perseverance, and the invaluable guidance of mentors and colleagues who believed not only in the purpose of our work, but also in me throughout this process.

Participating in an oral presentation at the Malaysian Arthroscopy Society (MAS) Annual Scientific Meeting had been a personal goal since my early days as a medical student. I am sincerely grateful for the opportunity to represent my research team and present our study entitled "Impact of Hamstring Harvest Technique on Tendon Regeneration and Flexion Strength Recovery Following ACL Reconstruction: A Mid-Term Comparative Study."

The process of preparing for and delivering the presentation was both challenging and transformative. Translating research findings into a clear and compelling narrative required a deep understanding of the study's core objectives. I learned that research is not solely about data and outcomes, but about purpose—communicating ideas with clarity, integrity, and relevance, ultimately to improve patient care. This journey also underscored that research is never undertaken in isolation; it thrives through mentorship, collaboration, and shared commitment. Each revision and rehearsal strengthened not only my presentation but also my comprehension of the research itself.

Presenting before an experienced panel of judges and peers was initially daunting, yet it proved to be one of the most enriching aspects of the experience. The insightful questions and constructive feedback encouraged deeper reflection, refined my perspective, and highlighted the responsibility inherent in contributing to scientific knowledge. These moments reinforced the importance of humility, adaptability, and lifelong learning in both research and clinical practice.

This achievement would not have been possible without the unwavering guidance and support of my mentor and co-authors. I am profoundly grateful to Assoc Prof Teo Seow Hui, whose mentorship throughout this journey was both rigorous and compassionate, providing clarity during moments of uncertainty and consistently inspiring me to strive for excellence. I am also thankful to Dr Robin Low, whose support and encouragement offered guidance and reassurance whenever challenges arose.

I would like to sincerely acknowledge Dr Nazhan, whose contributions, together with those of Assoc Prof Dr Teo Seow Hui and Dr Robin Low, were integral to the completion of this research. This work was truly a collaborative effort, built on trust, cooperation, and a shared passion for purposeful and meaningful research. I am deeply grateful for the opportunity to learn from and work alongside such dedicated individuals.

Receiving this award has deepened my appreciation of research as an essential component of medical training and personal development. As I continue to advance in my career, I am reminded that meaningful research and clinical practice share a common purpose: improving patient outcomes. This milestone will always hold a special place in my journey, serving as a reminder to remain grounded in gratitude, guided by mentorship, and committed to contributing meaningfully to the advancement of orthopaedics.

1st Runner-up - Azmi Abdul Latif Award

Dr Kerry-Anne Shaline Shelton
Queen Elizabeth Hospital II

I was honoured to be awarded second place for the Azmi Abdul Latif Award at the 12th Malaysian Arthroscopic Society–Asian Sports Medicine (MAS–ASM) Congress 2025, organised by the Malaysian Arthroscopic Society. As a general orthopaedic specialist with two years of clinical experience, I have always had a keen interest in academic presentations and scholarly engagement across various platforms. This opportunity, which was encouraged by my sports surgery mentors from Hospital Universiti Sains Malaysia (HUSM), Dr Tengku Muzaffar and Dr Nor Hamdan, was particularly meaningful to me.

My presentation was based on a study entitled "Evaluating Tibial Tuberosity–Trochlear Groove Distance and Index Using MRI in Relation to ACL Injury: A Study from Universiti Sains Malaysia." The study was conducted under the supervision of Dr Tengku Muzaffar and focused on evaluating specific anatomical parameters using magnetic resonance imaging to better understand their relationship with anterior cruciate ligament injuries.

I thoroughly enjoyed the question-and-answer session, which provided an excellent platform to further elaborate on my research findings while also gaining valuable insights from the panel of judges. The engaging discussion and constructive feedback were both enriching and educational. Upon completion of my presentation, the judges personally congratulated me, which made me feel genuinely appreciated and served as a strong source of encouragement.

I am sincerely grateful to the Malaysian Arthroscopic Society for this recognition and look forward to continued opportunities for academic growth, research involvement, and meaningful contributions in the field of orthopaedic surgery.

2nd Runner-up - Azmi Abdul Latif Award

Dr Lim Kgai Ter
Universiti Malaya

Receiving Third Place in the Azmi Abdul Latif Award Presentation at the 12th Malaysian Arthroscopy Society Annual Scientific Meeting 2025 represents a significant career milestone for me as a trainee. It is both an honour and a source of motivation to be recognised on a national platform within a field I am deeply passionate about—sports and arthroscopic surgery.

This opportunity allowed me to share work that reflects my commitment to learning and growth within this specialty. Preparing for the on-stage oral presentation challenged me to think critically, refine my ideas regarding innovation on ACL reconstruction technique and communicate with confidence. As a trainee, the experience was transformative, reinforcing my belief that dedication, curiosity, and perseverance are essential in shaping a meaningful professional journey.

I am profoundly grateful to Associate Professor Dr Teo Seow Hui and Dr Sugesh for their unwavering support, guidance, and belief in my potential. Their mentorship and encouragement continuously pushed me to strive beyond my perceived limits and were instrumental in achieving this recognition. I would also like to thank the Malaysian Arthroscopy Society committee for providing this invaluable on-stage platform, which empowers trainees to share their work, find their voice, and grow with confidence.

The Azmi Abdul Latif Award symbolises more than achievement—it represents inspiration, mentorship, and the cultivation of future leaders in arthroscopy. This recognition has further strengthened my passion for sports and arthroscopic surgery and inspired me to continue pursuing excellence through clinical practice, research, and lifelong learning.

I am sincerely thankful to the organisers, judges, and the Malaysian Arthroscopy Society for this honour and for fostering an environment that encourages trainees to aspire, contribute, and excel.

Sanusi Ghani Award

Champion - Sanusi Ghani Award

Dr Jonas Fernandez
Hospital Putrajaya

An impactful case presentations in poster presentations are meant to demonstrate how the management of a single patient can improve clinical practice for other patients. In our award winning presentation, we hope that the same applies. I would like to thank everyone who was involved in making this a success.

1st Runner-up - Sanusi Ghani Award

Dr Romy Deviandri
Universiti of Riau, Indonesia

Thank you very much for this distinguished honor. It is a great privilege and a source of pride for us to receive the Sanusi Award at the MAS Malaysia 2025 event. This recognition inspires us to continue our commitment to excellence, integrity, and meaningful contribution. We extend our sincere appreciation to the organizers, the jury, and all parties who have supported us throughout this journey. Thank you.

2nd Runner-up - Sanusi Ghani Award

Dr Harwinder Singh Gill
Hospital Sultan Abdul Aziz Shah, UPM

I would like to begin by thanking the Malaysian Arthroscopy Society (MAS) organizing committee for a well-conducted and meaningful Annual Scientific Meeting (ASM) 2025. I am truly grateful to have received the Sanusi Ghani Award (3rd Place) at the MAS ASM 2025. I would also like to sincerely thank Dr Mohd Nizlan Mohd Nasir, Dr Raymond Yeak, and Dr Johan Abdul Kahar for their guidance, mentorship, and valuable input throughout the preparation of my case write-up and presentation. Their support played a significant role in shaping my work and improving my presentation, which contributed to this achievement. I am also thankful to the panel of judges for their time, careful evaluation, and consideration of my work. The Annual Scientific Meeting (ASM) plays an important role in my development as a postgraduate trainee by providing a platform to learn, present, and engage with senior clinicians. Presenting my case at the ASM conference allowed me to gain valuable feedback, build confidence, and appreciate the importance of academic discussion in arthroscopy. This experience reinforced how MAS supports postgraduate students in their professional and academic growth.

2nd Runner-up - Sanusi Ghani Award

Dr Che Mohd Hanif

Hospital Tanah Merah

First and foremost, I would like to express my sincere appreciation to the Malaysian Arthroscopic Society (MAS) organizing committee for hosting a meaningful and well-organized Annual Scientific Meeting (ASM) 2025.

I am grateful to have received the Sanusi Ghani Award (3rd Place) at MAS ASM 2025 for the presentation of a clinical case report. This recognition is truly encouraging, and I am thankful for the opportunity to share my clinical experience on such a respected scientific platform.

Presenting at MAS ASM was a valuable learning experience and an important step in my journey as a young orthopaedic surgeon. I strongly believe that progress comes not only from individual effort but also from continuous learning and the guidance of experienced mentors.

I would like to sincerely thank Prof. Tengku Muzaffar, HUSM Arthroscopy and Sports Surgeon and lecturer, as well as Dr. Irwan Ariffin, Head and Consultant Orthopaedic Surgeon of the Orthopaedic Department, Hospital Tanah Merah, for their guidance, support, and encouragement throughout this process.

With their mentorship, I was able to present my work with greater confidence. I am also thankful to the panel of judges for their time, thoughtful assessment, and valuable feedback.

The MAS ASM continues to be an excellent platform for young orthopaedic surgeons to learn, exchange ideas, and contribute to the improvement of patient care through clinical cases and research. I am grateful for the opportunity to be part of this academic environment.

This experience has further motivated me to continue learning and participating in future clinical research, and I look forward to being involved in future MAS ASM meetings.

Champion - MAS Innovation Award

Dr Muhammad Syafik bin Mohd Yunus
Universiti Kebangsaan Malaysia (UKM)

First and foremost, I would like to extend my sincere appreciation to the Malaysia Arthroscopy Society (MAS) organizing team for hosting such a wonderful Annual Scientific Meeting (ASM) in 2025.

I am truly honored to receive the MAS Innovation Award 2025 at MAS ASM 2025. This recognition is not a personal achievement alone, but a reflection of the collective effort, dedication and shared vision of my entire team.

This achievement would not have been possible without the invaluable guidance of my mentor – Associate Professor Dato Dr Badrul Akmal Hisham Bin Md Yusoff. His unwavering guidance, dedication, and inspiration from the very beginning of this research have been invaluable.

I would also like to express my sincere appreciation to my co-supervisors—Dr Azwan Aziz, Dr Ahmad Farihan Bin Mohd Don, Dr Muhammad Karbela Reza Bin Ramlan, and Dr Norlelawati Binti Mohamad — as well as our engineering collaborators, En Othman and En Andy, for their technical expertise, constructive feedback, and continuous encouragement throughout the development process.

The MAS ASM serves as an incredible platform for young researchers to actively engage in clinical research, contribute to advancements in patient care, and showcase their capabilities. It provides a golden opportunity to drive innovation in clinical research in Malaysia, ultimately leading to better patient outcomes. This achievement has further motivated me to continue contributing to clinical research, and I look forward to participating in future MAS ASM conferences.

1st Runner-up - MAS Innovation Award

Dr Krisna Yuarno Phatama
Orthopaedic and Traumatology Department, Faculty of Medicine, Universitas Brawijaya
Dr Saiful Anwar General Hospital, Indonesia

It is a great honor to have been awarded second place for the MAS Innovation Award at the 12th Malaysian Arthroscopy Society Annual Scientific Meeting. Presenting my research on “Introducing The New Instrument as A Budget-Friendly Option for Inside-Out Meniscus Repair” was a significant milestone in my professional journey and a rewarding experience. Meniscus repair is a critical procedure, but the cost of specialized instruments can limit access to effective treatment for many patients. The study aimed to address this challenge by developing an innovative, cost-effective instrument for inside-out meniscus repair that could deliver outcomes comparable to those of standard, more expensive devices. By comparing the functional outcomes of two groups—one using standard instruments and the other using the budget-friendly device—I found that both groups showed comparable improvements in pain relief, knee function, and overall recovery, as measured by the KOOS, KSS, and Lysholm scoring systems.

MAS’s recognition has reaffirmed the importance of cost-effectiveness in orthopaedic surgery without sacrificing quality. These results demonstrate that innovative solutions can be both affordable and highly effective, ensuring that patients receive high-quality care regardless of financial constraints. The feedback and engagement from the MAS judges and audiences were invaluable, and it was inspiring to see how this research resonates with the broader community of surgeons who are equally dedicated to improving patient outcomes. This award not only highlights the potential of affordable innovation in orthopaedics but also encourages me to continue exploring ways to make surgery more accessible to all. I am deeply grateful to the Malaysian Arthroscopy Society for this recognition, and I look forward to continuing my work in orthopaedic surgery, striving to make impactful changes in both clinical practice and patient care.

2nd Runner-up - MAS Innovation Award

Dr Jonas Fernandez

Hospital Putrajaya

In a way, although it was for the 2nd runner up spot, this award meant more to me. The Putra Rehab protocol, designed for patients recovering from rotator cuff surgery, was curated under the guidance of a dear mentor and teacher at our local hospital. Furthermore, as opposed to the other awards which are contested annually, the Innovation award comes along biennially, making it a little bit more coveted.

2nd Runner-up - MAS Innovation Award

Dr Sashi darshan a/l Balakrishnan

KPJ Kajang Specialist Hospital

I am deeply honoured and humbled to have been awarded 3rd Place in the MAS President's Innovation Award. This recognition means more to me than a professional milestone—it represents a shared commitment among surgeons to constantly refine the way we care for our patients, especially the youngest and most vulnerable among them.

My presentation focused on an innovative approach to medial patellofemoral ligament (MPFL) reconstruction in skeletally immature patients. Treating MPFL tears in young, first-time dislocators has always posed a clinical dilemma. Conservative management is often favoured to avoid physeal injury, yet literature consistently shows re-dislocation rates approaching 50% in this population. Recurrent instability not only affects athletic participation and confidence, but may also predispose patients to long-term cartilage damage.

Traditional reconstructive techniques, particularly those employing larger patellar anchors or extensive bone tunnels, carry a genuine risk of patellar blowout fractures in younger patients with smaller patellae and open physes. This risk has long tempered our surgical enthusiasm and reinforced the conservative bias.

After careful anatomical study, surgical planning, and risk analysis, I developed a technique utilizing strategically positioned bone tunnels combined with small knotless anchors. The aim was to achieve stable graft fixation while minimizing patellar stress concentration and preserving the integrity of immature bone. The approach balances biomechanical stability with anatomical respect for the growing skeleton.

To my surprise and immense gratitude, the technique was warmly received and validated by respected peers and mentors. That acceptance has been as meaningful as the award itself. Innovation in surgery is rarely an individual achievement—it is built upon collective experience, shared discussion, and the courage to challenge established norms responsibly.

I hope this technique will serve not as a final answer, but as a starting point. My aspiration is that fellow surgeons will continue to refine, study, and improve upon this method, contributing further evidence and technical advancements to optimize outcomes for young patients facing knee instability.

Winning this award reinforces my belief that thoughtful innovation—grounded in patient safety and clinical necessity—can meaningfully shift practice. Most importantly, it reminds me that our ultimate goal remains unchanged: to restore stability, confidence, and long-term joint health for the children and adolescents entrusted to our care.

I extend my sincere gratitude to the MAS leadership, my mentors, colleagues, and the patients who inspire us to keep improving. This recognition is not only an honour, but also a responsibility—to continue innovating with purpose and humility.

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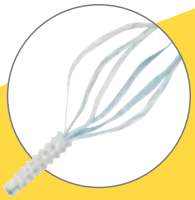

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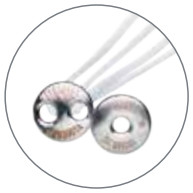

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*As compared to competitive devices in fixation/pull-out benchtop testing. **As demonstrated in benchtop testing.

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Shared Rhythm:
Music and Surgical Performance

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Universiti Putra Malaysia (UPM)

What ensemble musicianship reveals about timing, coordination and teamwork in surgery?

I bumped into my colleague in the clinic corridor. "Boss, jom! When's our next practice session?" he grinned. A few days later, we were back in that dimly lit studio above a car tint workshop, running through the same song for what felt like the twentieth time. It was only a five-minute set for Ortho Night, but repetition was unavoidable. Sitting behind the drum kit, I try to keep the strokes simple while holding the tempo. We rehearse until it feels effortless.

It struck me how familiar that process felt. As surgeons, we rehearse too - not on stage, but in cadaver labs, simulation centers, and in our own mental walkthroughs before a case. Technical performance in arthroscopy depends not only on knowledge, but on repetition, coordination and composure under pressure. Interestingly, a lot of evidence suggests that musical training strengthens many of these same domains. Studies in neuroscience have shown that instrumental practice is associated with enhanced fine motor control, bimanual coordination and cortical plasticity, particularly in regions governing hand dexterity and timing (1,2). These are essential functions we rely on daily in triangulation, camera control and suture management.

Beyond motor skills, musicians develop heightened anticipatory timing and adaptive listening which are skills that translate well into the operating theatre. A band's performance requires continuous adjustment to subtle cues, dynamic changes and non-verbal communication. Surgical teams operate in a similar ecosystem. Research has also demonstrated that structured musical training improves selective attention and working memory. A study by Bialystok et al suggests that musical training strengthens executive control; particularly the ability to filter distractions and suppress automatic but incorrect responses resulting in faster and more accurate performance under pressure (3). These qualities are critical in prolonged arthroscopic procedures where visual fields are constrained and margins for error are small. While music alone does not make a better surgeon, the disciplines overlap in meaningful and measurable ways. I suppose surgeons and musicians are not too different after all!

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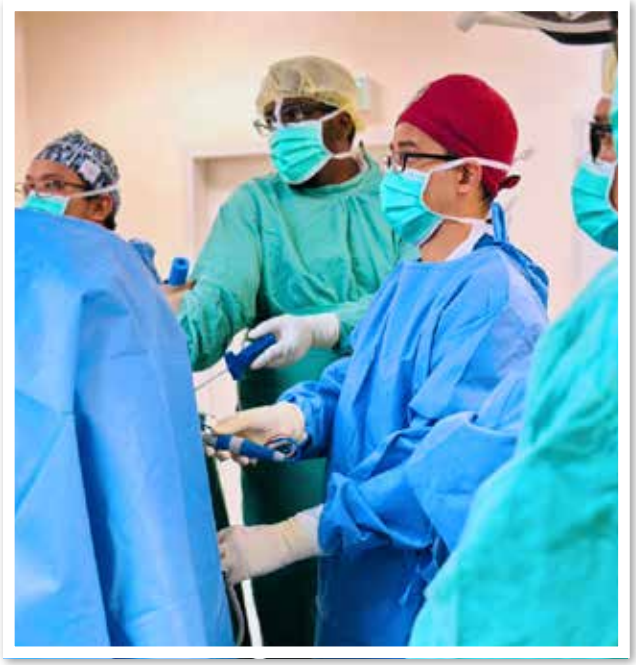

Under the bright lights; trying to hold the tempo.

Discipline, Deliberate Practice and Transferable Skills

One of the strongest parallels between musicians and surgeons lies in the structure of practice. Musical mastery is built on deliberate rehearsal - isolating difficult passages, slowing them down, repeating them with feedback, and progressively reintegrating them into full performance. This mirrors the framework of deliberate practice described by Ericsson (4), where expert performance is achieved through focused, feedback-driven repetition rather than mere experience. Surgical simulation training and cadaveric workshops follow the same principles. Repeatedly practicing knot-tying reflects the same pursuit of perfection as practicing scales before a concert.

Neuroimaging studies further demonstrate that long-term instrumental training induces structural and functional changes in motor cortex, corpus callosum connectivity and cerebellar networks involved in coordination and timing (1). Basically, the brain synchronizes bimanual movements better. These adaptations are especially pronounced in adolescents who begin structured practice early but remain evident even with adult training. For surgeons, whose craft depends on refined bimanual precision and visuomotor integration, such findings are interestingly relevant.

Music, Stress Regulation and Team Dynamics

Beyond technical transfer, playing in a band introduces another dimension: shared performance. Ensemble musicianship demands synchronization, mutual listening and adaptive leadership. Authority and responsibility shifts fluidly - a drummer may drive tempo in one section, while a vocalist or guitarist leads dynamics in another. Similarly, in high-functioning operating theatres, each team member has a role to play and their own time to shine. Operating theatres are not built for solo performances!

Informal collaborative activities outside clinical settings, including music-making, have been associated with improved group cohesion and

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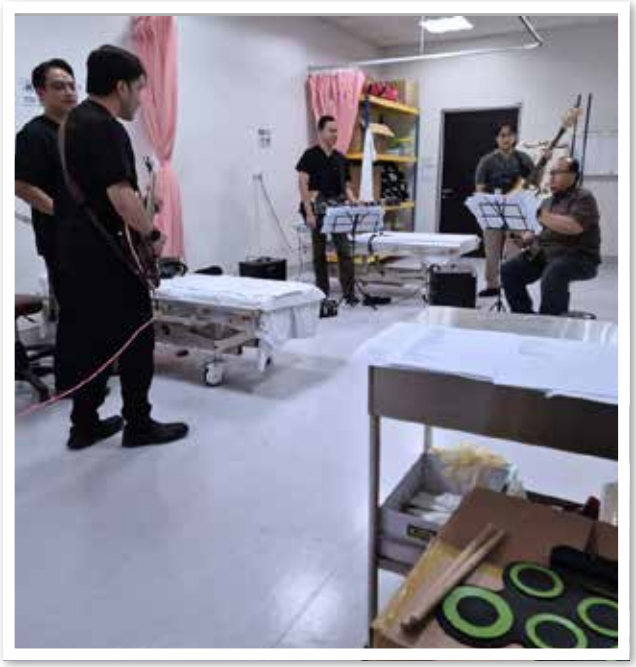
Discreetly rehearsing in the office.

A practice session in our go-to jamming studio.



..or the POP room after hours.

interpersonal trust. This may contribute to improved team performance and potentially lower error rates, although the relationship is likely multifactorial. Additionally, studies examining music participation demonstrate reductions in cortisol levels and improvements in mood state, suggesting a measurable stress-modulating effect (5). For surgeons operating in high-demand environments, structured creative outlets may provide both cognitive recovery and emotional decompression.

A Practical Reflection

We often pursue technical refinement through courses, conferences and simulation. Perhaps we should also consider the value of parallel disciplines that cultivate coordination, attentional control and teamwork through a different medium. Learning an instrument does not guarantee surgical excellence. However, the shared foundations of timing, repetition, listening and controlled performance suggest that the overlap is more than metaphorical.

For those who have long considered picking up a guitar, returning to the piano, or joining colleagues for an occasional jamming session, the benefits may extend beyond recreation. It may strengthen fine motor control. It may improve stress regulation. It may even foster a different kind of teamwork - one where hierarchy softens and synchronisation takes precedence.

At the very least, it reminds us that mastery, whether on stage or in the operating theatre, is built on disciplined practice and collective rhythm. The same rhythm that carries a five-minute set, or a two-hour case, safely to its close.

Band photos. All smiles after the case is done.

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Total Knee Arthroplasty
- From The Perspective Of A Sports Surgeon

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As an **arthroscopic and sports orthopaedic surgeon**, the majority of my operations involve **knee** and **shoulder arthroscopic or sports-related procedures**. For knee surgeries, a deep understanding of the fundamental principles of the knee joint is essential to achieve consistent outcomes. The sports surgeon's goal is not only to restore knee function but also to preserve the joint for the long term.

The **knee** is a synovial hinge joint with articulating surfaces covered by hyaline cartilage (in the tibiofemoral and patellofemoral compartments). Stability is provided by **optimal soft tissue balance**, involving the cruciate ligaments, collateral ligaments, capsule, and surrounding muscles and tendons. These structures maintain stability in multiple planes: coronal (medial/lateral), sagittal (flexion/extension), rotational, and normal patellar tracking.

Soft tissue tension alone is insufficient for balance; the knee must also have **optimal alignment** in the coronal, sagittal, and axial (rotational/transverse) planes. Any deformity or malalignment compromises soft tissue balance, leading to laxity, instability, or patellar subluxation/maltracking.

Knee sports surgeries include soft tissue repairs/reconstructions (e.g., ACL, PCL, multi-ligament, medial patellofemoral ligament (MPFL) reconstruction) and bony realignment procedures (e.g., high tibial osteotomy, distal femoral osteotomy, tibial tubercle medialisation or anteromedialisation). While **sports surgeries** focus on **joint preservation**, **total knee arthroplasty (TKA)** is a **joint resurfacing procedure** designed to relieve pain from damaged or diseased articular cartilage, most commonly in osteoarthritis or inflammatory arthritis. In TKA, the damaged cartilage surfaces are replaced with a prosthesis consisting of metal and polyethylene components.

Traditionally, TKA is performed using manual cutting jigs to guide bone resection of the tibia and femur based on pre-set alignment targets. The goals are to correct deformity toward a neutral mechanical axis, achieve balanced soft tissues in the sagittal and coronal planes, and restore normal patellar tracking. In severe deformities, extensive soft tissue releases are often required alongside bone cuts to ensure a painless and stable knee.

Key Requirements for Successful TKA

Importance of Soft Tissue Balance

Success in TKA depends on **optimal soft tissue balance** in three planes:

- **Coronal Plane**: In a normal knee, the medial collateral ligament (MCL) is slightly tighter than the lateral collateral ligament (LCL), as observed during arthroscopy (tighter medial compartment than lateral compartment). An optimally balanced TKA should replicate this, with a slightly tighter MCL.
- **Sagittal Plane**: The extension and flexion gaps (between the femoral component and polyethylene insert) should be equal at full extension and 90° flexion.
- **Axial/Transverse Plane**: Normal patellar tracking with an appropriate Q-angle must be restored, allowing the patella (or resurfaced patella) to glide centrally in the trochlear groove of the femoral component without subluxation.

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Figure 1: TKA using the eNlite (Stryker) computer assisted surgery (CAS) system

Importance of Knee Alignment

Alignment is based on the **mechanical axis (MA)** of the lower limb, also known as the **hip-knee-ankle (HKA) line**—a straight line from the centre of the hip through the centre of the knee to the centre of the ankle. In chronic ligament injuries with varus or valgus malalignment, sports surgeons perform osteotomies to correct the HKA.

In TKA, restoring the HKA is equally critical. Excessive residual varus leads to early prosthetic loosening, while excessive valgus causes instability. Optimal long-term survival is generally achieved when the postoperative HKA lies within ±3° of neutral. (1,2,3,4)

What is the best method to do a TKA?

The debate over **conventional**/manual instrumentation versus **computer-assisted surgery (CAS) / computer navigation** (Figure 1) or **robotic-assisted surgery (RAS)** (Figure 2) often misses the point. The correct questions are:

- Does the chosen technique reliably correct deformity to an optimal mechanical axis, ensuring even load distribution across medial and lateral compartments for long-term prosthetic survival?
- Does it achieve optimal soft tissue balance and patellar tracking without excessive releases that may cause morbidity, pain, or instability?

If these goals are met—regardless of technique—the TKA is successful. However, global studies show conventional instrumentation is less consistent in achieving HKA within ±3° compared to CAS or RAS. (5,6,7,8) Conventional TKA also requires significantly more soft tissue releases for balancing the knee compared to **CAS** or **RAS** (9,10)

Integrating Sports Surgery Principles into TKA

My experience as a sports surgeon guides my approach to TKA. I apply the same biomechanical principles used in joint-preserving procedures:

Varus Knee Correction (Analogous to High Tibial Osteotomy)

In chronic PCL/posterolateral corner injuries with varus deformity, a **high tibial opening-wedge osteotomy** (**HTO)** shifts the HKA from varus toward neutral or slight valgus, tightening lax lateral structures. This often stabilises the knee sufficiently without needing ligament reconstruction. (11). To obtain precise HKA corrections, I use **computer navigation (CAS)** when performing **HTO** surgery. (Figure 3)

In severe varus TKA, I apply the same principle: bone cuts are planned for neutral or slight valgus HKA while preserving the tight MCL (no release). Using **CAS** previously and now r**obotic assisted surgery (RAS)**, I achieve precise alignment (±3° HKA) (Figure 4). This reliably balances the coronal plane with a slightly tighter MCL and less tight LCL—mimicking normal physiology—without MCL releases. This approach is supported by literature (12,13) and contrasts with conventional techniques, where under-correction of varus often necessitates extensive MCL releases.

Valgus Knee Correction (Analogous to Distal Femoral Osteotomy)

In chronic MCL/posteromedial corner injuries with valgus deformity, correcting to slight varus tightens lax medial structures (14,15). Distal femoral osteotomy achieves this.

In valgus TKA, I plan a slight varus HKA (approximately 2°) using **CAS** or **RAS** (Figure 4). This tightens the lax MCL and relaxes the tighter LCL, achieving coronal balance . (releasing the

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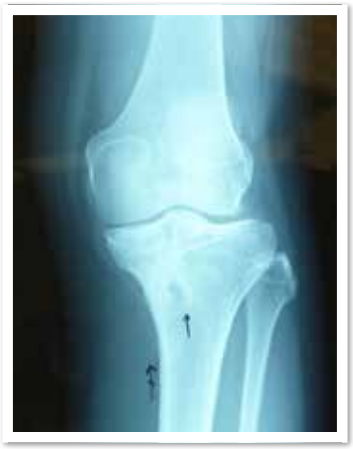
Figure 2: TKA using the ROSA (Zimmer-Biomet) Robotic Assisted Surgery (RAS) system



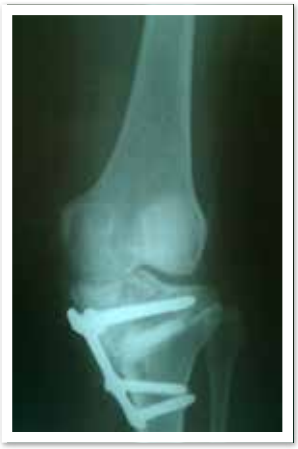


Figure 3: HTO done using the eNlite (Stryker) CAS. Accurate correction of the initial HKA 12 degrees varus deformity to a planned HKA of 1.5 degrees valgus (refer to the CAS images screenshots 3d,3e) Image intensifier (II) (3b) was used in this case to check the position of the osteotomy on the proximal tibia and to ensure optimal placement of the locking plate. Without the precise quantitative data from the CAS, the HKA correction would have just been a rough estimation as the II cannot give any measurement of the mechanical axis (HKA). Pre-operative and post-operative X-rays shown. (3a, 3b)

LCL is usually not needed). I meticulously preserve the MCL—any release risks further medial laxity, potentially requiring constrained implants. I prefer posterior-stabilised (PS) inserts and avoid constraint when possible. This method which dials a varus HKA is consistent with the standard technique of conventional TKA in valgus knees where the distal femur cut is done with the jig set at 3-4 degrees to cut the knee in varus. (16,17) By using **CAS / RAS**, I can accurately set the HKA cut at 2 degrees varus, which is more precise than the conventional jig.

Optimising Patellar Tracking (Analogous to Tibial Tubercle Transfer)

In chronic patellar instability, tibial tubercle medialisation or anteromedialisation normalises the Q-angle and improves patella tracking (18)

In TKA, I achieve similar Q-angle normalisation through precise rotational alignment:

- External rotation of the femoral component (referenced to the transepicondylar axis + 1–2° additional external rotation).
- Appropriate external rotation of the tibial component aligned to the medial third of the tibial tubercle.

Using **CAS** or **RAS** ensures accuracy. This approach of correctly external rotating the TKA components rarely requires additional lateral retinacular release to ensure normal patella tracking.

Conclusion

By applying **sports surgery principles**—precise alignment correction, respect for native soft tissue tension, and Q-angle optimisation—I consistently achieve **well-aligned**, **balanced TKA**s with **minimal soft tissue releases** using **CAS** or **RAS.** This philosophy bridges joint preservation and joint replacement, aiming for durable, functional outcomes that allow patients to remain active. **Robotic assisted surgery (RAS)** has now become more widely adopted by surgeons worldwide for TKA surgery. RAS has replaced CAS as the advanced technology for precise TKA surgery. I personally use **RAS** in nearly all my TKAs. Its advantages are tremendous, hence I would encourage sports surgeons who want to do TKAs to incorporate this technology in their practice.

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Figure 4: A patient with right knee osteoarthritis (valgus defomity) (pre-operative Xray 4a shown). Right total knee arthroplasty (TKA) was done by me using the ROSA (Zimmer-Biomet) robotic assisted surgery (RAS) system. The ROSA is a very precise robotic system which measured the initial right knee HKA as 4.5 degrees valgus (ROSA screenshot 4c). Using the same principle of the distal femoral osteotomy, I planned a 2 degree varus HKA (ROSA screenshot 4d) on the ROSA . At the end of the TKA, the knee alignment was corrected to mechanical neutral (zero degrees of HKA) and the soft tissues were balanced equally medial, lateral & flexion, extension (ROSA screenshot 4e). Post-operative x-ray of the right knee TKA is shown (4b)

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