Bugando Medical Centre

When you first arrive at Bugando Medical Centre, there is an inexplicable sense of urgency as her imposing concrete corridors rush in to surround you. In every hallway, every ward, men and women step with purpose to meet the incessant wave of patients that comes with a referral area of 13 million people. Here, the concrete walls keep them focused on the task at hand. We were delighted today to see this same purpose take hold of our team as we entered Bugando. Without saying a word, everyone from neurointensivists to ICU nutritionists, anesthesiologists and neurological surgeons found their place and was able to provide critical care, guidance, and training in some fashion.

The Weill Cornell Neurosurgery Program in Tanzania was started by Dr. Härtl in 2008. The program focuses on Bugando Hospital in northern Tanzania, a regional center that serves a population of 14 million people, and on the Muhimbili Orthopedic and Neurosurgery Institute in Dar es Salaam. The program consists of several components:

Dr. Härtl and his team train local surgeons to perform basic neurosurgical procedures using locally available equipment and resources. His team conducts “hands-on” training of doctors in Tanzania, empowering them with a high level of expertise in the management of neurosurgical disorders and neurosurgical procedures (Wait and Härtl 2010). Providing the highest level of surgical training to these eager, talented surgeons impacts every other level of care—nursing, anesthesia, intensive care treatment, general ward care. Setting the bar high encourages a positive response and team effort involving all areas (Härtl). Promising surgeons are selected for a short-term observational fellowship at Weill Cornell Medical College in New York. The purpose of this fellowship is to provide motivated surgeons the opportunity to experience high-level neurosurgical care firsthand. This also greatly facilitates the communication between the Weill Cornell team and the Tanzania surgeons once the surgeon has returned home.

Every year a neurosurgery meeting is organized with international faculty in East Africa that combines lectures, practical workshops, and even live surgeries (Kahamba 2011). Surgeons and nurses from many African countries participate. Regular conference calls and Skype conferences are held between the Weill Cornell team and their colleagues in Tanzania to discuss challenging cases and patient management.

A database and patient registry has been implemented that monitors surgical patient care and ensures quality (Winkler et al., 2010). The goal is to monitor outcomes of neurosurgical procedures in order to make decisions about the allocation of resources and the success of the current program.

In Tanzania, there is an estimated 1 neurosurgeon per 13,000,000 people; consequently, most healthcare facilities there lack adequate neurosurgical care. Neurological problems resulting from traumatic brain/spine injuries, hydrocephalus, and many birth defects can be reversed if treated early in the natural history of the event.

Neurosurgical diseases have been ignored by governmental and private health organizations in developing countries. However, increased global health awareness and collaborative academic training programs are building neurosurgical capability in these areas of the world.

The Weill Cornell Bugando Neurosurgical Program was established to foster collaboration between Bugando Hospital and the neurosurgical department at Weill Cornell Medical College. The Weill

Cornell Neurosurgery Program focuses on Bugando Hospital in northern Tanzania, a regional center which serves a population of 14 million. The program consists of several components: Dr. Härtl and his team, who train local surgeons to perform basic neurosurgical procedures using locally available equipment and resources. His team conducts hands-on training of doctors in Tanzania, empowering them with a high level of expertise in the management of neurosurgical disorders and neurosurgical procedures (Wait and Härtl 2010). Providing the highest level of surgical training to these eager, talented surgeons impacts every level of care – nursing, anesthesia, intensive care treatment, and general ward care. Promising Tanzanian surgeons, who are selected for a short-term observational fellowship at Weill Cornell Medical College in New York. The purpose of this fellowship is to provide motivated surgeons with the opportunity to experience first-hand high level neurosurgical care.

The fellows also greatly facilitate communication between the Cornell team and the Bugando surgeons once they return home. An annual neurosurgery meeting held in East Africa, at which international faculty present lectures and practical workshops, and even perform live surgeries (Kahamba 2011).

Surgeons and nurses from many African countries participate.

 Conference calls and Skype conferences between the Cornell team and their colleagues at Bugando, which present an opportunity to discuss challenging cases and patient management.

 A database implemented at Bugando to monitor surgical patient care and ensure quality. The data will be used to make decisions about the allocation of resources and the success of the current program. We are confident that these efforts will continue to improve patient outcomes, and hope that in time, they will serve as a model for other hospitals.

A shortage of neurosurgeons and a lack of knowledge of neuroendoscopic management of hydrocephalus limits modern care in sub-Saharan Africa. Hence, a mobile teaching project for endoscopic third ventriculostomy (ETV) procedures and a subsequent program to develop neurosurgery as a permanent specialty in Kenya and Zanzibar were created and sponsored by the Neurosurgery Education and Development Foundation (NED) and the Foundation for International Education in Neurological Surgery. The objective of this work was to evaluate the results of surgical training and medical care in both projects from 2006 to 2013.

Two portable neuroendoscopy systems were purchased and a total of 38 ETV workshops were organized in 21 hospitals in 7 different countries. Additionally, 49 medical expeditions were dispatched to the Coast General Hospital in Mombasa, Kenya, and to the Mnazi Mmoja Hospital in Zanzibar.

From the first project, a total of 376 infants with hydrocephalus received surgery. Six-month follow-up was achieved in 22%. In those who received follow-up, ETV efficacy was 51%. The best success rates were achieved with patients 1 year of age or older with aqueductal stenosis (73%). The main causes of hydrocephalus were infection (56%) and spina bifida (23%). The mobile education program interacted with 72 local surgeons and 122 nurses who were trained in ETV procedures. The second project involved 49 volunteer neurosurgeons who performed a total of 360 nonhydrocephalus neurosurgical operations since 2009. Furthermore, an agreement with the local government was signed to create the Mnazi Mmoja NED Institute in Zanzibar.

Mobile endoscopic treatment of hydrocephalus in East Africa results in reasonable success rates and has also led to major developments in medicine, particularly in the development of neurosurgery

specialty care sites [1].

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Piquer J, Qureshi MM, Young PH, Dempsey RJ. Neurosurgery Education and Development program to treat hydrocephalus and to develop neurosurgery in Africa using mobile neuroendoscopic training. J Neurosurg Pediatr. 2015 Jun;15(6):552-9. doi: 10.3171/2014.10.PEDS14318. Epub 2015 Mar 6. PubMed PMID: 25745948.