

Perspectives on Delivering Healthcare in the Nuba Mountains-Sudan: A Personal Experience

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Introduction

South Kordofan (aka: Nuba mountains), is located just north of the South Sudan/Sudan border. Since June 2011, a recurrent conflict between the Sudanese Armed Forces and Sudan Peoples Liberation Army/Movement-North has started to result in signs of a humanitarian crisis with increased child mortality, and an exponential increase in rates of malnutrition [1]. The Nuba Mountains today can be viewed as a Savannah-like arid area dominated by small volcanic rock hills bordered from the South by one of the world's greatest swampy areas, and from the other directions surrounded by Sudanese troops [2]. In medico-geographical terms, it is simply a "petri-dish" of malaria during the rainy season, conflict, and poverty medicine. After a long history of war and lack of any comprehensive infrastructure, the Nubans are left with merely nothing-there is a chronic lack of access to water¹, healthcare, and adequate nutrition².

Many Nubans use traditional medicine to meet their primary health care needs [3]. In addition to being accessible and affordable, it is part of their belief systems. Often, traditional medicine provides the only available health care service to the population in many parts of Sudan and more so in traditional communities. It is also worth noting that in the last few years, people have started to seek healthcare at small healthcare structures dispersed along the mountains³.

It is hard to attain any health data from the Nuba mountains [4]. The health status of the population will certainly not be any better from the health status of the average Sudanese. Around 2004 (before the independence of South Sudan), the population of Sudan was estimated to be 32.5 million, 43% children below the age of 5 and 62% live in rural areas [3].

The life expectancy was estimated to be 54 years with 10-11 years discounted for disability arising from disease and illness. Annual population growth rate of 2.6%, and total fertility rate 6.8 children born/woman, birth rate of 44 births/1000 population, death rate 14 deaths/1000 population, infant mortality rate 68/1000 live births; under five mortality 104/1000 live birth; maternal mortality 507-550/100,000 deliveries⁴.

This is a brief personal account from practicing clinical medicine in the Nuba mountains on two occasions between April and May 2012, and December 2012 to February 2013. While practicing "Western"

medicine in the Nuba, one has to acknowledge the patients health education and perception of "health".

Traditional Medicine in the Nuba

The scope of this document is not meant to cover the complexities of belief systems and their implications on health. There are several health practices and beliefs in the Nuba that I could have appreciated knowing about, so I could have taken them into account during case management⁵. The following are some examples:

Management of burns

I have encountered a case of a partial thickness burn over chest in a little 4 year old child, that was initially managed by a traditional practitioner, who covered the burned skin with a film of cloth previously immersed and coated in charcoal. The type of plant/wood to produce the charcoal is unknown. By the time the child was examined the wounds looked well. The child was later managed according to western medicine protocols, and eventually was cured.

Management of wounds

Wounds were common occurrence, with a rate of at least one per day. It is not uncommon to see contaminated wounds because of lack of hygiene and the practice of covering wounds with mud. Unfortunately we did not have a microbiology lab service to test for causative organisms.

There are chronic leg ulcers in certain areas, which could also reflect the poor hygiene status. They usually improve with basic wound management (Figure 1).

Hand infections and abscesses

This was a common pathology especially in women, and especially the young, who grind the sorghum after harvest times using traditional tools. It has been universally noted that it is always the right hand! The picture shows a left hand-one of the exceptions. There was an estimate of 10 cases during the harvest month. Due to late presentation, 9 had to have digital amputations (Figure 2).

¹ People utilize wells, and water pumps. To have drinking water a Nuban has to carry it for hours. There is no existing water delivery system.

² A typical Nuban diet consists of sorghum based meals. No vegetables. No fruits.

³ Health challenges have not been documented. Interviews with health care officers need to be conducted to gain a better understanding on the previous perception of Western style health care. Chiefs report lack of trust, however, people seem to like "pill for every ill".

⁴ Gidel Hospital-could actually provide an invaluable source of info.

⁵ are common among tribes of Arab stock, though also known among indigenous tribes prior to Arab migration to the Sudan.



Figure 1: Basic wound management.



Figure 2: Hand Infections.

Other dermatological “phenomena”

Shulukh (facial scars)⁶: Especially on males, as characteristic tribal or clan brands. Sometimes used as protection. To prepare the face for the surgical procedure, the site is outlined with a marker, then, cut on the markings with a razor blade. The skin is removed away. The resulting wound is immediately filled with oil as styptic and to aid healing. This is more common with Dinka tribesmen.

Cicatrazations: Initially treated those as fungal infections! The Nuba tribes have made use of the ability of their skin to form keloids in order to make scars on different parts of the body, in particular around the navel, nipples and over the abdomen. Some patients come in complaining of painful keloids⁷!

Mutilation procedures

Lip Perforations: Common in elderly women known as “habboobah” (lovely). The operation is performed in early childhood. One or both lips are perforated with the point of a spear and pegs of gradually increasing size inserted until sizable cylinders of wood, stone or metal can be introduced. The cylinders lie flush with the outer surface of the lip, the upper and lower incisors being removed for their better reception within. I have not encountered any complications resulting from this procedure.

Tooth Extraction in babies⁸: An 8 months old was treated for severe dehydration following the removal of all teeth as a treatment for diarrhoea.

Female genital mutilation⁹: Although not widely practiced in the Nuba mountains, some cases can be encountered. Only one case suffered from fistulisation. Although recurrent urinary tract infections (UTIs) were common (50 cases per week on average), none was associated with FGM.

Uvulectomy¹⁰: Nuba, it is done to cure upper respiratory tract infections. Improper surgical instruments are used by the practitioner. Some suffer from post-operative infection. Broad-spectrum antibiotics with anaerobic cover were the treatment of choice. Some children were suspected malnutrition cases on presentation. Three children were treated for aspiration pneumonia.

Generalised pains

Pain is described as *huruq* or *waja*, and, though these terms are interpreted differently, they connote an underlying disease process. For example, when one complains of *waga' kila* (kidney pain), one is actually complaining of an ailment somewhere in the region of the loins, the abdomen, or the chest. *Huruq* usually translates as burn-so usually it indicated sharp characteristic of pain.

Epigastric pain was common, and cases responded to treatment with proton pump inhibitors. The cases of generalized pains sometimes represented up to 250 cases per week among adults. Patients always

⁶ are common among tribes of Arab stock, though also known among indigenous tribes prior to Arab migration to the Sudan.

⁷ Those are definitely tricksters!

⁸ As a matter of interest an explanation of mystical nature offered. All individuals have their partners in the other world. So if an individual is to live with his or her earthly spouse without trouble, he or she should elude the other world partner! This is done by breaking the lower two teeth.

⁹ FGM is usually performed at home under unhygienic conditions by untrained women who are, understandably, ignorant of anatomy and asepsis. The instruments used include sharp objects including knives, razor blades, scissors or sharpened stones.

¹⁰ I have come across this procedure by pure coincidence!

described various associations such as fevers. Malaria test was positive in only 3% of those. Such patients could have benefited from longer term follow-up to determine whether there were any other associated features such as weight loss or rheumatic disease. Unfortunately, we did not have any X-ray services to look for conditions such as Pott's disease.

In general, people who complained of generalized pains are the ones who survived the low life expectancy threshold, and they have done well!



Figure 3: In the pictures above, it is the same malnutrition patient 3 weeks after therapy that included: Oxygen support, blood transfusion, anti-malarials, wide-spectrum antibiotics, and high caloric diet.

Nutrition and alcohol

Alcohol “Mareesah”: Giving home-made alcohol to babies to settle them, in order for the mothers to perform work duties was common. A number of those babies (2 out of 10 over two weeks period) were admitted in our malnutrition program. Alcohol withdrawal has been added to my differentials while managing Nuba Paediatrics!

Nutrition: The current Nuban staple diet is based on sorghum (madeedah, Kisra...etc)-all bloating foods. There is a severe lack of vegetables and fruits¹¹, and the rates of constipation are high. Food is always shared in extremely poor hygienic conditions, which probably explains why *H.pylori* disease could be prominent. In addition, due to lack of drinking water, the Nubans rarely report drinking more than half a liter of fluids a day, which could further explain the high rates of constipation and abdominal pains.

The chronic lack of water and infrastructure also reflects badly on hygiene levels. It is not surprising to see diarrhoea, skin conditions, viral illnesses easily spreading especially among children (Figure 3).

Women health

Fertility is a major concern for women in general¹². Pregnancy and childbirth are major events that are surrounded with care and concern. Infertility, abortions, and stillbirths are regarded with shame. An

average number of children at any given time will not be less than 7 children per woman.

There are growing concerns that many women are tending to become “single mothers” in today’s Nuba community. The war has resulted in broken families with many moving further South to Yida refugee camp.

In regards to birth, there are a number of traditional midwives who do not seem to be interested in improving their practice. They realize that if the baby’s head is pointing down, then the delivery is easier. Women who see midwifery care are those who carry concerns from their previous deliveries.

In general, women refuse suturing tears believing that their ability to have easy delivery will be compromised. A midwife presented to us after her NVD, and refused that her tear will be closed.

In regards to contraception, some women though do find oral contraception¹³ as a good option, and they have asked for it. The locals were very receptive to a simple antenatal care program, which is believed to at least provide minimal standards of care.

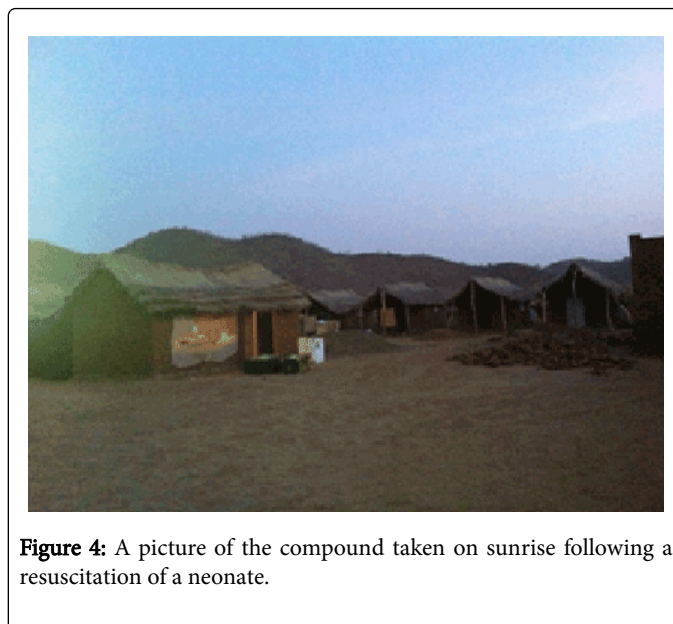


Figure 4: A picture of the compound taken on sunrise following a resuscitation of a neonate.

Conclusion

The Nuba mountains remains an area of conflict, which poses great difficulty to deliver comprehensive healthcare. A small healthcare facility delivered high impact healthcare targeting malaria, malnutrition, injuries, maternal care, respiratory infections and diarrhoea. The current geopolitical restraints present great risks to the Nuba people, and need to be urgently addressed in International platforms. There are many intricacies to the Nuban health practices that need to be understood and considered, especially when introducing a Western based health care system. Any health intervention needs to reconsider some aspects of the non-existing health delivery system. In this system traditional medicine - apparently

¹¹ Tomatoes and onions are the only “green” foods that can be encountered in local markets. Mango and lime are available seasonally.

¹² The Amrus clan boasts a strong magic against infertility, and possesses a special, most powerful ceremony, called *edowa* and performed in six years’ intervals, which secures the fecundity of women of the whole Moro tribe³.

¹³ Condoms have not been popular among either men or women.

so widely known and used – can have a complementary place, for example in recruiting personnel with procedural skills, and in pre-empting training needs (Figures 4 and 5).

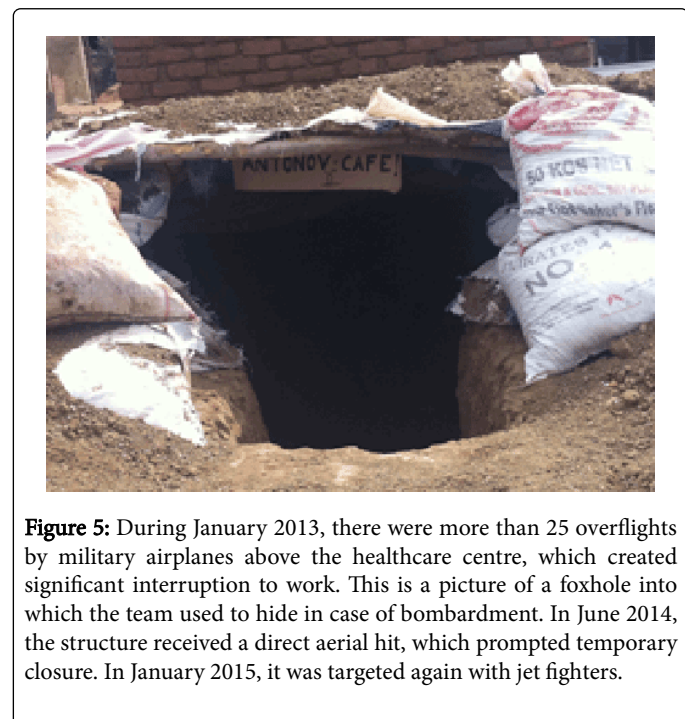


Figure 5: During January 2013, there were more than 25 overflights by military airplanes above the healthcare centre, which created significant interruption to work. This is a picture of a foxhole into which the team used to hide in case of bombardment. In June 2014, the structure received a direct aerial hit, which prompted temporary closure. In January 2015, it was targeted again with jet fighters.

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