NEUROSURGERY ADVANCEMENTS

ENHANCING NEUROSURGICAL MANAGEMENT:

THE IMPACT OF INTERNATIONAL TRAINING ON GUINEANS DOCTORS EXPERTISE AND PRACTICES

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ABSTRACT:

A group of four Guineans doctors, including the author, received a scholarship from the World Federation of Neurosurgical society (WFNS) under the direction of Professor Samii, as part of the "Africa 100" project. This training facilitated their participation in specialized training programs in Algeria, aimed at enhancing their capabilities in patient care. These training opportunities provided access to advanced medical technologies and modern surgical techniques that are often unavailable in Guinea. Furthermore, the training centers promoted the exchange of knowledge between Guinean doctors and international experts, enabling the sharing of best practices in neurosurgical management. The training in Algeria were pivotal in developing the technical skills, complex case management abilities, and rapid decision-making crucial for handling emergencies among the participating Guinean neurosurgeons. The international expertise gained through these experiences is expected to significantly improve the quality of care provided to patients in Guinea by enabling the adaptation of care protocols to local conditions while integrating international standards. Additionally, participating in these fellowship programs abroad allowed the Guinean doctors to establish professional networks with colleagues from other countries, providing access to valuable resources, research collaborations, and expert advice for managing complex cases. Upon returning to Guinea, these neurosurgeons can share their newly acquired knowledge and skills with their peers, thereby contributing to the overall enhancement of neurosurgical practices at a national level.

Keywords: *Guineans doctors, international training, Algeria, World Federation of Neurosurgical society, Africa*

INTRODUCTION:

Neurosurgical care in low- and middle-income countries (LMICs) like Guinea faces significant challenges, including limited access to specialized training, equipment, and resources. These limitations result in suboptimal outcomes for patients requiring neurosurgical intervention. However, international training programs for neurosurgeons offer opportunities to bridge this gap by enhancing the knowledge, skills, and practices of local professionals. International collaborations between institutions in high-income countries and Guinean neurosurgical teams have proven vital in addressing critical needs in neurosurgical education. These programs provide Guinean medical student with hands-on experience, exposure to advanced medical technologies, and knowledge of the latest global standards in neurosurgical care. This partnership has the potential to not only improve individual competency but also transform local medical practices and healthcare systems.

This study aims to explore how international training impacts the expertise of Guinean doctors and influences their approach to neurosurgical management. By understanding these effects, we can assess the sustainability and long-term benefits of such programs in improving neurosurgical care in resource-constrained settings. Four Guineans medical students, including the author, received a scholarship under the direction of Professor Samie as part of the "Africa 100" project.

A committee for Africa100 with outstanding and geographically located neurosurgeons has been founded as following: Professor Abdeslam El Khamlichi from Morocco, Professor Gilbert Dechambenoit from Ivory Coast, Professor Kazadi Kalangu from Zimbabwe, Dr.
Raji Mahmud from Nigeria, Dr. Mahmood Qureshi from Kenya, and later, Professor Abderrahman Sidi Said from Algeria, Professor Graham Fieggen from Cape Town / South Africa.As secretary of this committee, Dr. Mahmoud Qureshi has in agreement with all other.
members designed application guidelines for the candidates and announced the project across African countries. [3]

The profound activities have started, and the reference centers for his education have been extended every year: Morocco (Fez,
Casablanca, Marrakech), Algeria, Egypt (Cairo), Senegal (Dakar), Nairobi and, China. In the meantime, many candidates have been fully educated, and another number of candidates are still in education in different years. All the candidates are coming from following countries: Democratic Republic of Congo, **Guinea Conakry**, Cameroon, Malawi, Niger, Benin, Tanzania, Mauritania, Chad, and Burundi. [3]

The scholarship involved participation in specialized training programs focused on modern surgical techniques and advanced medical technologies. The study assesses the outcomes of this training through qualitative and quantitative measures, including participant feedback, skill acquisition, and the integration of new practices into their professional routines.

Neurosurgery Training Centers in Algeria:

These hospitals are equipped with advanced surgical theaters, making them important hubs for resident education and practice.

1- Mustapha Pacha University Hospital.
2- Zemerli University Hospital.
3-Babe El Oued University Hospital.
4-Ait Idir University Hospital.
5- Sidi khilass University Hospital.
6- Military Hospital Ain Naadja

Figure 1: Operating Room practice

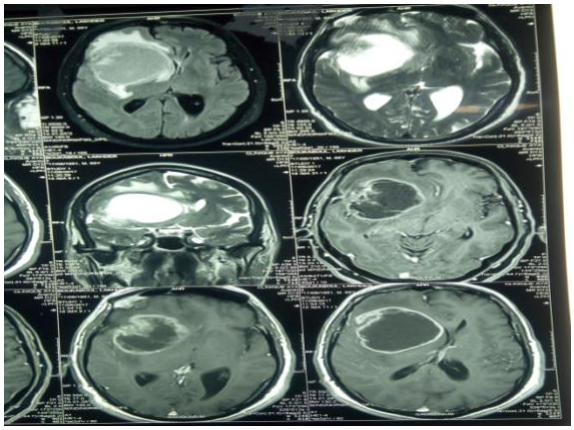


Figure 2: Neuroimaging

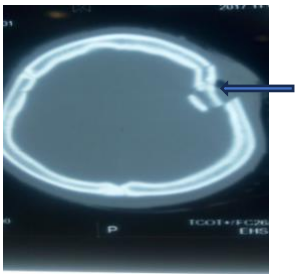


Figure 3: Depressed skul fractur.

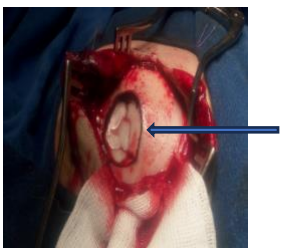
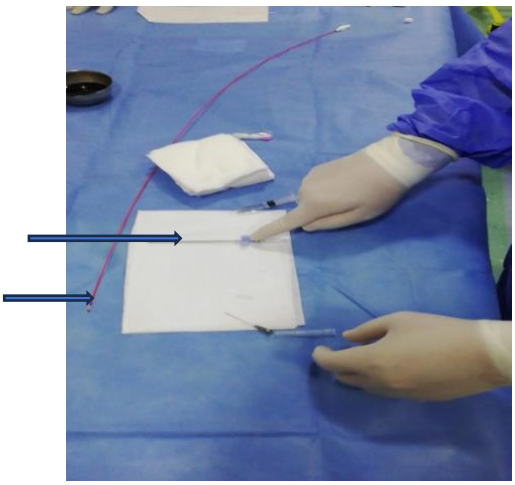


Figure 4: intraoperative image showing depressed skul fractur

Figure 5: cervical spine trauma

Figure 6: post-operative control Xray



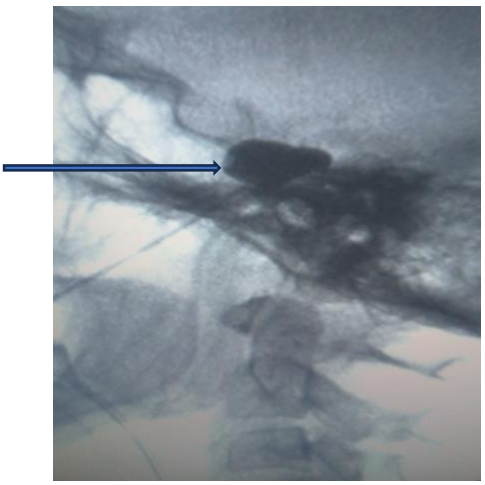


Figure 7: Balloon compression for trigeminal neuralgia
Lateral view X-rays revealing the thin silicone catheter and the ideal pear shape of the ballon

Figure 8: Microsurgery training

Figure 9: Author graduation day in neurosurgery at Algiers University

HISTORICAL BACKGROUND OF NEUROSURGERY IN GUINEA

Before 1996, neurosurgical pathologies in Guinea were evaluated and handled by physicians in Republic of Côte d'Ivoire (Ivory Coast). Throughout the period preceding the neurosurgical era, surgeries were limited to simple Neurosurgical procedures such as debridement for head trauma performed by general surgeons and trauma surgeons. Initial efforts were performed by Dr. Keita Mamady V, who founded pediatric surgery in Conakry in the 1990's, and managed pediatric cases of spina bifida and hydrocephalus without formal neurosurgical training. **[1)**

All in the midst of surgical evolution in Guinea, two natives from Guinea were in Russia from November of 1988 until May of 1996, obtaining their training in neurosurgery. The first of them to return from Russia would be Dr. Kezely Beavogui in 1996. Ignace Deen National Hospital in Conakry, Guinea became the first hospital to accommodate a neurological surgery service upon Dr. Kezely's arrival. **[1)**

Figure 10: ***First neurosurgeon in Guinea Professor Kezely***

IMPACTS OF NEUROSURGICAL TRAINING IN GUINEA:

Increased Neurosurgical Expertise

Skill Development: International training provides Guinean neurosurgeons with the opportunity to develop advanced surgical skills that are difficult to acquire locally due to a lack of exposure to complex neurosurgical cases or modern technologies. Training in countries with better-resourced healthcare systems allows surgeons to master intricate procedures like craniotomies, tumor resections, and spinal surgeries **(1).** Neurosurgeons who have received international training are often exposed to cutting-edge techniques and equipment that are not available locally, which enhances their ability to perform a wider range of procedures and improve surgical outcomes.

Specialization: Neurosurgeons in Guinea often work across a wide range of cases, but international training helps them gain expertise in specialized areas, such as pediatric neurosurgery, neuro-oncology, or vascular neurosurgery. This leads to better outcomes for specific patient populations. In particular, specialized training in countries with advanced healthcare systems has been shown to significantly improve the quality of care provided to patients in sub-Saharan Africa, particularly in countries with a shortage of skilled specialists **(2).**

Improved Patient Outcomes

Reduction in Complications: With improved skills and knowledge, neurosurgeons trained abroad are better equipped to manage complex surgeries with fewer complications. This directly improves patient survival rates and recovery times, especially for high-risk surgeries **(3).** The exposure to international standards of care and advanced techniques reduces the likelihood of surgical errors, making neurosurgery safer for patients in Guinea.

Enhanced Decision-Making: Exposure to international best practices and guidelines helps Guinean neurosurgeons make better clinical decisions regarding preoperative planning, surgical techniques, and postoperative care, leading to more favorable outcomes for patients. This improved decision-making is crucial for delivering high-quality care in a setting where access to resources may be limited. Studies suggest that access to international training enhances clinical decision-making by providing neurosurgeons with a broader perspective on how to manage complex cases **(4).**

Reduction of Medical Tourism

Local Access to Specialized Care: Before international training opportunities, many patients in Guinea had to seek neurosurgical care abroad, as the expertise and facilities for complex procedures were unavailable locally. The increase in well-trained neurosurgeons has allowed more patients to receive care within the country, reducing the need for expensive and logistically difficult medical travel. With more specialists available locally, the demand for medical tourism has decreased, benefiting both patients and the healthcare system.

Cost Reduction for Families and the Healthcare System: By retaining patients within the country, families are spared the financial burden of seeking care abroad, while the local healthcare system benefits from keeping those resources internal, improving the economy and healthcare delivery simultaneously. This shift has been crucial in improving access to neurosurgical care for the broader population, which was previously limited by both the availability of skilled surgeons and the financial means required for medical travel **(1,2).**

Figure 11 Donka National Hospital

Figure 12 and 13 Modern equipment in the operating room: endoscopy and amplifier.

CONCLUSION:

The impact of international neurosurgical training on Guinean doctor has been transformative for both individual surgeons and the healthcare system. By equipping neurosurgeons with advanced skills, enhancing local healthcare infrastructure, and fostering a culture of continual learning, international training programs have improved patient outcomes and raised the standard of neurosurgical care in Guinea.

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