NO. 1
VOLUME 3

SANS Newsletter

Our Reader Is Our Leader

Welcome to 2022 and the first issue of the year!

The next Saudi Association of Neurological Surgery Executive Board Term Elections process just began.

>> To read more please go to page no.3

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Issue's Message

We begin the new year with an issue that contains a variety of topics for you to read and learn from.
We begin this issue with Dr. Abdulrahman Alturki 's announcement of the establishment of the neurovascular surgery section at the National Neuroscience Institute (NNI) in King Fahad Medical City.
Next, we provide a page in SANS Executive Board Elections. Ms. Sumayah Abunayyan shines a light on the process of electing SANS Executive Board.
In this issue also, you will read a candid interview with Professor Abdulhakim Jamjoom. We are grateful that he took some time to answer some questions about neurosurgery and the profession in general.
New to this issue is the "Behind the Knife" section, where authors explain some of the techniques used in neurosurgery. Professor Amro Al-Habib gives an overview of Atlantoaxial Instrumented Fusion using the C1-Lateral mass to the C2 Pars Interarticularis.
We would like to thank our regular contributor Dr. Mohammed Bafaquh, for providing us with clinical challenges.
If you are interested in exploring the effect of a pelvic lordosis mismatch on quality of life, please read the article by Dr. Yazid Maghrabi.
Also, in Resident's Corner, we learn more about Precision Neuro-oncology in the Age of Genomics, written by Dr. Aysha AlSahlawi.

Sadly, this issue includes two obituaries on the death of Drs. Maher AlHijji and Fred Gentili. They will be sorely missed by the world of neurosurgery.

As always, we welcome your contributions, feedback, and suggestions to further improve our newsletter. Please click HERE to contact us and share your contribution.

We are glad to announce that SANS Newsletter will issue Certificates of Contributions for residents. The final decision on what gets published and who earns a certificate is with the editorial board members.

NEUROSURGERY IN SAUDI ARABIA

The Neurovascular Division of the National Neuroscience Institute, King Fahad Medical City, Riyadh

By Abdulrahman Y. Alturki Mbbs, Msc, Frcsc
Subspecialty Consultant: Vascular Neurosurgery, Endovascular Neurosurgery & Neurocritical Care
Section Head, Neurovascular Surgery Division
Adult Neurosurgery Department
National Neurosciences Institute
King Fahad Medical City

It gives me great pleasure to announce the establishment of the neurovascular surgery section at the National Neuroscience Institute (NNI), King Fahad Medical City (KFMC), Riyadh second health cluster, Saudi Arabia. I believe that this represents the normal transformation of the neurovascular clinical program at the National Neuroscience Institute (NNI), which was started in 2006 by our mentors Dr. AlYamany and Professor Orz.

Over the years, this clinical program has become the national benchmark for treating patients and training neurosurgeons.The Neurovascular surgery section at the NNI is a multidisciplinary one.

Here are some facts about it:

1. 7 neurosurgeons specialising in endovascular, open vascular, skull base, neurocritical care and neuroendoscopy working with stroke neurologists, interventional neuroradiologists, radiation oncologists and other health care providers to provide the best treatment approach for these neurovascular lesions.

2. Bi-monthly neurovascular board meetings and weekly stroke meetings.

3. A state-of-the-art 15-bed Neurointensive Care Unit and an 8-bed Neuro High Dependancy Unit (HDU).

This section became a reality thanks to our colleagues and our supportive administration and most importantly the trust of our colleagues from all over the country (> 60% of the cases come from outside Riyadh). We thank you for your support and trust.
Please do not hesitate to contact any of us if you need to manage a neurovascular pathology, get a second opinion or refer a case.

Dr. Mahmoud AlYamany Dr. Yasser Orz
Dr. Mohammad Bafaqeh Dr. Abdullah AlObaid
Dr. Gamman AlZahrani Dr. Naif Alotabi
Dr. Abdulrahman Alturki

NEUROSURGERY IN SAUDI ARABIA

SANS Executive Board Elections

By Ms. Sumayah Abunayyan
SANS Administrator

The term of the current Executive Board of the Saudi Association of Neurological Surgery (SANS) will end in March 2022.

I would like to thank all those who has contributed towards the success of SANS activities. It was a fruitful three years.

Despite the challenges we faced due to the COVID-19 pandemic, it has been a productive three years with many successes. For instance, few research studies that were supported by SANS were published in prestigious journals. The NeuroGraphia Neurosciences Art Competition was established as an annual competition from March 2021. In addition, education being a paramount objective of SANS, sixty-five scientific activities were conducted, both virtual and on-site. They covered different aspects of neurosurgery with different educational levels and needs, and each activity was designed to educate a target audience.

The process of electing SANS Executive Board is conducted electronically in three phases by the administration of the scientific societies at King Saud University.

The elections phases are:
First phase: Updating the SANS online member profiles.
Second phase: Nominations
Third phase: Voting

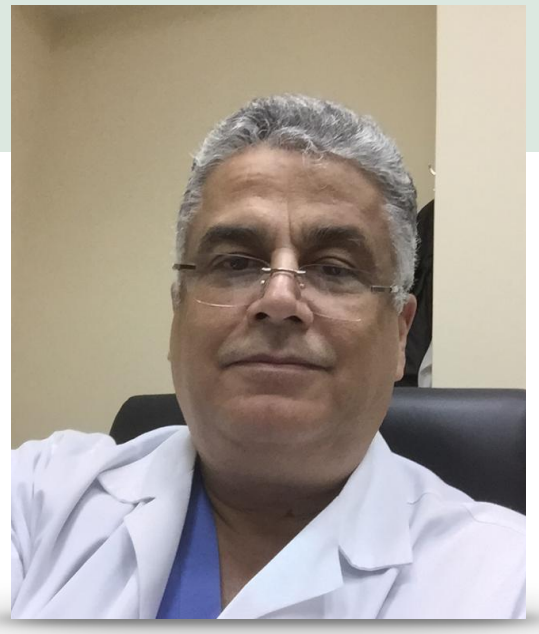
At the beginning of each phase of the elections process, an email will be sent to all active members (Consultant Neurosurgeons Members) through the SANS' administrator's email address: sabunayyah@gmail.com. These emails will invite them to log into their online member profile and participate in that phase of the election process.

Each phase of the elections will last for two weeks. The first phase of the elections will begin on February 6th, 2022. After the elections's phases are completed, the results will be announced during the SANS General Assembly on March 26th , 2022. The announcement will be done by representatives of the Administration of Scientific Societies.

I would like to welcome all to contact me by email or phone in regards to requesting SANS Membership application or renewal.
Email addresses:
sabunayyah@gmail.com
sumayah.abunayyan@sans.org.sa

THE EXPERT'S VOICE:

An Interview with A Neurosurgeon



We had the pleasure of interviewing a prominent neurosurgeon and Professor in King Khalid National Guards Hospital (KKNGH) in Jeddah: Professor Abdulhakim Jamjoom.
We are appreciative that Professor Abdulhakim was able to take time out of his busy schedule to answer some questions related to neurosurgery and the profession in general. It is our pleasure to hear his perspectives on neurosurgery. Here's the interview:

SANS Newsletter (SN): What are you most proud of personally?

Abdulhakim Jamjoom(AJ): I am proud of my academic productivity indices, which are currently the highest among neurosurgeons in Saudi Arabia. I am particularly proud of the fact that I have been able to maintain high academic productivity while I was working in a relatively small neurosurgical unit in Jeddah over the past 20 years.

(SN): Describe yourself using three words.

(AJ): Fair, kind and with a good sense of humour

(SN): What are you passionate about?

(AJ): This is a tough question because passions change depending on the phase of life you are in. At one stage, it was my neurosurgical career (surgeries and publications), at another stage it was my sons' education and their careers. I am fortunate that I am now in a phase where I have the time and resources to enjoy life more.

(**SN):** How do you handle stressful situations?

(AJ): First, a brief period of panic, followed by a switch to survival mode, i.e., controlled calm and deep thought about "how I am going to get out of this dicey situation!"

(**SN):** What are you known for?

(AJ): I am known for being an expert in education and the UK-related matters.

(SN): Most overused phrase.

(AJ): If a job is worth doing, it is worth doing well.

(**SN):** What was the best advice anyone ever gave you?

(AJ): Chance favours the prepared, so prepare, prepare, and prepare.

(**SN):** When / how did you know neurosurgery was the right path for you?

(AJ): I did a 6 month rotation as a senior house officer (SHO) in neurosurgery in Bristol, UK in 1984. I liked the specialty then. I liked it even more when I was contacted two years later to offer me a position as a Training Registrar. Opportunities do not come around twice, so I jumped at the chance and took the job. I am glad I did.

(SN): If you were not a neurosurgeon, what career would you choose?

(AJ): I would say orthopaedics, because that's how I convinced my second son Bakur to train in orthopaedics.

Interview with Prof. Abdulhakim Jamjoom 2/4

(SN): How do you spend your spare time?

(AJ): At home in Jeddah, I lead a quiet life, socialising with my family, working on my bibliometric research, watching crime and investigation shows and listening to music. At my second residence in the UK, where I spend 2-3 months a year, I lead a much more active life, walking a lot, going to restaurants, theatres and concerts, and spending time with my 3 and 1 year old adorable granddaughters.

(**SN):** We are wondering about what is your genetic background. Do you have doctors in your family? How do your children look at you as a dad and neurosurgeon?

(AJ): Family always comes first, way before career. Professor Zain Alabedeen Jamjoom, who is a well-known neurosurgeon in Saudi Arabia, is my elder brother and mentor. He found the Saudi Association of Neurological Surgery (SANS) and was the first president of the association. He retired a year ago and has left a big footprint on the neurosurgical scene in Saudi Arabia. It was a big challenge for me to keep up with him because it was hard to follow him. My eldest son, Aimun, FRCS (SN), who has a Ph.D. (neuroscience), is now an ST8 trainee in neurosurgery in Edinburgh, UK. He took the decision himself to pursue a career in neurosurgery, but may have been inspired by his father, a neurosurgeon.
My second son Bakur FRCS(T&O) has just completed his training in orthopaedics in Nottingham, UK, and will soon be undertaking a fellowship in foot and ankle surgery in Leeds, UK. I also have many nephews and nieces who are doctors and medical students.

(SN): Which neurosurgeon (living or deceased) most influenced your neurosurgical career?

(AJ): Mr. Huw Griffith He was the senior neurosurgeon in Bristol, UK, during my time there (1984-1990).He was also the nephew of Aneurin Bevan, the British health minister who was responsible for establishing the National Health Service in 1948. Mr. Griffith was a pioneer of endoscopy and a visionary who believed he could treat hydrocephalus by choroid plexus coagulation. He was also the first to describe the direct transnasal transphenoidal approach and to advocate lumbar microdiscectomy as an outpatient procedure. He possessed a charismatic personality who always had something intelligent to say on any subject.

He died in 1993, and the reason most neurosurgeons have never heard of him is that the British, unlike the Americans, are not good at promoting themselves.

(SN): Can you please share some of your experiences in the early days of your practice?

(AJ): I joined King Khalid University Hospital (King Saud University Medical City) in 1990 as a young consultant neurosurgeon at the age of 32. I was fortunate that the neurosurgery service at KKUH was already functional at that time thanks to the efforts of Professor Zain, Professor Naim-Ur-Rahman and their predecessors. The devision was well equipped. So, I can say that my neurosurgical practice in Saudi Arabia started well and developed relatively quickly. Of course, having the same last name as my older and more experienced brother had invaluable advantages.

(SN): As a successful neurosurgeon and professor, how did you strike a balance among these roles and duties?

(AJ): By regularly making to-do lists, setting priorities, focusing on one task at a time, and working hard.

(SN): Where did you do your medical residency? Could you describe your journey?

(AJ): I studied at Newcastle university medical school in the UK and did my neurosurgery training in Bristol and Cardiff,UK. The journey had ups and downs. We had to compete with locals for training positions, which resulted in many disappointing applications. All in all, I have fond memories of my training period. The highlights of this time were, of course, the births of my two sons in 1985 and 1987.

(SN): What was your first experience actually working on the brain surgically, and do you remember it, and what did you feel about it?

(AJ): To be honest, I do not remember it. It was nothing that impressed me. Personally, I do not believe in glorifying the profession of neurosurgery. The bottom line is that it is a job that is sometimes difficult, and the brain is an organ, albeit a mysterious and fragile one, that should be handled with care.

(**SN):** Describe the biggest issue you see challenging your practice?

(AJ): Limited resources (ICU beds, OR time, hospital beds) and the unbalanced distribution of workload

Interview with Prof. Abdulhakim Jamjoom 3/4

due to the increasing number of neurosurgical units and the lack of a clear referral strategy or regionalisation.

(**SN):** What is the majority of your surgical practice?

(AJ): Brain tumours of all types, including paediatric and pituitary, degenerative spine disease and tumours, spinal dysraphism and hydrocephalus, and trauma.

(**SN):** Are you particular about the instruments that you use?

(AJ): No, as long as they work and do the job they are supposed to do.

(SN): Do you have a specific case that sticks with you?

(AJ): A case of cystic lesion of the posterior fossa with obstructive hydrocephalus that was brought in as an emergency. We were planning to insert an EVD. In the OR waiting room and in the presence of many anaesthesiologists and surgeons, the patient had a cardiac arrest. He was resuscitated and the EVD was inserted. Three days later, the patient was fit enough to undergo a complete excision of the cystic lesion, which proved to be a primary craniopharyngioma of the posterior fossa. The patient made a complete recovery. The pathology itself was unique and was published as a case report. However, the reason the case left an impression on me was the timing and location of the cardiac arrest. Had the cardiac arrest occurred earlier or at a different location, the outcome of the case might have been different.

(SN): How do you feel about taking responsibility for choices that you know will profoundly affect your patient's life?

(AJ): I do not think about it too much. It is important to be fair during the informed consent process, to give the patient a balanced opinion, and to have realistic expectations. Difficult cases are difficult for everyone. At the end of the day, it is a job that someone has to do, and I consider myself sufficiently qualified.

(**SN):** Upon the occasion of the 12th Annual Meeting of the Saudi Association of Neurological Surgery in 2018, the SANS Medal was awarded to you. Could you tell us more about it?

(AJ): I was proud to be honoured to be among the elite neurosurgeons in Saudi Arabia who received this medal. It is a strong motivator. Peer recognition boosts one's sense of self-pride.

(SN): What future do you envision in neurosurgery?

(AJ): The specialty will be more technology oriented. More image guidance, brain mapping, minimally invasive procedures, artificial intelligence and robotics. Stem cell work and molecular biology could lead to cures or conservative treatments for some diseases.

(SN): As a successful neurosurgeon and professor, what is important in neurosurgical training?

(AJ): Neurosurgical training, like training in other surgical specialties, requires hard work, attention to details, and a certain amount of intellect and skill. It also requires patience (lengthy procedures), humility (unexpected complications), and common sense (limitations of the work).

(SN): What advice would you give to students who aspire to be in neurosurgery?

(AJ): They should believe in themselves and strive for their goal. I say that the selection process is highly competitive and they need good exam results.

(SN): Is there anything you can tell us that might surprise people reading the article?

(AJ): "All work and no play makes Jack a dull boy". We all need to find a balance between work and play in life. I have more than 100 scientific publications on my CV, but I have also attended more than 100 music concerts and more than 100 plays!

Interview with Prof. Abdulhakim Jamjoom 4/4

Abdulhakim Jamjoom with the Neurosurgery Department medical staff at Frenchay Hospital, Bristol, UK in 1989

During the 13th Annual SANS Meeting in Alkhobar in 2019

Right to Left: Professor Amro AlHabib, Professor Abdulhakim Jamjoom, Professor Zain Alabedeen Jamjoom, other neurosurgical colleagues

Professor Abdulhakim Jamjoom FRCS(SN) is the head of the section of Neurosurgery at King Khalid National Guards Hospital (KKNGH) in Jeddah, and Professor of Neurosurgery at King Saud Bin Abdulaziz University for Health Sciences (KSAU-HS), Jeddah. Dr. Abdulhakim has an established record of scientific publications in his field.

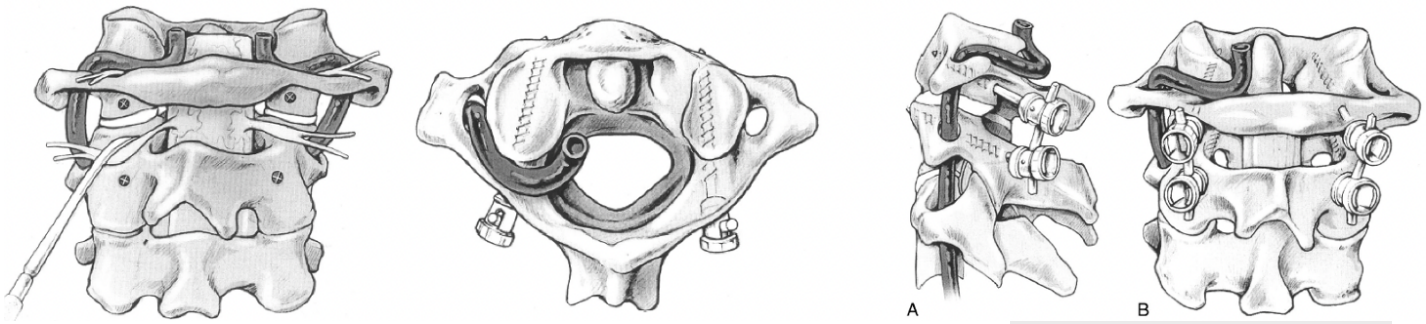
BEHIND THE KNIFE

Techniques in Neurosurgery

Atlantoaxial Instrumented Fusion

Using the C1-Lateral mass to C2 Pars Interarticularis/Pedicle Screw Construct

By Professor Amro F. Al-Habib
Consultant Neurosurgeon and Spine Surgeon
King Khalid University Hospital



Harms and Melcher, *Spine*, 2001

The technique was first described by Dr. Atul Goel in 1994 (Goel and Laheri, *Acta Neurochirurgica (Wein)*, 1994) then Harms popularized it by using polyaxial screws and rods (Harms and Melcher, *Spine*, 2001). A very concise summary is provided below:

- Adequate pre-operative imaging including CT-Angiogram for the evaluation of the vertebral arteries. Evaluate for both bony and vascular anomalies.

- Always start dissecting C1-posterior arch at C1-posterior tubercle and advance laterally on the inferior surface of the C1 arch. This is very important when C1 vertebra in rotated. When dissecting C2 posteriorly, advance on the upper border of the lamina. This will take you to C2 pars inter-articularis (C2PI). Stay away from dissecting lateral to C2 pars and lamina to avoid injuring the vertebral artery.

Take your time to perform sub-periosteal dissection. Practice patience with the venous plexus posterior to the lateral mass of C1 (ALM) and use adequate hemostatic agents.

- Find the midpoint of the ALM as your entry point. You can use the medial edge of the posterior arch of C1 as your anatomic reference; the starting point into ALM would be 2-3 mm lateral to that. Occasionally, you could find a nutrient small artery marking the entry point. After penetrating the cortical bone, advance perpendicular (or with slight medial angulation) into ALM using a tap aiming at the anterior C1 tubercle on lateral X-ray. Subsequently, you could make your measurement for the screw size and insert the appropriate screw size.

BEHIND THE KNIFE

Techniques in Neurosurgery

- For C2, it is crucial to define the medial border of the C2PI. Draw and imaginary line 1-2 mm lateral the C2PI and aim cephalad on X-ray. A screw into C2PI is shorter than pedicle screw. If C2 pedicle screw is intended, it is better to start at a lateral starting point, aiming cephalad and medial, and feeling the C2PI as a guide. Exclusion of a high riding vertebral artery is crucial based on sagittal CT-images. Neuro-navigation is very helpful in C2 screw insertion. Intra-operative imaging is also very helpful to evaluate adequate screw insertion a for possibility of adjustments.

- You could use C2 lamina screw to substitute one or both sides. It starts little above the point of junction of the lamina and the spinous process of C2 and aims (using pedicle finder) into the other side. Make your inclination more dorsal to avoid penetrating the anterior surface of the C1 lamina. Make sure you always stay within bone. This screw is then connected to the C1-screw via a side connector.

- Do your best to de-corticate the C1-2 joint space and fill it with adequate bone graft. Try to keep the C1-arch intact to provide enough bone surface for fusion. Prepare the bone surface well, decorticate adequately, and place sufficient bone graft.

Harms and Melcher, *Spine*, 2001

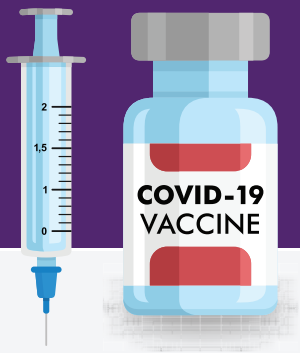
PUBLIC EDUCATION | En

COVID-19 vaccine booster

Two doses of COVID-19 vaccine provide very good protection. As with other vaccines, levels of protection may begin to reduce over time.

You would get a booster after the immunity from the initial doses naturally starts to wane. The booster is designed to give people longer-term protection.

This booster dose boosts immunity against COVID-19 and its variants. Thus, Allah willing, it reduces the risk of infection, hospitalisation, and death caused by the virus. It also boosts the immunity of workers in environments in which the virus is likely to be transmitted, such as hospitals.



Who :
Adults 18 years and older

When:
6 months after completing your primary COVID-19 vaccination series

How:
A booster dose is available in Saudi Arabia through the "My Health" app

The Ministry of Health (MOH) advises the most at-risk groups to take the vaccine in order to boost immunity.

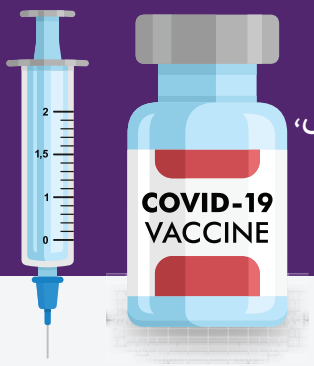
وزارة الصحة
Ministry of Health

Source: Saudi Ministry of Health

PUBLIC EDUCATION | Ar

الجرعة التنشيطية من لقاح كورونا

يتم استكمال التحصين ضد فيروس كورونا عند الحصول على الجرعة الأولى والجرعة الثانية، وتستمر المناعة في مستويات عالية لمواجهة عدوى الفيروس، ولكن بعد مرور الوقت فإن مناعة بعض اللقاحات تبدأ في النزول عن المستوى المثالي لمقاومة الفيروس. لذا ينصح في أخذ الجرعة التنشيطية بهدف تعزيز المناعة.



تعمل الجرعة التنشيطية على تعزيز المناعة ضد فيروس كوفيد19- ومتحوراته وبالتالي تقلل بإذن الله من خطر الإصابة والتنويم في المستشفى والوفاة من الفيروس، كما تنشط مناعة العاملين في بيئات العمل والتي تزيد من فرص انتقال الفيروس مثل المستشفيات وغيرها.

الجرعة التنشيطية من لقاح كورونا

متاحة لـ 18 عاما وأكثر

بعد 6 أشهر من أخذ الجرعة الثانية

يمكن حجزها في السعودية عن تطبيق "صحتي"

تنصح وزارة الصحة الفئات الأكثر تعرضا للخطورة بالمسارعة لأخذ الجرعة التنشيطية لتعزيز المناعة

وزارة الصحة
Ministry of Health

المصدر: وزارة الصحة السعودية

CLINICAL CHALLENGE

By Dr. Mohammed Bafaquh
Consultant Neurosurgeon
King Fahad Medical City
Riyadh

Biological factors affecting the responses of normal and tumour tissues in fractionated radiotherapy were defined as repair, reassortment (redistribution), repopulation, reoxygenation and radiosensitivity.

Q1: What is the most sensitive stage of interphase in the cell-cycle that is most sensitive to radiation?

A. Gap1 (G1)

B. S: Synthesis (S)

C. Early Gap2 (G2)

D. Gap 0 (G0)

E. late Gap2 (G2)

Q2: In regard to the 4th R (Reoxygenation) of the radiobiology, which one is true?

A. Hypoxic cells are 3 times more resistance to radiation

B. It leads to an indirect damage to the cells membrane

C. It can lead to DNA damage

D. It effect indirectly damage the protein within the tumour cells

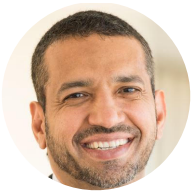
E. All of the above

Resident's Corner

‡1

The effect of pelvic-lordosis mismatch on quality of life and the development of adjacent segment disease after short-segment lumbar fusion

By Dr. Yazid Maghrabi
Neurosurgery Resident
King Faisal Specialist Hospital & Research Centre
Jeddah



Supervised By Dr. Majid Attas
Orthopaedic Spine Surgeon
John Hopkins Aramco Healthcare
Dhahran

The relationship between the spine and the pelvis has been overlooked. However, there is a growing body of research demonstrating that spino-pelvic alignment is critical to maintaining a spinal posture that does not consume much energy in normal and disease states [1]. Several parameters are described in the literature, such as pelvic incidence (PI), Sacral slope (SS), and pelvic tilt (PT) [1].

PI is considered the most important spino-pelvic parameter and is defined as the angle between a line perpendicular to the centre of the sacral endplate and a line connecting the centre of the femur to the centre of the sacral endplate (Figure1)[1].

It has been estimated that the value of PI in asymptomatic adults is approximately 48-55 ◦ [2]. It is important to note that PI is constant because it reflects pelvic geometry and not position [1].

LL is defined as the angle between the superior endplate of L 1 and the inferior endplate of L 5 (Figure 2) [1]. It has been estimated that the value of LL in asymptomatic adults is approximately 43-61 ◦ [2]. PI and LL have a strong correlation because LL is regulated by PI, as shown by the formula developed by Schwab and colleagues (LL =PI+/-9 ◦) [1,3].

Schwab et al. found in their prospective study of adult deformities in 492 patients that PI-LL mismatch had the strongest correlation with clinical outcome [4]. Several studies have attempted to apply the same principle to degenerative conditions, as shown in the following sections.

PI-LL mismatch and disease of adjacent levels

Temple et al. performed a retrospective cohort study of 159 patients who had undergone single-level transforaminal lumbar interbody fusion (TLIF) to describe the relationship between PI-LL mismatch and the development of symptomatic adjacent level disease (ADL) requiring surgery [5]. They found that a mismatch greater than 11 degrees was the cutoff point with a positive predictive value of 75%, meaning that of 100 patients with a mismatch greater than 11 degrees, 75 patients will develop symptomatic ALD [5]. In Figure 3, Temple and colleagues illustrate the PI-LL mismatch concept in a 59-year-old man who required multiple revision surgeries because of the development of adjacent level disease [5].

PI-LL mismatch and quality of life

Akoi et al. performed a retrospective study of 52 patients who had undergone short-segment TLIF [6]. They divided the patients into two groups: Group A with a mismatch < 10 ◦ and Group B with a mismatch greater than 11 ◦ [6]. They found that group B had a higher incidence of postoperative back pain on standing ($P < 0.05$), lower extremity numbness, and lower extremity pain [6].

The above studies clearly demonstrate the usefulness of spino-pelvic parameters for decision making in spinal surgery with degenerative conditions. It can be deduced that PI-LL mismatch over 11○ strongly correlates with adverse clinical outcomes. Since PI is constant, spine surgeons may aim to achieve greater lordosis in degenerative diseases requiring short segment fusion, as this is the most important variable to achieve recovery.

Take home message:

- Make it routine to order standing lumbosacral X-rays, including hips, for all preoperative cases requiring fusion to measure PI and LL.
- Spino-pelvic parameters are additional factors to consider, not the only factor in surgical planning.
- In case of > 11○ mismatch, the goal is to restore normal LL, especially in large PI.
- Correction of LL according to PI and physiologic lordosis ratio is critical to avoid ASD.

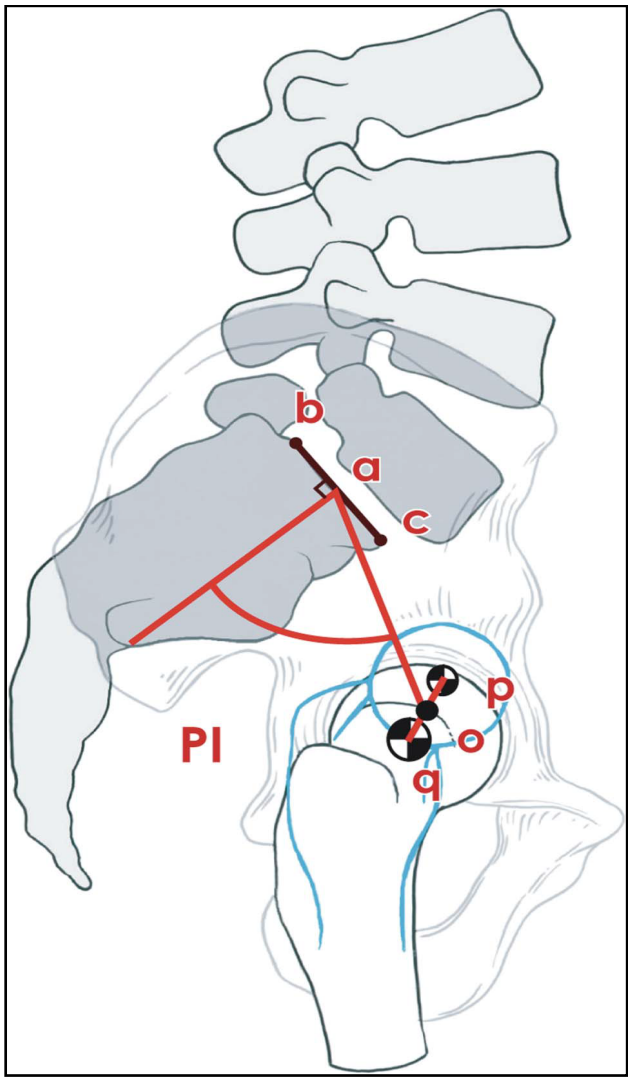


Figure 1: *Adapted from Mehata et al [1]*

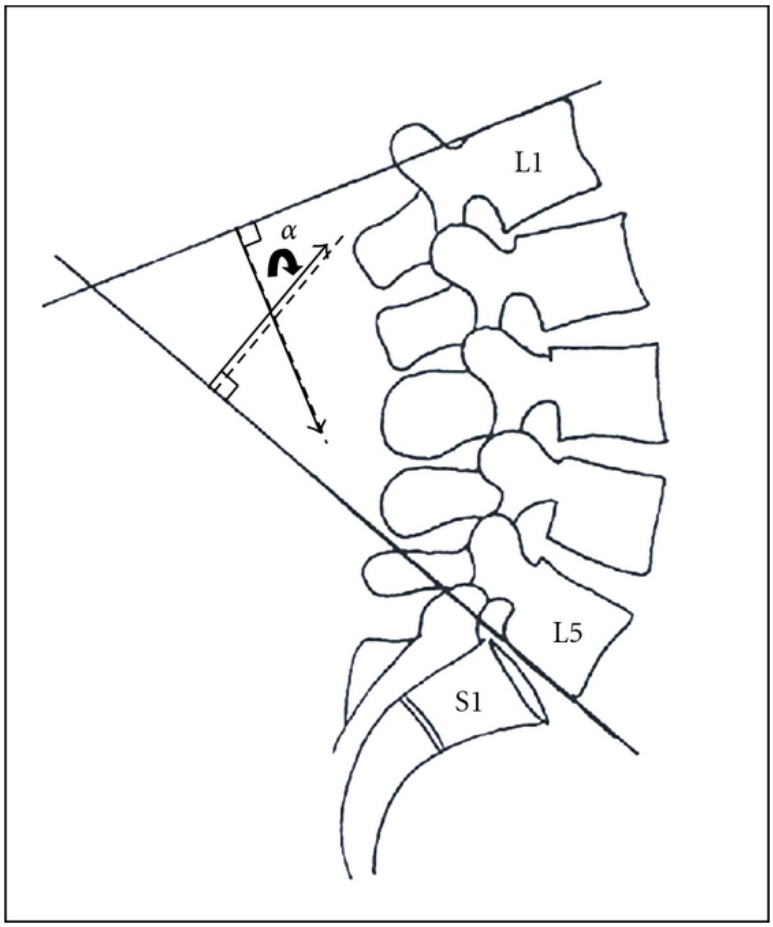


Figure 2: *Adapted from Skaf et al [7]*

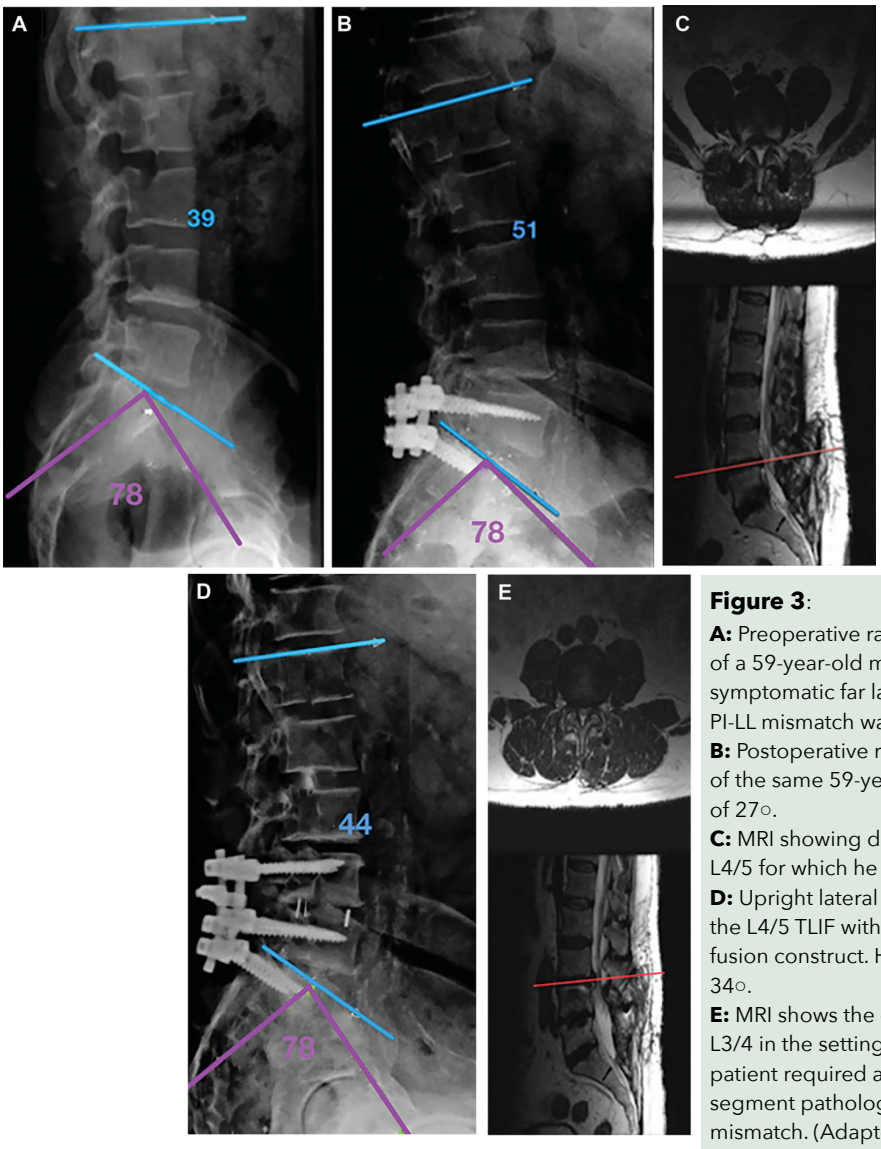


Figure 3:
A: Preoperative radiograph of the upright lumbar spine of a 59-year-old man who underwent L5/S1 TLIF for symptomatic far lateral disk herniation. His preoperative PI-LL mismatch was 39○.
B: Postoperative radiograph of the upright lumbar spine of the same 59-year-old man showing a PI-LL mismatch of 27○.
C: MRI showing development of symptomatic ALD at L4/5 for which he underwent L4/5 TLIF.
D: Upright lateral radiograph of the lumbar spine after the L4/5 TLIF with incorporation into the index L5/S1 fusion construct. His postoperative PI-LL mismatch was 34○.
E: MRI shows the development of symptomatic ALD at L3/4 in the setting of persistent PI-LL mismatch. This patient required a third surgery to address adjacent segment pathology and correct his persistent PI-LL mismatch. (Adapted from Temple et al[5].

Reference

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Resident's Corner

Precision Neuro-Oncology in the Era of Genomics:
Challenges and future directions

By Dr. Aysha K AlSahlawi
Neurosurgery Resident
Montreal Neurological Institute and Hospital ,
McGill Universityl Canada

Reviewed By Dr. Mohammed Bafaquh
Consultant Neurosurgeon
King Fahad Medical City
Riyadh

Precision medicine is already being implemented in all aspects of healthcare by offering patient-specific treatments guided by the latest scientific and technological advances. Thus, it is only a matter of time before it becomes an integral part of routine neurosurgical oncology practice.

Since the advent of large-scale genome sequencing modalities, our knowledge has grown beyond molecular profiling to better understand transcriptomics, epigenetics, and the tumor microenvironment so that we can tailor therapy to each individual patient. Given that genomic instability, stemming from chromosomal and micro satellite instability, and defined by mutational burden or chromosomal rearrangements, is thought to be the primary cause of tumor progression and resistance to therapy (1, 2). Its careful assessment is a critical step in risk stratification and survival prediction, guiding the oncology team in decision making regarding the extent of resection, need of re-biopsy, adjuvant post-operative therapies, tumor molecular classification and patient counselling.

However, for this model to be implemented in practice, greater collaboration between clinicians and scientists requires extensive infrastructure and medical institutions/ government collaborations, from molecular profiling on surgically resected tumors to experimental genomic studies, wet-lab neural stem cell treatments to computational sequence analysis among other initiatives. At present, implementation of this model in our healthcare system, face both systemic and institutional culture challenges which must be overcome to ensure that multiple institutions can effectively work together toward a common goal.

Fostering the change

What a better way to begin than to reverse-engineer others who went through the same path? Here, I will summarise other countries experiences implementing genomics into their clinical practice as a nation-wide initiative (3-7).

1)Neuro-oncology biobanks

Biobanks are a crucial milestone in this process and neurosurgeons are vital in the functionality of this model. A unified multi-institutional platform should be implemented starting from a routine pre-operative consent to the hands of the surgeon.

2)Digitisation of the genome

Easily accessible, national registry of genomic data is not an easy task but for sure worth pursuing. Electronic genomic records require infrastructure and software applications. When available to all specialties, this platform will advance clinical trials and basic research in medicine and neurosurgery.

3)Funding and cost-effectiveness

The feasibility of this project depends on one important thing: Proof of concept. By establishing benefit in molecular profiling for brain tumor patients, we establish a justification and cost-effectiveness for governmental/private funding.

4)Leadership and Collaboration.

"The key difference between creativity and innovation is execution" and that takes leadership. The first step is to recruit clinicians from different specialties to participate in practically applied platforms. To achieve such a goal, a smooth two-way flow of information between clinicians and laboratories within each organisation is critical. Collaboration between multiple institutions further advances patient care and research opportunities

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ADVICE COLUMN

By Dr. Mohammed Bafaquh
Consultant Neurosurgeon
King Fahad Medical City
Riyadh

"Light is for the average surgeon"

The first time I heard that phrase was from my program director, Dr. R. Moulton. I was trying to fix operating room lights when I heard his voice as he entered the operating room: "Lights are for the average surgeon, Dr. Bafaquh." At first I thought it was a joke, but as I developed my practice and expertise, I learned that ignoring lighting was not a good idea. Dr. Moulton's expression probably indicated something more profound than fixing the surgical light. I did not get a chance to ask him, but I think he was talking about operating room dynamics and how residents behave under stress.

We usually run to a safe zone when we are not sure what to do. Not knowing what to do during surgical procedures leads to an increasing rate of stress. Stress leads to discomfort, and residents will make an unplanned move or find themselves doing something less important, such as moving the lights in random motions in many directions or perhaps asking for a change unnecessarily often during the procedure. Opening a channel of communication with residents will eliminate this type of stress.

Resident's Corner

‡3

CertificateS Of Participation

For Residents

CLINICAL CHALLENGE

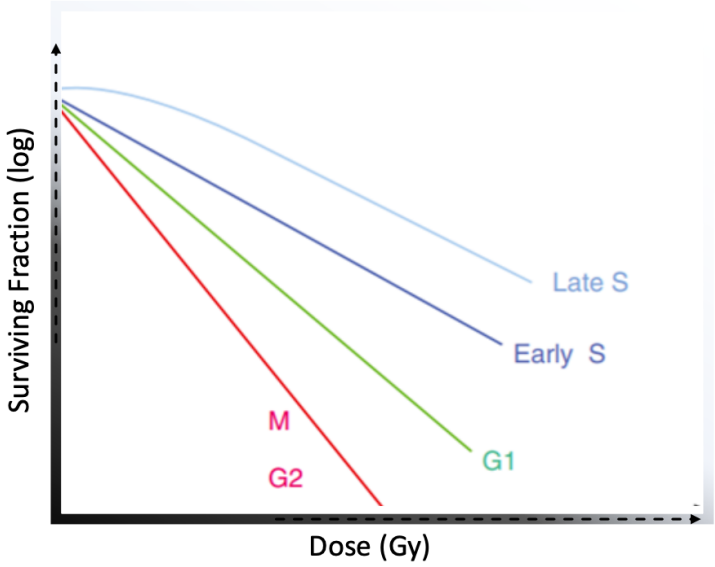
THE ANSWER

Q1:

Answer: C (early G2)

Radiosensitive stages:

- The most radiosensitive stages in the cell cycle are the early G2 and M stages.
- The radiosensitivity of a cell is four times greater in the mitotic phase than in the interphase.



Radioresistance:

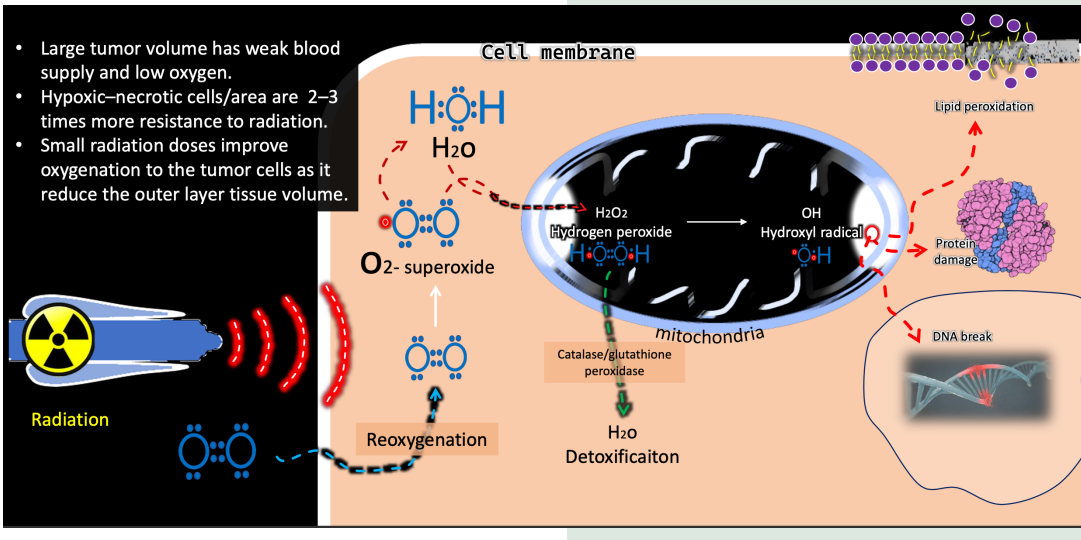
- Radioresistance is high in S, late G1, and G0 phases.
- The resistance of S phase is due to the large amounts of synthesis enzymes that have the ability to rapidly repair DNA.

5Rs of fractionated radiation-radiobiology

Reoxygenation

Q2:

Answer: E (all the above)



OBITUARY

Dr. Maher AlHijji

By Dr. Abdulkarim Al Rabie
Director of Neurosurgery Department
Prince Sultan Military Medical City

On behalf of the Neurosurgery Department at Prince Sultan Military Medical City (PSMMC), please let me express our sincere condolences on our big loss. We are deeply saddened by the true loss of a father, a colleague, a leader, and great-hearted human, Dr. Maher AlHijji. He was unique to us and we shared many invaluable memories with him. They were enjoyable and enriching for all of us, and he will be truly missed. Maher was held in the highest regard by his peers and co-workers, and by the many others he worked with. His contribution and dedication to the workplace set an example that will continue to be an inspiration to us.

Dr. Maher AlHejji graduated from medical college at King Saud University in 1993.

He then joined military training and resumed his neurosurgery residency at Prince Sultan Military Medical City. He then finished his residency training in Winnipeg, Canada in 2003. Following his Neurosurgery training, Dr. Maher was awarded a spine fellowship in Calgary, Canada in 2005.

In 2011, he became the Deputy head of Neurosurgery/Spine section. He was then promoted the Head of Neurosurgery department and occupied this position at PSMMC between 2015-2019.

Dr. AlHejji was a co-founder and member of the World Federation of Cranial Nerve Disorder. He was also a certified Gamma Knife Provider from the Cleveland Clinic and a certified Leader in Healthcare Management from GE (General Electric). In addition, he was an ex-examiner for the Saudi Board of Neurosurgery and for the Spine Fellowship Program Accreditation. He was awarded the Neurosurgery Lifetime Achievement Award in our department last October for his high standard care and contribution to build the department.

He will be remembered not only for his expertise by his colleagues and students, but also for the patients he treated.

I extend the most sincere condolences and deepest sympathy to his family and the Neurosurgery family in Saudi Arabia.

OBITUARY

Dr. Maher AlHijji

By Dr Salah Al-Akkad
Consultant neurosurgeon and spine surgeon
Johns Hopkins Aramco Healthcare
Dhahran

I have known Maher since 1997, he was my colleague for six years during my residency and then he practiced in Riyadh and I practiced in the Eastern Province. Talking about Maher is so simple and great, the word humanity is the main character of his personality.

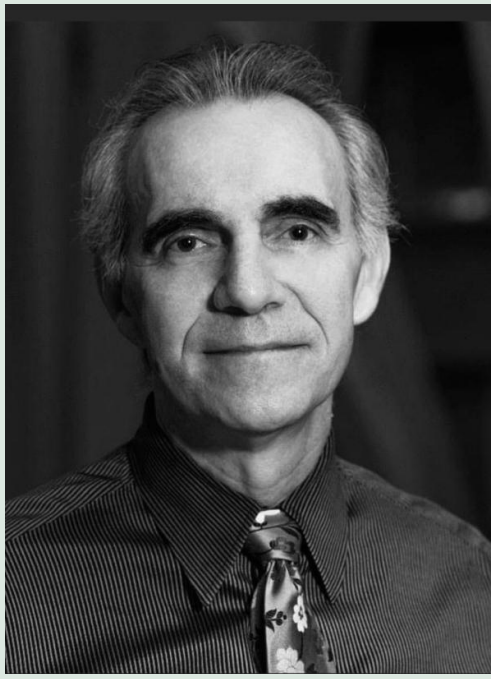
Maher never said no to a request that is meant to help a patient or a colleague or even a person he did not know just for the sake of humanity, a human with a great heart. Maher had an interesting part of his personality, he was always ready for the unexpected and this was very clear when I traveled with him several times where anything that was hard to find, he said do not worry, I even have it a simple rope as a professional scout, and this reflects his military background where he was ready for emergencies, with a security that makes everyone around him feel comfortable and safe.

Maher was fun, and he loved sports and American football. He was professional in his time management, I know exactly when he was present, and was loved by everyone around him. I cannot forget the book he bought me when he sensed my interest in it. He was a tough, high caliber resident who had all the patients to get the job done on time.
Maher was religious in his behaviour, honest and passionate about everyone he dealt with.

He has left us, but his spirit and kindness will always remain.
Our condolences to his family and to us who miss this great neurosurgeon and, above all, a loyal friend with a generous and kind heart.

OBITUARY

Dr. Fred Gentili



CONDOLENCE FROM THE SAUDI ASSOCIATION OF NEUROLOGICAL SURGERY (SANS)

We are deeply sorry to hear about the passing of Dr. Fred Gentili. Our heartfelt condolences go out to all neurosurgery community around the world. Fred was a master surgeon, a great scholar, and a wonderful human being. There are few words that do him justice. His teaching of neurosurgery has impacted many lives of patients around the world through his students; many of them in Saudi Arabia. He will be remembered for the great values he taught and the knowledge he was able to spread. May God give peace to his sole.

Our sincerest condolences for his wife; Gina, and his family at this time. We pray for them to find peace, comfort, and all the love they need in the days to come.

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By Professor Amro F. Al-Habib
President Of SANS

OBITUARY

UNDER PUBLICATION: International Academy Of Neurosurgery Anatomy

Dr. Fred Gentili

By Professor Imad Kanaan
King Faisal Specialist Hospital & Research Centre
Riyadh

With deep sorrow and profound sadness, our sincere friend and astute colleague Fred Gentili passed away gracefully on the eve of January 15, 2022. He was at home in Toronto, embraced by his loving wife Gina and his sons David and Michael. On behalf of all family members of the newly launched International Academy of Neurosurgical Anatomy "IANA" and the world neurosurgical community, we would like to convey our sincere condolences to his wife Gina, his sons David and Michael and his grand family and friends.

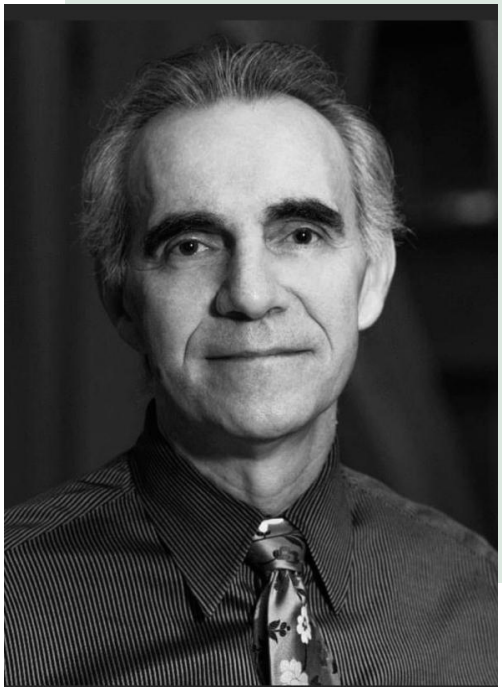
Fred was born in Sarnano/Italy, graduated from the University of Toronto Medical School in 1972 and concluded a master degree MSc at the Institute of Medical Science 1975. He joined the five years neurosurgical residency-training program at the University of Toronto and obtained his certification as Fellow of the Royal College of Physicians and Surgeons of Canada "FRCS-C" in 1980. His drive to excel prompted him to complement his special training with two external clinical fellowships, at the University of Zurich (under Professor M.G. Yaşargil) and at the National Hospital in London (under L. Symon) from 1979-1981. Dr. Gentili's impressive neurosurgical experience spans over 40 years. His role, as neurosurgeon was pivotal in promoting the art of clinical practice, mentorship of young neurosurgeons, and advance research and academia. He joined the Neurosurgery Staff at the Toronto General Hospital and eventually appointed as Professor of surgery, Professor of Otolaryngology and Director of the Skull Base Centre at the University of Toronto and Director of Surgical Education, University health Network.

It was my privilege to be among the close-friends of Fred and for many years, a charismatic stoical professional with high ethical profile, firm but receptive, passionate and altruistic, practical but scientific. He adopted the principle of pathos, logos and ethos in his discussions and scientific presentations cherished his profession with devotion and commitment to teaching of young neurosurgeons and promotion of fruitful research and academic work. He was a pillar and highly respected active member of several medical societies and organizations. He was a regular invitee to a large number of conferences and courses with contribution to series of hands-on courses and educational webinars in the field of skull base microsurgery, neuro-endoscopy and surgical oncology. He served on the editorial board of several peer review journals and left behind a wealth of scientific publications, research projects and book chapters. The legacy of Professor Fred Gentili will remain the torch for his disciples and colleagues and his academic work will be celebrated and referenced by the members of the "IANA" and the international neurosurgical family.

OBITUARY

Dr. Fred Gentili

By Dr. Abdulrahman S. Aldakkan
Consultant Neurosurgeon
Cerebrovascular and Endovascular Neurosurgery
King Saud University



I had the honour of being one of Dr. Gentili's residents from 2011 to 2017. Dr. Gentili was a great teacher, mentor, and a master skull base surgeon who took on challenging cases with great confidence. Yet, he was a very humble, kind, and caring person.

Dr. Gentili provided tremendous support to his fellows and residents with his guidance and helped them build their confidence in a very balanced way.

I remember one incident where I experienced this firsthand. In 2016, when I was on call with him as chief resident at Toronto Western Hospital, a patient came in on a cold November night in Toronto with a ruptured middle cerebral artery aneurysm. We had to operate on him that same night. Despite the late hour of surgery and the big day with many big cases ahead, he was very patient and continued to teach, explain and guide with his soothing voice and confident but down-to-earth demeanour. He walked me through the dissection of the aneurysm and the clipping. Then he said, "Now that the aneurysm is clipped, take micro-scissors and open the dome so we can send a sample" I told him I did not think that would be necessary. He turned his head away from the microscope and looked at me with a big smile in his eyes, "Are you scared?" and of course I was!

Then he continued, "You do not need to be, you have done a good job, it is secured, take micro-scissors and open it." I dared to open the dome, and I did. We sent it to pathology. We finished the surgery and it went well.

What I felt in that encounter and afterward, and what many others have felt in their encounters with Dr. Gentili, is a common Gentili experience: he teaches skill and he teaches confidence in a delicate balance that eludes so many. It's a talent I want to perfect and teach our trainees and residents every day on our wards and in our operating rooms.

Last month, we lost Dr. Gentili. He passed away from a disease he always tried to fight, glioblastoma. He will be greatly missed by his patients and his trainees. His voice and comments during Wednesday morning rounds at Toronto Western Hospital may not be heard again. However, his legacy will endure through generations of residents and fellows he trained, and he will continue to teach and help patients even after he is no longer with us.

My sincere condolences to his wife Gina, his family, his patients, his trainees, and to all of us, neurosurgeons everywhere.

Rest in peace, Fred Gentili.

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CONGRATULATIONS TO GRADUATING RESIDENTS

Congratulations to our recently graduating residents on successful completion of residency training in Saudi Board of Clinical Neurosurgery Training Program.

We wish them the best as they enter into the next phase of their careers.

Dr. Abdulaziz Khaled AlZailaie

Dr. Abdulraheem Muhammad Alomari

Dr. Asma Abdullah Alebrahim

Dr. Hanan Naif AlJohani

Dr. Hashem Taher Alsalman

Dr. Khalid Saleh Altuhayni

Dr. Meshari Rashed Alhuthayl

Dr. Mohammad Bander Albadeen

Dr. Faris Abdullah Alebdi

Dr. Fahad Saud Alotaibi

SCIENTIFIC ACTIVITIES

SANS ACADEMY: THE 3RD ADVANCED ENDOSCOPIC SKULL BASE DISSECTION WORKSHOP

October16-17, 2021

Advanced Endoscopic Skull-Base Dissection Workshop for the 3rd year in its current format was held on October 16-17, 2021 at the Simulation Center and Animal Laboratory of the College of Medicine, King Saud University.

A great collaboration between 15 skull base neurosurgeons and 17 ENT physicians over two days.

The course included an interactive anatomical dissection demonstration using an endoscope, 8 fresh anatomical dissection stations, lectures and panel discussions.

A 26 participants had the opportunity to improve their knowledge and skills in standard and advanced endoscopic approaches for the median and paramedian skull base.

This Workshop was held under the umbrella of the Saudi Association of Neurological Surgery.
16 CME hours were accredited by the Saudi Commission for Health Specialities.

SCIENTIFIC ACTIVITIES

SANS ACADEMY: THE 3RD ADVANCED OPEN SKULL-BASE DISSECTION WORKSHOP

October16-17, 2021

The Advanced Open Skull-Base Dissection Workshop for the 3rd year in its current format was held on November 27-28, 2021 at the Center for Research, Education & Simulation Enhanced Training (CRESENT) in King Fahad Medical City.

A great collaboration between 21 skull base neurosurgeons over two days. The course included an interactive anatomical dissection for demonstration, 8 stations for dissection of new anatomical specimens, lectures and panel discussions. A 22 participants had the opportunity to expand their knowledge and skills related to open skull base approaches and surgical anatomy.

The 3rd Advanced Open Skull-Base Dissection Workshop was held under the umbrella of the Saudi Association of Neurological Surgery.
16 CME hours were accredited by the Saudi Commission For Health Specialities.

JUST DRILL IT

SCIENTIFIC ACTIVITIES

4Th Prof. Khalaf Al Moutaery Neurosurgery Skills Day

By Dr. Sabah Al-Rashed
Consultant Neurosurgeon
Prince Sultan Military Medical City
Riyadh

October, 2021

It was my great pleasure to organise another excellent course of "Just Drill it!" at Prince Sultan Military Medical City (PSMMC) in mid-October 2021.

The opening ceremony was held in the presence of the CEO Major General Dr. Saud Al Shlash, and trophies were distributed to the speakers and organisers. For the first time, we introduced "The Neurosurgery Lifetime Achievement" award, which was given to Dr. Maher Al Hejji for his great contribution to the department of neurosurgery during all the past years. The day was divided into a theoretical part, where the speakers educated the residents with unique lectures, and a practical part, followed by hands-on exercises. The practical part was based on ROWENA (Realistic Operative Workstation for Educating Neurosurgical Apprentices) models. Each model consists of a molded plastic base with a realistic internal skull anatomy to which an interchangeable upper cranium with scalp, bones.

and dural layers is attached. Inside the skull is a brain with ventricles containing simulated cerebrospinal fluid. ROWENA can be used to simulate the entire neurosurgical procedure for a variety of basic surgical approaches. The purpose of this course is solely to train young neurosurgeons with hands-on experience.

Two other stations were used for endoscopy and performance of endoscopic third ventriculostomy. A total of 20 residents were in attendance. The day concluded with a gala dinner, and we hope to involve more residents in the future to get the maximum benefit from learning basic neurosurgical techniques.

SCIENTIFIC ACTIVITIES

11TH SPINE UPDATE

The 11th Spine Update Cadaver Workshop and Case Forum was held on the 16th and 17th of December 2021, in Riyadh, Saudi Arabia. This event is a continuation of successful previous conferences and workshops (the Spine Update) and part of an ongoing collaboration between the Saudi Spine Society (SSS) and the Saudi Association of Neurological Surgery (SANS).

The first day of the event was dedicated to hands-on spine surgery workshop which was held at the Experimental Surgery & Animal Laboratory, College of Medicine, King Saud University. The workshop started with introductory presentations on spine approaches. Specially for this year, two stations were dedicated to endoscopic spine procedures. Fifty-six orthopaedic surgeons and neurosurgeons participated in the workshop.

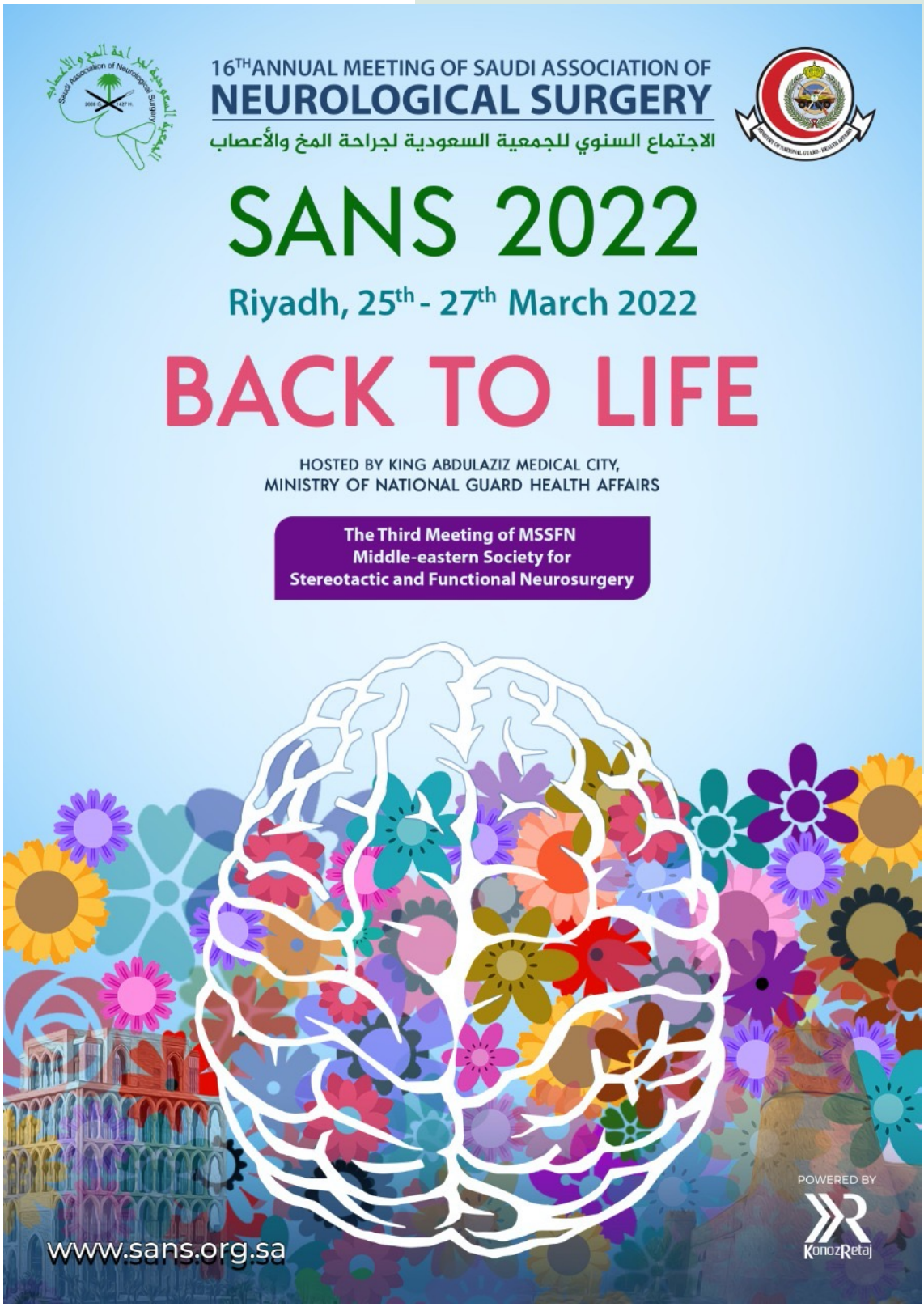
The second day of the event was dedicated to a case forum under the theme of "Challenges in the Surgical Management of Spine Disease" which was held at the Crowne Plaza Riyadh RDC & Hotel. The case forum began with a welcome address by the event chair, Dr. Abdulkarim Al-Rabie. The case forum featured interactive case discussions that included various spine pathologies and surgical management challenges.

The event was led by a number of renowned experts in the field from various institutions national wide.

At the end of the event, the chairmen of the event, led by Dr. Abdulkarim Al-Rabie, thanked all attendees for their attendance and all those who contributed to the success of the Spine Update.

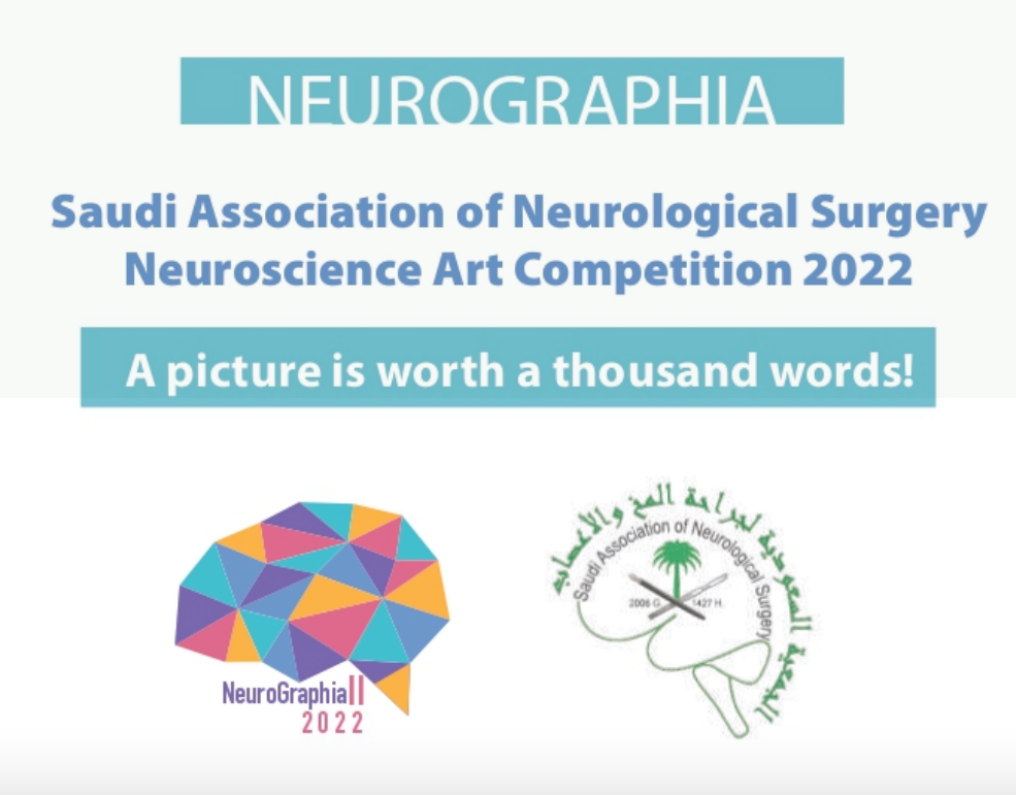
The two-day event was accredited by the Saudi Commission for Health Specialties (SCFHS).

SANS UPCOMING EVENTS



REGISTRATION

ART COMPETITION



NeuroGraphia with the Saudi Association of Neurological Surgery presents Neuroscience Art Competition that would take place at the 16th Annual Meeting of the Saudi Association of Neurological Surgery in March 2022.

This competition is aiming toward creating illustrations that help portray, demonstrate and deliver neurosurgical sciences in the best way possible.

The illustrations are expected to address any area that is involved with neurosurgery including any topic from the basic sciences, histology, anatomy, physiology, as well as clinical, functional and endovascular, microsurgical anatomy and surgical approaches in addition to any new idea that helps neurosurgeons have a better understanding towards topics that would help them be better at what they do.

CLICK HERE

2022 SANS RESEARCH GRANTS

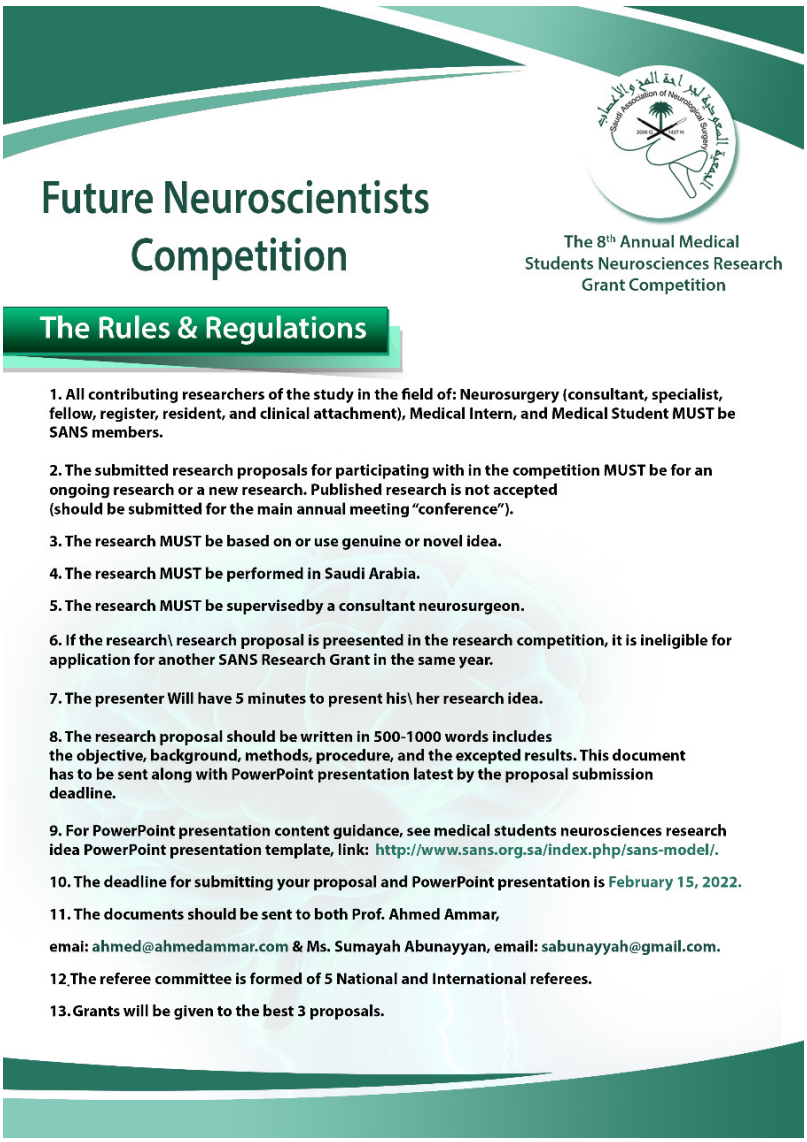
- SANS 50,000 Riyal Research Grant for Multi-Centre Trials
- SANS 20,000 Riyal Research Grant

Proposal Submission Deadline is **February 20th, 2022**

All submissions should be sent to Ms. Sumayah Abunayyan via email : **sumayah.abunayyan@sans.org.sa**

Neurosciences RESEARCH GRANTS Competition

The 8th Annual Medical Students Neurosciences Research Grant Competition



Submission Deadline is **February 15th, 2022** All submissions should be sent via email to:

Professor Ahmed Ammar: **ahmed@ahmedammar.com**

Ms. Sumayah Abunayyan: **sabunayyah@gmail.com**

UPCOMING EVENTS

March
13-18
2022
Learn more

XVII WFNS World Congress of Neurosurgery
Bogota, Colombia

October
08-12
2022
Learn more

The 2022 CNS Annual Meeting
San Francisco, California

NEWSLETTER
Volume 3
Issue 1
SANS
Saudi Arabia

For more information ,you can reach us at:

SANS.newsletter@sans.org.sa

http://www.sans.org.sa

Let's help you to make a difference in the neurological surgery field, whatever your interest, you can help further our mission by supporting our newsletter in submitting articles and reviewing research. We always strive to make our newsletter more than just a newsletter by being informative and using them to serve the field of Neurological Surgery. We are always open to any ideas that will help us