## SANS NEWSLETTER



ISSUE 1 FEBRUARY, 2020

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The purpose of SANS
newsletter is to provide
specialized information to the
medical audience, and share
pulses of neurosurgical
knowledge

#### Letter from the Editor-in-Chief

## To all my dear colleagues and friends,



I am delighted to invite you to SANS Newsletter. The broad aim of this newsletter is to advance the science of neurological surgery and enhance patient's safety.

As Editor-in-Chief, I welcome manuscripts on the field of Neurological Surgery and related sciences. We can all share our ideas and visions to create the best practice for us all.

We are delighted that you are joining us as readers, and hope you will also join us as contributors.

#### DR. KHALID M. ALI SIDDIQUI

Consultant Neurosurgeon American Board and Fellow of Royal College of Canada for Neurosurgery John Hopkins Aramco Healthcare Dhahran, Kingdom of Saudi Arabia

#### **STAFF**

#### Khalid Siddiqui, MD

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Yaser Babgi,MD Co-Editor

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Sumayah Abunayyan SANS Administrator

Asma Al Juhani Health Education Specialist

**Dana Al Thukair** Graphic Designer

#### **OUR STORY**

n the mid-eighties of the last century, there was such a tiny number of Saudi neurosurgeons. However, This number jumped to some thirty surgeons in the various regions of the Kingdom. Due to this increase, the prevailing belief was that Saudi neurosurgeons need to join together, seek fulfilment of common needs and compare results to improve the neurological surgery outcomes. The absence of a clear regulation in the Kingdom that governs the establishment of scientific societies alongside with the small number of Saudi doctors working in the field of neuroscience were the main obstacles to establish such a scientific society. However, the year of 2000/1421 was the transformational year which witnessed the momentous birth of rules governing the formation of Scientific Societies in Saudi Universities. King Saud University in Riyadh was the perfect spot because the majority of the Saudi neurosurgeons were in that region. The approval to establish the Saudi Association of Neurological Surgery was granted in 1427H (2007). The main office for the association is located in the Faculty of Medicine at King Saud University in Riyadh.

The main office for the association is located in the Faculty of Medicine at King Saud University in Riyadh.

The first annual meeting of the Saudi Association of Neurological Surgery was held at Marriott Hotel, Riyadh on 19th April ,2007.

69 neurosurgeons and others working in the field of neurosurgery registered as :

- Full members (52)
- Associate members (17)

#### **EXECUTIVE BOARD**

The **Executive Board** Consists of nine staff members who are selected by secret ballot by the General Assembly over a period of 3 years.

#### The Executive Board is responsible for the following:

- 1. Proposal of the Association's budget
- 2. Preparation of the agenda of the General Assembly meetings.
- Proposing the general policy of the Association within the framework of the objectives stated in these rules, and presenting them to the General Assembly for approval.
- 4. Proposing the internal rules of the Association and the organization of its work.
- 5. Formation of committees and specialized groups to carry out Association functions and activities.
- 6. Preparing the annual report about the Association's activity and submitting it to the relevant councils in the university after its approval by the General Assembly.
- 7. Determining the annual fee of the members
- 8. Approval of holding of conferences, courses and seminars in accordance with the relevant regulations adopted by the universities.

The General assembly is composed of the active (full) members. It holds a regular meeting once a year at the invitation of Chairman of the Board.

Dr. Amro Al-Habib	<b>Dr. Abdulrazag Ajlan</b>	<b>Dr. Hosam Al Jehani</b>
President	Vice-President	Secretary General
<b>Dr. Ali Bin Salamah</b>	<b>Dr. Husam Al Habib</b>	<b>Dr. Ibrahim Al Naami</b>
Treasurer	Member	Member
<b>Dr. Khalid Siddiqui</b> Member	<b>Dr. Salah Al Akkad</b> Member	<b>Dr. Abdulwahed</b> <b>Barnawi</b> Member

#### COMMITTEES



SANS ACADEMY ( EDUCATIONAL COMMITTEE )

Dr. Husam Al Habib



RESEARCH AND PUBLIC EDUCATION COMMITTEE

Dr. Ibrahim Al Naami



**CLINICAL COMMITTEE** 

Dr. Abdulwahed Barnawi



**FUND RAISING COMMITTEE** 

Dr. Khalid Siddiqui

#### **Objectives of the Association**

- Development of scientific thought in the field of neurosurgery and working on its activation, dissemination and advancement.
- 2 To facilitate scientific and professional communication among members of the Association.
- 3 Advancement of scientific and professional performance of the association members.
- 4 Determining the standards specific for the practice of the profession of neurosurgery in the Kingdom and participating in monitoring its performance and maintaining its level.
- 5 Raising the level of health awareness in the community in the field of neurosurgery.

#### **FROM ARCHIVE**

#### **OUR FISRT EDITION OF SANS NEWSLETTER.2008**

### SANS NEWSLETTER



The SANS Board of Directors is supported by The first edition of SANS
NEWSLETTER was established
by Prof. Zain Alabedeen Jamjoom
in 2008. Prof. Abdulhakim
Jamjoom was the editor of the
published issue.
This newsletter aimed to
improve the communication
within the neurosurgical
community, and inform the
medical audience about SANS
activities. To further his mission,
we recreate the newsletter.

SANS NEWSLETTER
BY DR.ZAIN ALABEDEEN JAMJOOM
2008

#### **SANS HIGHLIGHTS**

**SANS** Annual Meetings are the largest neurosurgery meetings in the Middle East and the largest in the region. These meetings aim at enhancing the knowledge and expertise in order to provide a safe patient care.

## SANS Annual Meetings

2014

8th SANS Annual Meeting 600 Attendees Riyadh

2016

10th SANS Annual Meeting 1183 Attendees Riyadh

2018

12th SANS Annual Meeting 542 Attendees Jeddah 2015

9th SANS Annual Meeting 1062 Attendees Dammam

2017

11th SANS Annual Meeting 884 Attendees Riyadh

2019

13th SANS Annual Meeting 667 Attendees Dammam Educational Activities Conducted during the period of **2014-2019**:

Conferences / Symposiums	Workshops / Courses
TOTAL	TOTAL
(18)	(56)
PATRTICIPANTS	PATRTICIPANTS
(8814)	(883)

## WORKSHOPS / COURSES

2014 - 2018

YEAR	WORKSHOP   COURSE	CITY
2014	<ul> <li>Intracranial Pressure Monitoring (Hands on)</li> <li>Drilling Course (Hands on)</li> <li>Neuroendoscopy Workshop</li> <li>NeuroTouch Simulator Workshop</li> <li>Basic Skill for High Speed Drill</li> <li>4<sup>th</sup> Spine Update Cadaver Workshop</li> </ul>	Jeddah Riyadh
2015	<ul> <li>Endoscopic Skull Base Surgery (Lecture and hands On)</li> <li>Integrated Neurosolution O-Arm, Navigation and Intraoperative Monitoring</li> <li>Intraoperative Neurophysiological Monitoring (IONM)Workshop</li> <li>Prof. Zain Jamjoom Basic Neurosurgery Skills Course Cranial Approaches(Cadaveric Course)</li> <li>Peripheral Nerve Surgery Review Course (Cadaver Course)</li> <li>5th Spine Update Cadaver Workshop</li> </ul>	Dammam Riyadh
2016	<ul> <li>Skull Base Open &amp; Endoscopic (Cadaver Course)</li> <li>2nd Peripheral Nerve Anatomy&amp;Surgery review Course (Cadaver Course)</li> <li>Neuromodulation Workshop</li> <li>Intraoperative Neurophysiological Monitoring Workshop (IONM Workshop)</li> <li>Hydrocephalus Workshop</li> <li>Hands-On Spine Surgery Course</li> <li>2nd Cervical Spine Approaches Cadaveric Course</li> <li>6th Spine Update Cadaver Workshop</li> </ul>	Riyadh Abha









#### WORKSHOPS / COURSES 2014 - 2018

YEAR	WORKSHOP   COURSE	CITY
2017	<ul> <li>IONM Spine Workshop.</li> <li>7th Spine Update Cadaver Workshop in Collaboration with the 3rd Zain Jamjoom Neurosurgery Skill Course</li> <li>(NeuroLife) Neuro Critical Care Course</li> <li>Vascular and Endovascular Neurosurgery workshop</li> <li>Pediatrics Neurosurgery Review Course</li> <li>Neurological Examination Course</li> <li>Introduction to Research Workshop</li> <li>SANS Academy: Drilling Course</li> <li>SANS Academy: Navigation Course</li> </ul>	Riyadh Al Ahsa Al Khobar
2018	-(NeuroLife) Neuro Critical Care Course - Drilling Course In collaboration with Prof. Zain Jamjoom Neurosurgery Skills Course - Peripheral Nerve Workshop - Epilepsy Course - SANS Academy: 1st Neurosurgical Boot Camp - 8th Spine Update Cadaver Workshop - SANS Academy: Drilling Course - NeuroLife Spine Trauma Course - NeuroLife Spine Trauma Course - SANS Academy: Advanced Open Skull-Base Dissection Workshop - NeuroLife Workshop	Riyadh Abha Jeddah Al Khobar Hofuf Dubai











#### **HIGHLIGHTS OF 2019 ACTIVITIES**

MONTH	WORKSHOP   COURSE	CITY
JANUARY	NeuroLife: Neuro Critical Care Course	Tabuk
FEBURARY	<ul> <li>Just Drill It Course(Hands On)</li> <li>Advanced Endoscopic Skull-Base Dissection (Hands-On Cadaver Workshop)</li> </ul>	Riyadh
MARCH	<ul> <li>Student Neurological Boot Camp</li> <li>Saudi Neurosurgery Study Workshop</li> <li>NeuroLife: Neuro Critical Care Course</li> </ul>	Al-Khobar
APRIL	• Just Drill It Course(Hands On)	Riyadh
AUGUST	<ul><li>EDMS &amp; Shunts Course (Hands-On)</li><li>Neurosurgical Boot Camp</li></ul>	Al-Ahsa Al-Khobar
SEPTEMBER	Neurosurgical Boot Camp	Al-Khobar
OCTOBER	<ul> <li>Navigation Course (Hands-On)</li> <li>9th Spine Update Cadaver workshop</li> </ul>	Riyadh
NOVEMBER	<ul> <li>Advanced Open Skull-Base         Dissection Workshop (Hands-On</li></ul>	Riyadh Dammam









#### RESEARCH GRANT

Promote culture of research in Saudi Arabia that leads to increasing scientific interest if research and in increasing scientific publications.

- Promote research meetings and presentations across all medical levels.
- Support research ideas by providing the means to complete research projects.
- Encourage best research by providing tools to complete research and award best research.

#### SANS 50,000 Riyal **Research Grant for Multi-Center Trials**



- SANS will provide 50000 SR to support multi-Center trials that satisfy the criteria below. Only one Grant will be given per year.

  If more than one research is submitted, the research committee has the right to choose If more than one research is submittee, me research com-the winner based on:

  • Level of evidence of the study.

  • Ability to perform the research in Saudi Arabia.

  • Relevance to neurosurgery practice, particularly in Saudi Arabia.

  • Previously published research from the principle investigator.

  • The research committee may ask advise from a local or international expert if needed.

- The principle investigator has to be a neurosurgeon working in Saudi Arabia and a SANS member. All contributing Neurosurgeons, students, residents or specialists have to be SANS members.

- Neurosurgeons, students, residents or specialists have to be SANS members.

  A complete research grant proposal should be submitted to the society for full review before approving the funding. The multi-center that should include minimal of two centes in Saudi Arabia.

  The sample size should include minimum One hundred subjects.

  Institutional board approval from the center of the principal investigator (PI) should be provided prior to accepting the application.

- accepting the application.

  7. Payment schedule: to the PI after acceptance to fund the study.

  4. divis. will be given to the PI after acceptance to fund the study.

  4. divis. will be given to the PI after six months of the start of the project based on a report submitted to SANS research committee that is satisfactor yregarding the propers of the study.

  5. Authors are submitted to the starting of the study of the s
- 10. The collaborating centers should at least include another center in Saudi Arabia and may include centers from outside Saudi Arabia.
- 11. SANS will also tolerate the cost of sending the study for language and grammar review before final submission for publication.
- 12. An intuning win or given to are 7 rolly.

  3. The principal investigator should submit a report to SANS research committee in case of failing to finish the study within the proposed timeline. The report should be submitted within six months of proposed study completion. Failure to submit such report would give SANS research committee the rights to stop funding the study and ask for refund of the amount given.
- The principal investigator has to submit a report to SANS research committee in case of failure to finish the study. A partial or full refund could be requested from the principal investigator based on the assessment of SANS research committee.
- study. A partial or full refund could be requested from the principal investigator based on the assessment of SAKS research committee.

  15. Failure to satisfy above committee.

  15. Failure to satisfy above committee and the study of the study of the study or ask the principal investigator for returning the money to the society. This should be based on the research committee decision.

  16. The research committee has the right to terminate the grant if it felt the research will not continue or there is a breach to either or research principal, deviation from the planned research protocol, or there is disagreement between the researches insolved in the study.

  17. The research has to be done of Sacial Anaba.

#### SANS 20,000 Riyal **Research Grant**



- SANS will provide 20000 SR to support a trial that satisfy the criteria below. Only one Grant will be given per year. If more than one research is submitted, the research committee has the right to choose

- Indication and the control of the co

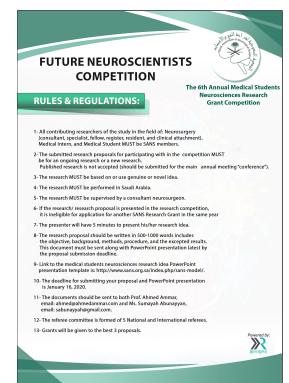
#### POLICY AND PROCEDURES

- The principle investigator has to be a neurosurgeon working in Saudi Arabia and a SANS member. All contributing Neurosurgeons, students, residents or specialists have to be SANS members.
   A complete research grant proposal should be submitted to the society for full review before approving the

- funding.
  The research could be multicenter trial, which should include minimal of two centers in Saudi Arabia.
  Should not Include review articles.
  Institutional board approval from the center of the principal investigator (PI) should be provided prior to accepting the application.

- 6. Payment schedule:
  40%: will be given to the PI after acceptance to fund the study.
  40%: will be given to the PI after acceptance to fund the study.
  40%: will be given to the PI after six months of the start of the project based on a report submitted to SANS research committee that is staffactory regarding the progress of the study.
  20%: will be given upon submission of the final manuscript to the research committee with the scale and submitted of the study of t

- 9. SAMS will also tolerate the cost of sending the study for language and grammar review before final submission for publication.
  10. All funding will be given to the PF only.
  11. The principal investigator should submit a report to SAMS research committee in case of failing to finish the study within the proposed timeline. The report should be submitted within six months of proposed study completion. Failure to submit such person visuality and sak for refund of the amount given.
  11. The principal investigator has to submit a report to SAMS research committee the rights to story brunding the study and ask for refund of the amount given.
  12. The principal investigator has to admit a report to SAMS research committee in case of failure to finish the study of the sense of SAMS research committee.
  15. Failure to saltify above terms give the right to the society to deey funding the study or ask the principal investigator for returning the money to the society. This should be based on the research committee decision.
  16. The research committee ask the right to terminate the grant if if elit the research will not continue or there is a breach to ethics or research principles, deviation from the planned research protocol, or there is disagreement between the research will not continue to the trudy.
  15. The research has to be done on Saudi Arabia.



#### RESEARCH GRANT WINNER

#### **Research Grant for Multi-Centre Trails**

This research grant was established in **2019**. There is only one Grant will be given per year. If more than one research is submitted, the research committee has the right to choose the winner based on: level of evidence of the study, ability to perform the research in Saudi Arabia, and relevance to neurosurgery practice, particularly in Saudi Arabia

#### **WINNER OF 2019**



**Dr. Abdulrazag Ajlan and his group** were the winner of SANS 50,000 Riyal
Research Grant for MultiCentre Trails.



**S**ANS Research Committee evaluated all the proposals according to specific criteria. The committee members were professor Ahmed Ammar, professor Zain Jamjoom, professor Abdulhakim Jamjoom, and professor Saleh Baeesa. The evaluation process was blinded, where the names of applicants and centres were removed, before the proposals sent to the members. Each evaluator did evaluation separately based on four items, and then the total points were considered



TOPIC:The Effectiveness of Preoperative Antiseptic Preparation in Transnasal Skull Base Surgery: A Randomized Three Arm Controlled Trial

#### **RESEARCH GRANT WINNER**

#### **Research Grant for Medical Students Neuroscience Competition**

1st
winner





2015	Urinary Incontinence Valve	Decreasing Mortality Rate from RTA by Simple Diagnostic Tools	The Neurodevelopmental and Mental Health Outcomes of Different Ovulation Induction Methods in Infertility Therapy
2016	Spinal Cord Pulsation and Changes in Central Hemodynamics	Photic Memory	In Utero Endoscopic Stenting in Patients with Aqueductal Stenosis
2017	Direct Assessment of Spinal Cord Blood Flow Using Laser Doppler Technology	Diffuse Axonal Injury Device; Accurate Diagnosis and Early Management	Correlation of Diffusion Tensor Imaging Parameters with Long- Term Neuropsychological Impairment in Mild Traumatic Brain Injury
2018	The utility of implementing apparent diffusion coefficient values to distinguish types of pediatric brain tumor: A retrospective cohort study from Saudi Arabia	Practice Pattern of Routine Preoperative Osteoporosis Screening Among Spine Surgeons in Saudi Arabia	The epidemiology of traumatic brain injury in Madinah, Saudi Arabia
2019	The Pattern of Cervical Spine Injuries in Adults in Saudi Arabia	Correlation Between Neurotransmitters Level in Cerebrospinal Fluid In Patients after Posterior Fossa Tumors Operation and Development of Cerebellar Mutism	Implementation of Serum Micro-RNA Expression in the Detection and Management of Meningiomas

The 2nd competition (2016)

All participants= 11
Female participants= 7
Male participants= 4

Male participants= 9

The 3rd competition (2017)
All participants= 16
Female participants= 7

The 4th competition (2018)

All participants= 9
Female participants= 7
Male participants= 2

The 5th competition (2019)
All participants= 19
Female participants= 10
Male participants= 9

#### AWARD MEDAL

SANS Award Medal was established as a way to recognise excellence in Neurological Surgery field within our association.



#### **SANS MEDAL**

**SANS** Medal is the highest honourable medal. It is given each year to a neurosurgeon who fulfils these criteria:

- Worked in Saudi Arabia for at least 20 years.
- Has or had direct input and contribution to the development of neurosurgery in Saudi Arabia.
- Shared in training programs.
- He/she should have genuine research.
- He/ she should have represented the Kingdom in regional and international scientific venues.



Dr. Mahmoud Al Yamany **2019** 



Prof. Abdulhakim Jamjoom **2018** 



Prof. Imad N. Kanaan **2017** 



Prof. Khalaf Al-Mouteary **2016** 



Prof.Maher Hassounah **2016** 



Prof.Ahmed Ammar 2015



Prof.Zain Jamjoom **2015** 

#### SANS INTERNATIONAL MEDAL

**SANS International medal** is an honourable recognition medal. It is given to an International neurosurgeon figure only when there is a candidate who fulfils these criteria:

- Contributed directly or indirectly to the development of Neurosurgery in Saudi Arabia.
- Have significant international contributions in the field of Neurosurgery.
- He / she is welling to start or enhance the collaboration with SANS in different fields.



Prof. Franco Servadei **2019** 



Prof. Brien Benoit 2018



Dr. James Rutka **2017** 

#### **PUBLIC EDUCATION**

Public education serves the following purposes:

- Enable people to identify their health problems and prevent diseases.
- Raise the level of awareness about neurological issues among all segments of society.
- Help people to adopt positive attitudes towards their wellbeing.

#### **PUBLIC AWARENESS CAMPAIGN**

Through different public campaigns, **SANS** aims to:

- build public recognition of various neurological problems
- boost public awareness about these health problems.



"Because Grey Matters" was held in Tabuk (AlMakan Mall) in May, 2019.

This Campaign aimed to raise awareness of brain tumours by equipping the public with information they need about the causes ,symptoms, diagnoses and the current treatments .This was achieved through the simulation of brain tumours symptoms with the public audience.





#### **Electronic Campaign**

**SANS** designs Electronic Campaign to cover brain and neurones issues. These campaigns aim to educate public and raise awareness about neurological issues. One of the highlight campaigns in 2019 was about brain tumours. Our brain tumours campaign seeks to increase the awareness about this issue among society for better patient safety. The content was mainly about the nature of brain tumours and how to signal their symptoms for better treatments. In addition, five accessible treatments were explained. Through this campaign, people could grasp the information in a very concise way.

#### **ARTICLES**

**SANS** publishes articles that address various issues related to neurosurgery. They provide up-to-date information on a wide variety of topics. These topics cover some of the following:

Brain Tumours Head Injuries Deep Brain Stimulation

#### CLINICAL CHALLENGE: FOR RESIDENTS

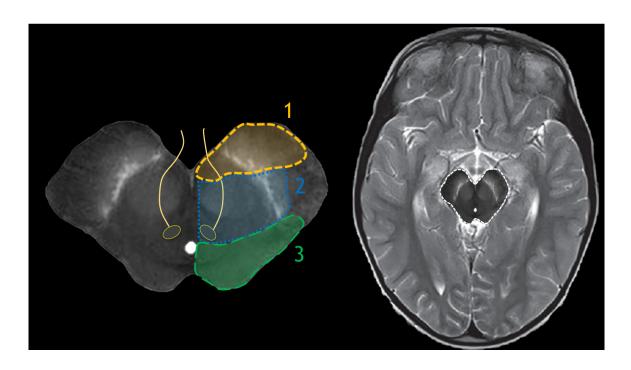
By: Dr. Mohammed Bafaqeeh

During physical examination of post operative 60 years old male you found him to be awake (GCS 15/15), however, has a right eye "down and out" associated with dilation and a unresponsive pupil and hemiparesis of the left side of the body including the lower 2/3 of the face.

## Which one of the following is correct regarding the localization and clinical syndrome related to this exam?

(please see figure)

- A. The clinical syndrome is Parinaud's syndrome and the affected area is 3.
- B. The clinical syndrome is Weber's syndrome due to infarction of the penetrating branches of the posterior cerebral artery at area 2.
- C. The clinical syndrome is Weber's syndrome due to infarction of the penetrating branches of the posterior cerebral artery at area 1.
- D. The clinical syndrome is Benedikt's syndrome due to infarction of the penetrating branches of the posterior cerebral artery at area 1.
- E. The finding is related to cerebromedullospinal disconnection syndrome and is caused by infarction of the basilar artery branch.



## The Saudi Board Clinical Neurosurgery Training Programme for Residents

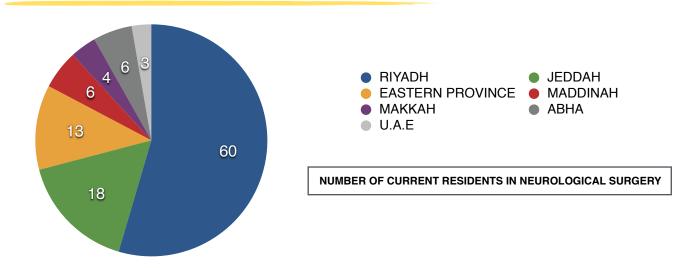


TABLE 1: DISTRIBUTION OF CURRENT RESIDENTS BY TRAINING CENTRES

Training Centre	Total Number of Residents
King Fahad Medical City	18
King Abdulaziz Medical City-RUH	7
King Abdulaziz Medical City-JED	5
King Saud Medical City	5
Prince Sultan Military Medical City	8
King Faisal Specialist Hospital & Research Centre-RUH	14
King Faisal Specialist Hospital & Research Centre-JED	4
King Abdulaziz University Hospital-JED	5
King Fahad Hospital -JED	4
King Fahad Hospital-MED	6
King Khalid Hospital	8
Al Noor Specialist Hospital	4
Asir Central Hospital	6
Rashid Hospital-DUBAI	3
Joint Residency Programme in Neurological Surgery (Eastern Province)	13
TOTAL	110

#### CONGRATULATIONS TO GRADUATING RESIDENTS

**Congratulations** to our recently graduating residents on successful completion of residency training in Neurosurgery. We wish them the best as they enter into the next phase of their careers.

Albaraa Al Fuddail Laila Batarfi

Ashwag Al Qurashi Mariam Al Shaibani

Haitham Al Nemri Sami Al Malki

Ibrahim Al Halal Yaser Babgi

#### **EMPLOYEE RECOGNITION**

# 8'S

#### SUMAYAH ABUNAYYAN Administrator



SANS newsletter and many other SANS activities would not been possible without the hard work of many individuals. One person in particular we would like to thank is Ms.Sumayah Abunayyan; for an exemplary hard work and dedication over the years. Since she joined SANS in 2014, she has spared no moment in promoting the society and help SANS members achieve their goals. Her work ethic speaks for itself. She has never wavered in her commitment to excellence. We are fortunate to have such a sincere and hard working individual like Sumayyah; leading the administrative duties on our society.



# THANK YOU

#### **CLINICAL CHALLENGE: THE ANSWER**

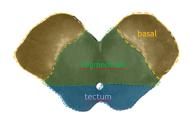
#### The correct answer is c.

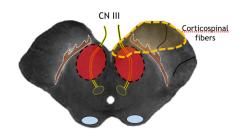
The clinical syndrome is Weber's syndrome due to infarction of the penetrating branches of the posterior cerebral artery at area 1.

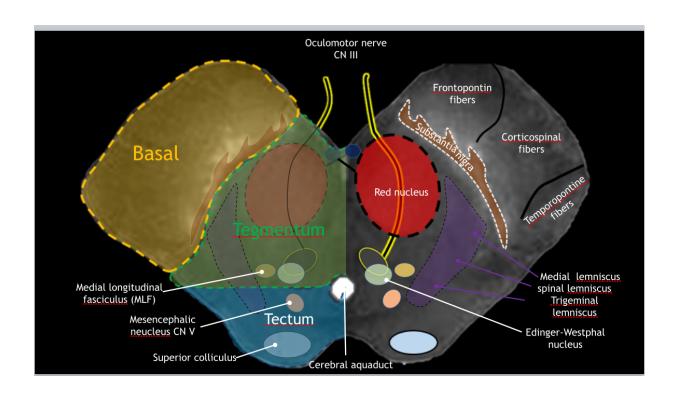
Explanation: Medial midbrain syndrome (basal part of the midbrain), also known as Weber's syndrome, typically related to infarction of the penetrating branches of the posterior cerebral artery (PCA) which supply the anteromedial portion of the midbrain that involve and results in ipsilateral CN III oculomotor nerve palsy, Contralateral corticobulbar tract (face weakness) and contralateral corticospinal fiber weakness (arm and leg)

**Category:** Functional neuroanatomy. **Level of difficultly:** Postgraduate year 2.

**Reference**: Cormier PJ, Long ER, Russell EJ. MR imaging of posterior fossa infarctions: vascular territories and clinical correlates. Radiographics. 1992;12 (6): 1079-96.







#### **2020 EVENTS**

#### The 14th SANS Conference

27th February - 1st March

This year our SANS 2020 comes with the collaboration with Prince Sultan Military Medical City. The 2020 Pre-Conference Workshops are scheduled for February 27 & 28, 2020.

Pre-Conference Workshop 1 (27 FEB)
JUST DRILL IT

Prince Sultan Military Medical City

Pre-Conference Workshop 2 (27 FEB) BED SIDE APPROACH

HILTON, Hotel & Resorts Riyadh

Pre-Conference Workshop 3 (28 FEB)
SAUDI NEUROSURGERY STUDY WORKSHOP

HILTON, Hotel & Resorts

Pre-Conference Workshop 4 (28 FEB)
STUDENTS NEUROSURGICAL BOOT CAMP
HILTON, Hotel & Resorts

#### **Up Coming Courses**

For further information, please visit our website.

NeuroLife Course (March) Neurocritical Care Course Qasim

SANS Academy (April)
Drilling Course
Riyadh

Fundamental Neurosciences Review Course (April 1-5) Riyadh

NeuroLife Course (July) Neurocritical Care Course Egypt

NeuroLife Course (August) Neurocritical Care Course Jeddah

SANS Academy (August 29-31) 3rd Neurosurgical Boot Camp Al Khobar

SANS Academy (September)
Drilling Course
Jeddah

10th Spine Update (September)
Riyadh

SANS Academy (October) EDMS & Shunts Course Al Ahsa

NeuroLife Course (December) Neurocritical Care Course Jeddah

Advanced Pediatric
Neurosurgery Course (December)
Al Ahsa

SANS Academy (TBD)
Advanced Skull Base Dissection
Workshop.

SANS Academy (TBD) Navigation Course.

#### **CONTACT INFORMATION**

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 newsletters more than just newsletters by being informative and using them to serve the field of Neurological Surgery. Having said that, we are always open to any ideas that will help us improve our newsletter.

For more information, you can reach us at:





