



Managing rare abdominal wall hernias

An improvised external fixator to manage fractures

Potential of telemedicine in delivery of healthcare

Cookery demonstration

Viewpoint: self-directed learning

CONTENTS

EDITORIAL

Collaboration between SSMJ and its readers
Okello Armgod Black and David Tibbutt 27

MAIN ARTICLES

Rare abdominal wall hernias in South Sudan
Elena Codognotto, Alberto Kiss, Giuseppe Meo, Giorgio Olivero and Peter Taliente 28

How I improvised an external fixator
Agaba Musa..... 31

The potential of telemedicine in South Sudan
Victor Vuni Joseph 33

Cookery demonstrations in GOAL supported clinics
Frank Okello, Nicki Connell and Hatty Barthorp 37

SHORT ITEMS

Photo quiz 36

View point: self directed learning 41

A facial lesion ... the face of cutaneous tuberculosis
Okello Armgod Black 42

Case Study – Central Pontine Myelinolysis
Stephan Voigt 44

Report of a Visit to UK on clinical attachment at Poole Hospital and St Mary’s Hospital, Isle of Wight 6 October- 28 November 2012: an extract
Peter Pal Chol Nyan 45

Obituary: Professor Meo, a life dedicated to South Sudan 46

RESOURCES 47

ADVERT: JCONAM 48

Cover photo: *Cookery demonstration at Ulang PHCC*
(credit Hatty Barthorp).

SSMJ would like to thank the United Kingdom Department for International Development (DFID) for supporting printing of this journal for free distribution.

SSMJ South Sudan MEDICAL JOURNAL

Volume 6. No. 2. www.southsudanmedicaljournal.com

A Publication of the South Sudan Doctors’ Association

EDITOR-IN-CHIEF

Dr Edward Eremugo Luka

South Sudan Doctors’ Association
Ministerial Complex
Juba, South Sudan
opikiza@yahoo.com

ASSOCIATE EDITORS

Dr Wani Mena

Department of Ophthalmology
Juba Teaching Hospital,
PO Box 88, Juba
South Sudan
wanimena@gmail.com

Dr Eluzai Abe Hakim

Department of Adult Medicine & Rehabilitation
St Mary’s Hospital, Newport,
Isle of Wight PO30 5TG, UK
Eluzai_hakim@yahoo.co.uk

EDITORIAL BOARD

Dr James Ayrton

james.ayrton@gmail.com

Dr Charles Bakhiet

sakib@squ.edu.om

Professor James Gita Hakim

jhakim@mweb.co.zw

Dr Ayat C. Jervase

ayatcj@yahoo.com

Dr David Tibbutt

david@tibbutt.co.uk

Prof. John Adwok

jadwok52@gmail.com

EDITORIAL ADVISOR

Ann Burgess

annpatriciaburgess@yahoo.co.uk

DESIGN AND LAYOUT

Dr Edward Eremugo Luka

The South Sudan Medical Journal is a quarterly publication intended for Healthcare Professionals, both those working in the South Sudan and those in other parts of the world seeking information on health in South Sudan. The Journal is published in mid-February, May, August and November.

Reviewers are listed on the website

Collaboration between SSMJ and its readers

All of us in the healthcare professions throughout the world can learn much from each other. This has been demonstrated so well by the collaboration between the editors, authors, medical experts and readers of the South Sudan Medical Journal.

The Editor-in-Chief recently sent out a request for photographs and received a good response. The photographs that you, the readers, sent are already making a valuable contribution and for these we are most grateful. We used one on the cover of the last issue of SSMJ, and you will see others in this and future issues.

A special example recently were excellent pictures of a child with facial skin lesions that were causing diagnostic and therapeutic difficulties (sent by Dr Okello Black). The pictures were shared with colleagues, including Professor David Warrell, Emeritus Professor of Tropical Medicine in the University of Oxford. The consensus was that the child had cutaneous tuberculosis. Anti-

TB treatment has led to a rapid improvement – see the article on page 42.



Dr Okello who sent the photo of the child with facial skin lesions writes: “The editorial board and its reviewers take a keen interest in the clinical work of healthcare professionals in South Sudan. They advise when questions have been raised, suggest tests and differential diagnoses and request updates on treatment and progress. They treat the patients ‘together’ with their readers. My patient, Jason, who features on page 42, is currently due to complete the intensive phase of TB treatment in a few days. I hold drug-compliance strengthening discussions with him every Friday. Jason comes daily from home for his drugs and has a positive attitude to his treatment. Jason has a lot of phobia; he still finds it difficult to show his scarred face to his peers, keeps it covered with a towel, and is not yet going to school. He comes from an insecure part of the country which could threaten him continuing with the treatment”.

A further example was a photograph of penile hypospadias sent by Dr Kivumbi. This was so good that Mr. John Black, Emeritus President of the Royal College of Surgeons of England, has asked if he may include it in a major textbook which he is editing. We are also using your photographs as a basis of quizzes – see page 36.

As well as photographs we welcome “Letters to the Editor”, questions about diagnostic problems and short case histories especially from South Sudan and neighbouring countries. Send these to the Editor-in-Chief at admin@southsudanmedicaljournal.com.

Dr Okello Armgod Black

Boma Hospital, South Sudan

Dr David Tibbutt

Member of SSMJ Editorial Board and Reviewing Team

Rare abdominal wall hernias in South Sudan

This article is dedicated to the memory of Professor Giuseppe Meo who died in January and who initiated, and devoted many years to, the surgical missions in South Sudan (see obituary page 46)

Elena Codognotto^a, Alberto Kiss^a, Giuseppe Meo^a, Giorgio Olivero^a and Peter Taliente^a

Introduction

The repair of abdominal wall hernias (AWH's) is the most common surgical procedure in the world. In South Sudan there are two unusual aspects. As elsewhere, the most frequent types of AWH are inguinal and umbilical in adults and femoral and epigastric in children and babies. However in South Sudan there is a high incidence of what the Western medical literature describes as 'rare AWH's'. These, in our experience, are the Spigelian (Figures 1 and 2) and lumbar (Figure 3) hernias representing 9% and 12 % respectively all hernia cases. In addition we see a number of umbilical hernias (Figures 4 and 5) which may reach a large size and become confused with Busoga hernias.

The Busoga hernia¹ (BH)

A clear description of the BH is contained in 'Primary Surgery' by M. King et al. [1]. The BH is a variety of direct inguinal hernia common in the Busoga area of Uganda and some other African countries, including South Sudan and Ghana where it particularly occurs in women.

Direct inguinal hernias are of two kinds:

1. **Ordinary direct inguinal hernias** which are less frequent in Africa and seldom strangulate (as one has in Figure 6). They may cause no symptoms, remain the same size for long periods and may not need surgery.
2. **The BH** which is caused by a narrow defect in the conjoint tendon or transversalis fascia and consequently there is a risk of strangulation. The neck of the sac is small, so that when strangulation occurs, often only part of the circumference of the gut is involved causing what is known as a Richter's hernia (Figure7).

Direct hernias can usually be repaired using the same technique as for indirect ones, unless they are very large. However there are differences and a direct hernia may present problems:

a. The sac may have no obvious neck so it cannot be excised. The posterior wall of the inguinal canal should be sutured thereby imbricating (overlapping) or over-sewing the excess transversalis fascia. If no prosthesis is used,



Figure 1. A Spigelian hernia can become very large



Figure 2. Left Spigelian hernia

then the posterior wall of the inguinal canal should be repaired either with the classical Bassini's or the Shouldice technique, both which incise the transversalis fascia and then resuture accordingly to the method used.

b. The weak area in a direct hernia is ill-defined, and tends to involve all or most of the posterior wall of the inguinal canal. In a BH, the opening, often quite narrow, is in the transversalis fascia or the conjoint tendon. Once the sac has been adequately exposed it can be opened, the

^a Comitato Collaborazione Medica (CCM) taliente@tiscalinet.it

1. In Europe this type of hernia is rare and is called a Gill-Ogilvie hernia.

contents reduced, the redundant part excised and its neck closed with a purse-string suture.

Experience in South Sudan

Our rural surgical experience in South Sudan has been published previously [2, 3]. In 2006 we reported a retrospective study carried out over six years (March 1998 - March 2004) [4]. This was based upon a surgical care service which was assisted by teams of expatriate consultants in 28 'surgical missions' in remote areas of South Sudan. A total of 1,642 patients were operated upon. Hernia surgery represented the main workload. Hernia cases were:

- inguinal (including BH and congenital hernias) 481 (68%),
- Spigelian 84 (12%),
- lumbar 64 (9%),
- femoral 43 (6%),
- umbilical in adults 20 (3%),
- epigastric 16 (2%).

In 2011 we reported a retrospective analysis of a surgical service care and 'on-the-job' training through mobile surgical missions in South Sudan during the post conflict period 2005 and 2009 [5]. Three surgical teams conducted 23 missions in five primary health care centres in remote areas. A total of 1,543 patients were operated upon: 648 operations (42%) were hernia repairs.

The differential diagnoses of a possible hernia must always be considered and an inexperienced health worker may confuse a lumbar hernia with a subcutaneous lipoma. A BH may confuse the unwary: the herniated loop of the bowel may migrate under the skin and simulate other conditions. For example it may simulate a gynaecological condition when it extends into the labia majora mimicking a tumour or infection (e.g. abscess) (Figure 8). A lumbar hernia may be suspected when a Spigelian hernia loop moves to the lumbar region or to the lateral side of the abdominal wall. It is imperative to identify the true type of a hernia by reducing if possible the intestinal loop into the abdominal cavity.

The repair of the opening in the fascia wall is normally quite easy. Hernia repair with prosthetic meshes should be reserved for recurrences and for huge hernias because of the high risk of infection in rural hospitals and high cost. Cheap mosquito-netting for tension free hernia repair have been proposed [6,7] (Figure 9). Since 2008, we have performed 58 hernia repairs using pieces of mosquito nets as prosthetic material [8]. Follow up is very difficult so a clear description of long term outcomes is not available. However to date no problems have presented.



Figure 3. A lumbar hernia



Figure 4. Particular aspect of a large umbilical hernia (Supine)



Figure 5. Particular aspect of a large umbilical hernia (Erect)

MAIN ARTICLES



Figure 6. Strangulated hernia

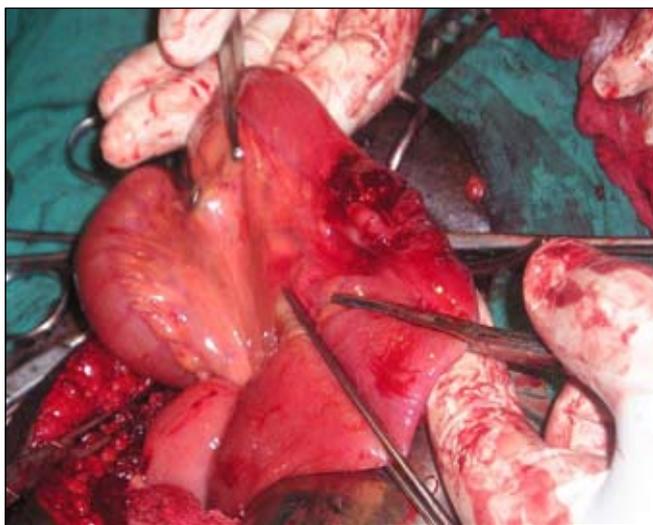


Figure 7. Intestinal resection for Richter hernia



Figure 8. A Busoga hernia can migrate into the labia



Figure 9. Mesh for hernia repair (credit Alberto Kiss)

Conclusion

Reporting of the 'rare' abdominal hernias is important as they are 'more common' in certain geographical areas. Further studies are needed to clarify the occurrence of these hernias. This would highlight the need for health practitioners to be alert to aware of their existence and acquire appropriate surgical training. A study is needed to follow-up patients to define outcomes especially where innovative techniques are used (e.g. the use of mosquito netting as a mesh).

(All photos by the authors)

References

1. King M, Bewes P, Cairns J, et al. 1990. *Primary Surgery*, Vol 1: Non-trauma, page 199. Oxford, Oxford University Press.
2. Meo G, Qasim S. 1997. Surgery under Adverse Conditions in South Sudan. *German Society for Tropical Surgery*, Second International Meeting, Munich, GSTS.
3. Makender E, Qasim S, Meo G. Surgery and community participation in a community-based programme in war situations. *Trop Doc* 2000; 30:20–23.43.
4. Meo G, Andreone D, De Bonis U et al 2006 Rural Surgery in Southern Sudan. *World J Surg* 30: 1–10.
5. Cometto G, Belgrano E, De Bonis U et al Primary Surgery in Rural Areas of Southern Sudan 10.1007/s00268-011-1403-1. *World J Surg* 2012; 36:556–564
6. Tongoonkar R, Reedy B. 2003 Preliminary multicentre trial of cheap indigenous mosquito-net clothes for tension free hernia repair. *Indian J Surg*; 65(1):8295.
7. Clarke MG, Kingsorth AN et al. The use of sterilized polyester mosquito net mesh for inguinal hernia repair in Ghana. *Hernia* 2009; 13:155–159.
8. Kiss A, Corona D, Kiss O. 2012. The Use of Mosquito-Net Cloths as Prosthesis in Inguinal Hernia Repair: An Experience in South Sudan". *Surgical Science* Vol. 3 No. 3, pp. 155-157. doi: 10.4236/ss.33030.

How I improvised an external fixator to manage open fractures

Agaba Musa^a

Introduction

Orthopaedic surgery is a technical specialty. In Nigeria, as in most developing countries, insufficient funding is available for technological advancement [1]. Indigenous hospital technology can reduce cost of managing injuries needing surgery, many of which are caused by an epidemic of road traffic accidents [2]. This paper explains how to make and use an improvised external fixator for the management of open fractures and instruments used for its clinical application. This is an improved version of an earlier external fixator [3].

The improvised external fixator and accompanying instruments

A. The external fixator

The improvised external fixator (Figure 1) consists of two metal (iron or aluminum) plates (breadth 1.7 - 2cm; thickness 1.7 - 2mm). The plates are drilled so that the distance between two holes is 2cm and mirror symmetry of each other. Screws are passed through the holes. The length of the plate is customised. Tightening the nuts on the screws reduces the distance between the metal bars. In this way implants between them are clamped.

The grip between the metal plates is strong enough to retain a 15-kg weight and so strong that a cement bag, 50-kg weight cannot slip out of its grip. Kirschner wires, Schanz screws, Denham and Steinmann pins are implants that can be used with this external fixator. Denham and Steinmann pins are used as full pins. Schanz screws are used as half pins. Kirschner wires can be used as both full and half pins.

How to make the external fixator

Step 1 (Figure 2a): The materials, plates (made of iron or aluminum), screws (made of iron; diameter=4mm) and

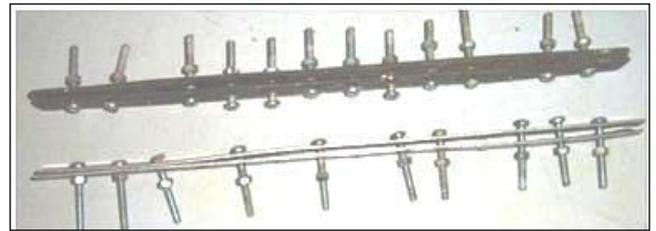


Figure 1. The improvised external fixator

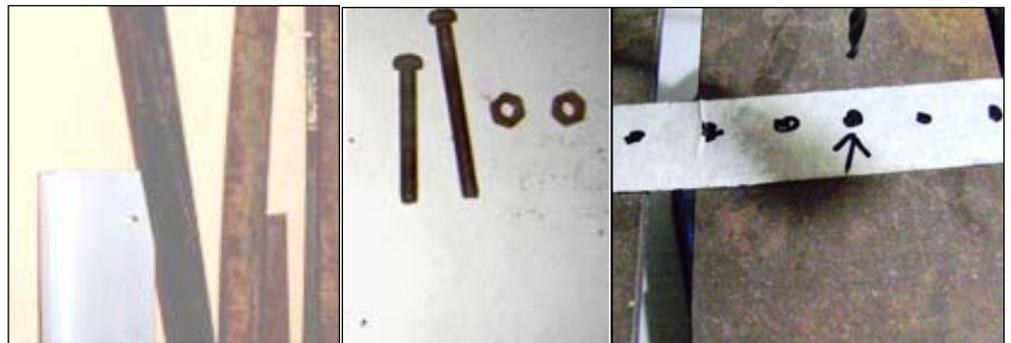


Figure 2a. Plates, screws and nuts used for making the improvised external fixator.

Figure 2b. Arrow points to an area marked for drilling of hole on a plate.

nuts (made of iron) are usually sourced from the local junk yard. The plates are often donated. The screws are the type used to attach vehicle number plates in Nigeria. If the plate is too wide, it is cut to the required size (breadth between 1.7cm and 2cm; thickness between 1.7mm and 2mm) with an artisan's grinding machine.

Step 2 (Figure 2b): The desired plate is wrapped with a masking tape. A midline is drawn on it. Holes are drilled along the midline at 2cm intervals. This plate can be used as a template for drilling others.

The drilling machine used is usually a small bench drilling machine (power=350 watts; revolution not more than 2700 revolutions per minute; maximum diameter of drilling bit the machine can accommodate=13mm). The bit (diameter=4mm) used in drilling the plates is run at least twice. This widens the holes for the nuts (diameter=4mm).

B. The modified powered drill [4]

Powered drills designed for orthopedic surgery are expensive and the spare parts are not easily available in Nigeria. For this reason a commonly available powered technician's drill is modified by reducing the quantity of electricity it uses. This is achieved by diverting electricity through a domestic ceiling fan switch (a rheostat)

^aDepartment of Surgery, Usamanu Danfodiyo University Teaching Hospital, Sokoto, Nigeria. Agabaidu@Ymail.com

MAIN ARTICLES



Figure 3. Tools for assembling the fixator.

before reaching it. Thus the number of revolutions per minute (r/m) is reduced from 2500r/m to 800r/m. This also reduces the heat generated by friction. The more the heat generated during drilling of holes in bones the more the necrosis along the pin tracts and the higher the possibility of pin tract infection which will cause the pins to wobble and loosen. The chuck of the powered technician's drill does not communicate with the interior of the drill. For this reason only short drilling bits can be used. Long drill bits are not suitable because they can break as a result of the torque.

C. Tools for assembling the external fixator

These are shown in Figure 3.

Notes for Figure 3. From left to right:

- Screw driver (one end is star-shaped and the other end is flat). This is used for tightening a screw when the head is under direct vision.
- Screw driver (one end is star-shaped and at right angle to the other end which is flat). This is used for tightening a screw when the head is not under direct vision.
- Flat spanner. This is used for tightening a nut. It is specific for the particular nut and the distance between two holes is also specific for the flat spanner.
- A pair of long nose pliers. These are used for holding a nut that is under direct vision.

D. A distraction/compression device

This improvisation consists of a long threaded metal rod that passes through two pieces of metal pipe. A small piece of metal plate is welded at an angle to each pipe. The angle between the pipe and the metal plate face each other when compression between fracture fragments is required. The angles face opposite directions when distraction is required. During compression of fragments a washer is placed at the each end of the bolt. This washer



Figure 4. The improvised distraction/compression device mounted for compression

is succeeded by a nut at each of these two ends of the bolt (Figure 4). Turning of the nut pushes the wings of the pipes against the pins. During distraction of fragments two washers are placed in between the pipes but before these washers two nuts had already been passed to the middle of the rod. Turning the nuts widens the distance between them. Thus fracture fragments are distracted.

Conclusion

This technology can be easily duplicated. The external fixator and compression/distraction devices are easily made in the hospital workshop from scraps. It takes on average an hour to make this external fixator. Although it looks primitive, its grip is a proof of its mechanical stability which prevents fracture re-displacement after reduction. Thus good outcome of treatment of open tibial shaft fractures can be assured. The only thing these devices lack is aesthetics which can be improved upon but this may increase costs – which defeats the purpose of reducing the costs through the development of indigenous technology. The implants used with this improvised external fixator are standard, factory-made types and purchased from international suppliers.

References

1. Musa A A. Indigenous hospital technology in Nigeria: Problems and recommendations. *West African Journal of Medicine* 2001; 20(3): 268-269.
2. Natulya V M, Reich M R. The neglected epidemic: road traffic injuries in developing countries. *British Medical Journal* 2002; 324: 1139-1141.
3. Musa A A. A Simple external fixator. *Nigerian Journal of Orthopaedics and Trauma* 2004; 3(1): 61-67.
4. Musa A A. How to adapt an ordinary drilling machine for orthopaedic surgery. *West African Journal of Medicine* 2002; 21: 59.
5. Ali-Akpajiak S C A, Pyke T. Measuring poverty in Nigeria. Oxford, 2003 Oxfam.

The potential of telemedicine in South Sudan

Victor Vuni Joseph^a MPH, FFPH

Introduction

The aim of this article is to introduce the concept of telemedicine in South Sudan, as part of routine healthcare delivery. The following objectives are addressed, to:

1. Highlight potential areas where telemedicine would add value in addressing some of the health challenges;
2. Identify some of the examples of telemedicine initiatives in Africa and
3. Propose to the relevant authority and professional group from where to start when considering the adoption of telemedicine.

Before the modern form of distant communication was introduced, mankind had their means of communicating messages, and South Sudan was not an exception. While the purposes of such communication were many, they included those related to health such as calling for help to save lives in emergency situations. Among South Sudanese, traditional communications means included using drums, various ways of making oneself heard by sounding alarm using one's voice (kelemete) with the hope of being heard. Elsewhere in the world, there were reported examples of how health messages were communicated in ancient times. A ship with passengers infected with bubonic plague had to fly a yellow flag in order to warn others of the presence of infectious disease on board. Lepers were made to ring bells so as to warn other people to keep away [1].

Modern technologies have extended our ability to communicate across the world, especially following the discovery of telephone in 1876 by Alexander Graham Bell [1]. While the use of new technologies for the delivery of healthcare at a distance started mainly in the United States of America (USA) in the 1960's, it has now expanded by varying degrees across the world [1, 2]. This is what has become known as "telemedicine". The World Health Organisation (WHO) defines "telemedicine" as:

"The delivery of a healthcare service, where distance is a critical factor, by all healthcare professionals using information and communication technologies for the exchange of valid information for diagnosis, treatment and prevention of disease and injuries, research and evaluation, and for the continuing education of healthcare

providers, all in the interest of advancing the health of individuals and their communities." [3]

Readers should be aware that there are other terms used in the published literature including "electronic health" (e-health), "mobile health" (m-health) and "telehealth". These terms and their distinctions are discussed elsewhere [4].

Potentials of telemedicine

Why do we need telemedicine in South Sudan? The purpose of telemedicine is to add value in addressing a number of health challenges. The rationale for this need is based upon:

1. Telehealth has the potential to overcome distance by providing health care remotely being in the form of advice and information sharing.
2. With fewer healthcare professionals in South Sudan, telemedicine reduces professional isolation, enabling the exchange of ideas, optimisation of the use of limited resources and support for continuing medical education.
3. The cost of health care will be reduced for both patients and their relatives by avoiding unnecessary travel costs to referral hospitals and cost to healthcare providers by fewer referrals.
4. Telemedicine could save lives by providing the means for prompt assessment, clinical decision-making and actions and
5. It may also lead to better planning of health services by enhancing epidemiological surveillance and data collection.

Most published experience of telemedicine relates to that in developed countries where the health challenges are dominated by non-communicable disease (NCD) such as cardiovascular diseases, respiratory diseases (e.g. bronchial asthma, chronic obstructive pulmonary disease), diabetes mellitus and cancers. In South Sudan the health priorities are the reduction of high maternal mortality and infectious diseases notably malaria, tuberculosis and HIV. [5]. If telemedicine is to have added value in South Sudan, it needs to be aligned to the national health agenda and must be shown to enhance effective service delivery. These goals are similarly captured in the Millennium Development Goals (MDG), especially those related to improving child health (MDG 4), maternal health (MDG 5) and control of infectious diseases e.g. HIV/AIDS,

^a a Consultant in Public Health, Directorate of Public Health, National Health Service (NHS) Doncaster, UK; vuni.joseph@tinyworld.co.uk

MAIN ARTICLES

malaria, tuberculosis, etc. [6].

A report by the WHO, based on a survey of 114 member states (from low- and middle-income countries) in 2009 revealed that the usage of mobile health was for:

- health call centres (59%);
- emergency toll-free phone service (55%);
- managing emergencies and disasters (54%) and
- mobile telemedicine (49%) [7].

The report acknowledged that telemedicine had the potential to transform the delivery of health services across the globe. The key drivers for this were the increased use of mobile phones, their integration with health services and the realisation that 85% of world's population was covered by wireless signal [7].

Experience from other countries in Africa shows that telemedicine contributed to the delivery of healthcare in several areas (Table 1). Awakame and myself have reported on the experience of the introduction of mobile health for maternal and child health in Ghana [8].

Lessons published in Telehealth Networks for Hospital Services showed that cost-effective telemedicine initiatives are likely to be those that are relatively cheap and widely available [9]. Hence, the use of new technological devices such as mobile telephone, email, and online educational resources offer cost-effective potentials for telemedicine.

There are many forms of technologies that are used for telemedicine services; ranging from low-tech to high-tech devices. Examples of the devices used in telemedicine services include: telephone, internet, email, radio, television, short message service (SMS) or text, video-conference, electronic monitoring of vital signs (blood pressure, blood glucose, oxygen saturation) and questionnaires and global positioning systems (GPS) [10, 11].

Where to start

The WHO recommended that any country wishing to consider the implementation of telemedicine needs to form a national council that will oversee steering committees and centres of excellence, supported by a national association for telemedicine or e-Health [12]. International organisations exist that the Ministry of Health (and relevant professional bodies) in South Sudan may consider joining at no cost in order to understand more and gain support in their endeavour to implement telemedicine. Two of the international organisations that support telemedicine work are: International Society for Telemedicine and eHealth: <http://www.isfteh.org/> [13]; and mHealth Alliance: <http://www.mhealthalliance.org/> [14].

Conclusion

Telemedicine offers the potential for added value in the delivery of healthcare in South Sudan if it could be aligned with the national health priorities, especially those related to reducing the high maternal mortality rates, improving child health, and addressing infectious diseases. Health planners in the country will need to consider the role of telemedicine in enhancing the delivery of healthcare in the country.

Declarations of conflict of interest: The author declares that there is no conflict of interest related to this publication. The author chairs Africa-UK Telemedicine Working Group, part of Africa-UK Diaspora Engagement Programme that aims to support the adoption of Telemedicine in Africa.

References

1. Darkins, A.W. and M.A. Cary, *Telemedicine and Telehealth*. 2000, London: Free Association Books.
2. Wootton, R., Telemedicine and developing countries - successful implementation will require a shared approach. *Journal of Telemedicine and Telecare*, 2001. 7: p. S1-S6.
3. World Health Organisation, *Information Technology in Support of Health Care*. 2003; Available from: <http://www.who.int/eh/en/informationTech.pdf>
4. Pawar, P., et al., A framework for the comparison of mobile patient monitoring system. *Journal of Biomedical Informatics*, 2012. 45: p. 544-556.
5. Ministry of Health, *Health Sector Development Plan 2012-2016: one maternal death is one too many*. 2012, Ministry of Health, Republic of South Sudan.
6. UN. *We Can End Poverty 2015 Millenium Development Goals*. 2013; Available from: <http://www.un.org/millenniumgoals/bkgd.shtml>
7. World Health Organisation, *mHealth: New horizons for health through mobile technologies*; based on the findings of the second global survey on eHealth. 2011; Available from: http://www.who.int/goe/publications/goe_mhealth_web.pdf
8. Awakame, J. and V. Joseph. *Towards shaping telemedicine policies across Africa: the contribution of Africa-UK Telemedicine Working Group*. 2012, Telemedicine Working Group of Africa-UK Diaspora Engagement. p. 43.
9. Joseph, V. The Effects of Telehealth on Patients with Long-Term Conditions in Routine Healthcare Use and Lessons from Practical Application, in Telehealth Networks for Hospital Services: New Methodologies, V. Gulla, et al., Editors. 2013, *Medical Information Science Reference*: Hershey. p. 410.
10. Sheikh, A., et al., The Impact of eHealth on the quality and safety of healthcare: an updated systematic

Table 1: Some evidence of telemedicine activities in Africa

Activity and setting (reference)	Descriptions of intervention and key outcomes
TB reference laboratory, Pemba Island, Zanzibar [15]	The implementation steps were: 1. TB laboratory design according to the WHO standards; 2. laboratory equipment and reagent supplies for microscopy, cultures, and identification; 3. on-the-job training of the local staff; 4. web-and telemedicine-based supervision. 921 sputum samples were received from 40 peripheral laboratories: 120 TB cases were diagnosed. Of all the smear-positive cases, 74.2% were culture-positive. Smear positive to culture positive rate increased up to 100%.
The mobile phone as a tool to improve cancer care in Nigeria [16]	After 24 months, 1,132 patients (97.6%) had attended their follow-up appointments as against 42 patients (19.2%) who did not receive the phone intervention.
Effectiveness of mHealth. Behaviour Change. Communication Interventions; Ghana, Kenya, Nigeria, South Africa, Uganda, Tanzania (Systematic Review) [17]	HIV/AIDS and family planning/ maternity were the health topics. Inconclusive but promising evidence of effectiveness.
Tele dermatology, teleradiology and telepathology; Ethiopia [18]	Ten sites in Ethiopia were selected to participate in this pilot between 2004 and 2006 and 20 physicians, two per site. Telemedicine implementation does not depend only on technological factors, rather on e-government readiness, enabling policies, multisectoral involvement and capacity building processes.
Use of Mobile Learning by Resident Physicians; Botswana [19]	Smartphones loaded with point-of-care tools are effectively utilized by resident physicians in resource-limited settings, both for accessing point-of-care medical information at the bedside and engaging in self-directed learning at home.
Use of Short Message Services to Expand Uptake of Human Immunodeficiency Virus Testing; South Africa [20]	In comparison with the control, receipt of 10 motivational text messages had the most impact on uptake of HIV counselling and testing with a 1.7-fold increased odds of testing (confidence interval 95%; $p = 0.0036$).
Building the Capacity in e-Health (Medical education); South Africa (University of KwaZulu-Natal) [21]	Medical Education: Videoconferencing of seminars and grand rounds to regional training hospitals, over 33,000 participants in 2010 (12 years' experience). Videoconferenced sessions were directly recorded to DVD and DVDs were sent to other medical schools in Africa.
Uliza! Clinicians' HIV Hotline: A Telephone Consultation Service; Kenya (Nyanza province) [22]	Uliza! (Swahili for "ask") Clinicians' HIV Hotline was launched in April 2006. Hotline users called an Uliza! consultant who discussed the patients' problems and helped the caller work through a solution, as well as reinforced national guidelines. 296 calls handled in a year. The study concluded that Clinicians using Uliza! found it useful, and advice given was usually implemented.
A telemedicine service for HIV/AIDS physicians working in developing countries; [23]	Between April 2003 and December 2009, the telemedicine service received 1,058 queries, from more than 40 countries, mostly resource-constrained. The average time to provide a first reply was 24 hours. All queries were handled by a co-ordinator who forwarded them to a network of specialists,
Telemedicine in primary health care: the virtual doctor project Zambia [24]	Used hard body vehicles fitted with satellite communication devices and modern medical equipment to deliver primary health care services to some of the neediest areas of the country.

MAIN ARTICLES

- overview and synthesis of the literature. Final report for NHS Connecting for Health Evaluation programme., in Chapter 13 Telehealthcare. 2011. The University of Edinburgh; and Imperial College, London. p. 772.
11. Lewis, T., et al., E-health in low- and middle-income countries: findings from the Center for Health Market Innovations. *Bulletin of the World Health Organization*, 2012. 90: p. 332-340.
 12. Kwankam, S., Successful partnership for international collaboration in e-Health: the need for organised national infrastructures. *Bulletin of the World Health Organization*, 2012. 90: p. 395-397.
 13. ISfTeH. *Facilitating the international dissemination of knowledge and experience in telemedicine and eHealth and providing access to recognised experts in the field worldwide*. 2013 [cited 2013 3 March 2013]; Available from: <http://www.isfteh.org/>
 14. mHealth Alliance. *mHealth Resources*. 2013 [cited 2013 3 March 2013]; Available from: <http://www.mhealthalliance.org/>.
 15. Paglia, M.G., et al., *Improvement of Tuberculosis Laboratory Capacity on Pemba Island, Zanzibar*: A Health Cooperation Project. *Plos one*, 2012. 7(8).
 16. Odigie, V.I., et al., The mobile phone as a tool in improving cancer care in Nigeria. *Psycho-Oncology*, 2012. 21(3): p. 332-335.
 17. Gurman, T.A., S.E. Rubin, and A.A. Roess, Effectiveness of mHealth behavior change communication interventions in developing countries: A systematic review of the literature. [References]. 2012: *Journal of Health Communication*. Vol.17 (Suppl 1), May 2012, pp. 82-104.
 18. Shiferaw, F. and M. Zolfo, The role of information communication technology (ICT) towards universal health coverage: the first steps of a telemedicine project in Ethiopia. *Global Health Action*, 2012. 5: p. 1-8.
 19. Chang, A.Y., et al., Use of Mobile Learning by Resident Physicians in Botswana. *Telemedicine and e-Health*, 2012. 18(1): p. 11-13.
 20. de Tolly, K., et al., Investigation into the Use of Short Message Services to Expand Uptake of Human Immunodeficiency Virus Testing, and Whether Content and Dosage Have Impact. *Telemedicine and e-Health*, 2012. 18(1): p. 18-23.
 21. Mars, M., Special Issue on Africa Introduction: e-Health in Africa. *Telemedicine and e-Health*, 2012. 18(1): p. 3-4.
 22. Karari, C., et al., Evaluating the uptake, acceptability, and effectiveness of Uliza! clinicians' HIV hotline: a telephone consultation service in Kenya. *Telemedicine Journal & e-Health*, 2011. 17(6): p. 420-6.
 23. Zolfo, M., et al., A telemedicine service for HIV/AIDS physicians working in developing countries. *Journal of Telemedicine and Telecare*, 2011. 17(2): p. 65-70.
 24. Mupela, E.N., P. Mustarde, and H.L.C. Jones, *Telemedicine in primary health: the virtual doctor project Zambia*. Philosophy, ethics, and humanities in medicine: PEHM, 2011. 6: p. 9.

A PHOTO QUIZ FOR OUR READERS



Photograph sent by Kivumbi]. Bonabantu, Mariallou Hospital.

Why do you think this child is wearing such a heavy bracelet?

Send your ideas to

Editor-in-Chief at

admin@southsudanmedicaljournal.com

See answer in the August issue of SSMJ.

Cookery demonstrations in GOAL supported clinics

Frank Okello^a, Nicki Connell^b and Hatty Barthorp^b

Malnutrition is a major health problem in South Sudan, especially in young children and pregnant-lactating women (PLW). It is often compounded by other illnesses, contributing to high mortality rates in pre-school children.

In addition to the well-recognized manifestations of acute malnutrition, kwashiorkor and marasmus, rates of stunting are high, and various micronutrient deficiencies, including those of vitamin A, iron, iodine and zinc are prevalent.

There are multiple causes of malnutrition in GOAL's operational areas, which are typical of many locations across South Sudan. UNICEF's conceptual framework of malnutrition [1] describes the underlying causes of malnutrition as 'inadequate food security', 'poor sanitation and hygiene' and 'inadequate care practices'. All of which contribute to the high levels of malnutrition in GOAL-supported sites, making it a difficult issue to address.

Poor levels of sanitation through minimal latrine usage, low rates of exclusive breastfeeding for children up to 6 months and poor food quantity and diversity in the household are the underlying causes seen in GOAL-assisted areas. Thus, GOAL projects are carried out at the same time as other multi-sectoral activities, each targeting different identified issues.

Cookery demonstrations aim to address the cause of poor household food supply and diversity. This is done by promoting a high-energy nutrient-rich meal for children aged 6-59 months and pregnant/ lactating women. The typical diet is based mainly on cereals and so, in order to improve the vitamin and mineral content, we encourage the addition of fruits and vegetables.

Before designing recipes, the GOAL team visits homes and surveys markets to see what is grown and available in each season and, thereafter, what is accessible in terms of cost. The team works with community representatives to see what would be acceptable, and then examines nutrient values of the recommended foods to identify recipes that provide 'balanced' meals. The recipe given below is an example of one that we designed in this way, but this will vary during the year.

For some time it has been recognized that inpatient



Figure 1. Cooking demonstration at Ulang Primary Health Care Centre, Ulang County (credit Hatty Barthorp)

care is not the ideal place for treating children with acute malnutrition without medical complications. It is cheaper and more effective to look after these children in the community, through Outpatient Therapeutic Programmes (OTPs), (which address Severe Acute Malnutrition (SAM)) and other community-based programmes such as GOAL's Nutrition Impact and Positive Practice (NIPP) circles (which tackle both curative and preventative issues of Moderate Acute Malnutrition (MAM)). Through these activities parents have an opportunity to learn, by active participation, the simple principles of child care and feeding.

Thus, the nutrition cookery demonstration activity has come to play an important role in mother and child health activities in GOAL-supported clinics and GOAL's community-based programmes. The emphasis is on giving simple and practical instructions to the parents, through a participatory approach, about feeding their children a high-energy nutrient-rich porridge made from locally available nutritious foods. There can be no better example for a mother, than to see her child gain in weight and vitality from the food that she herself has cooked and fed. (See figure 1)

Teaching parents about feeding children

Teaching a parent who comes from a poor background is not easy and several factors have to be considered:

- He/She may be illiterate or just able to read and write a few words, and, therefore, is unlikely to understand hand-outs or posters
- The material resources available at home and the number of cooking utensils may be limited

a GOAL South Sudan
b GOAL Head Quarters

MAIN ARTICLES



Figure 2. Ingredients for the porridge at Aweng PHCC (credit Nicky Connell)

- He/She may have their own beliefs concerning foods and their suitability for children. Sometimes these beliefs are radically different from those being promoted by the health workers

- The men or the other elders in the family may play a significant role in decision-making, leaving mothers with little influence and ability to follow advice given by health workers.

It is difficult to tackle issues of female disempowerment to reach key decision makers through facility-based cooking demonstrations. GOAL attempts to overcome these issues through community based NIPP circles (with one activity being cooking demonstrations) – see below.

We remember ~20% of what we hear, ~40% of what we hear and see and ~80% of what we hear, see and do.

Cooking demonstration instructions are practical and simple, aiming to improve what the child is already being fed rather than introducing many new foods. It is better to teach a few simple recipes well, than to overburden a parent with too much information. Thus the kitchen, the utensils and the method of preparing and cooking are similar to those used within the homestead.

Establishment of rapport is an integral factor in successful nutrition cookery demonstration education. Therefore the instructor should preferably be from a background and social group with which the carers can identify. Often a carer who has attended cookery demonstration sessions makes the best instructor.

It is vital for a successful outcome of the demonstration (e.g. carers adopt recommended recipes), that there is a good relationship with strong bonds forged between the participants, and that lessons are practical, interactive and interesting. Indeed a study in 1994 [2] demonstrated that learners remember more when visual aids are used to support the verbal presentation, but 'best' when they practice the new skill.

Therefore, sessions always include interactive techniques and methods to help participants remember the desired positive behaviours.

Group discussions are particularly useful and are enthusiastically promoted with the active encouragement of carers teaching each other and giving demonstrations of what they have learnt. By creating dynamism within the group and focussing on a peer-led approach, the educational and behaviour shifting process is made more effective.

In rural areas most people eat foods which they grow (small scale subsistence farmers). So we educate the household members in simple methods of small-scale or kitchen gardening, composting and growing the foods which are used in cookery demonstrations. This is a key element that is incorporated into GOAL's NIPP Circles. In these all parents learn how to build and maintain a small garden, cultivating a variety of nutrient rich foods and subsequently use the produce for household meals. It helps parents to realise that the health of their children is very much within their own hands.

An example recipe for the cookery demonstrations: High-energy nutrient-rich porridge (see Figure 2)

- Sorghum flour (200g)
- Whole fat cow's milk (200mls) or whole fat powder milk (sourced only when price of fresh milk becomes prohibitively high) (30g - 6 desert spoons)
- Vegetable oil (30g - 6 desert spoons)
- Sugar (30g - 6 desert spoons)
- Groundnuts or sesame (30g - 6 desert spoons)
- Moringa leaf powder (24g - 3 tables poons)

Most are familiar with the ingredients listed above with the possible exception of moringa. Other cereals such as maize flour can be used instead of sorghum.

Note: As the size of spoons varies from place to place the number of spoonsful for each ingredient should be checked locally.

This recipe gives approximately 1400ml of porridge and:

- 1408 kcal
- 43 g protein
- 59 g fat
- 230 g carbohydrate
- 17.3 mg iron
- 115 mcg RE vitamin A (or 690 β carotene)

Moringa

Moringa is a plant which grows well across Asia and Africa and is promoted within a number of GOAL's livelihood projects. It is well-known for its nutritional, medicinal and water purifying properties. Moringa is a useful additional source of protein, calcium, potassium and vitamin A and, if fresh, vitamin C - especially where it is difficult to get these nutrients from the local diet. Therefore it is a good plant to promote within cookery demonstrations and through micro-gardening activities.

The use of moringa leaf powder in cookery demonstrations is more convenient than moringa leaves which need boiling until they are soft and then mashed and strained through a clean cloth. So for GOAL's cookery demonstrations, moringa leaves are dried in the shade for 16 hours to reduce loss of vitamins, especially vitamin A. The brittle leaves are then pounded and sifted to remove leaf stems. Leaves can also be rubbed over a wire screen to make a powder. The powder can then be conveniently added to meals. If the powder is stored in a sealed container and kept out of sunlight it should keep for several months.

Recommended amounts of moringa leaf powder are 6tablespoons (48g) per day for a nursing mother and 3tablespoons (24g) for children.

- Three rounded tablespoons (24g) of leaf powder satisfies around 42% of protein, 125% of the calcium, 71% of the iron and 272% of vitamin A needs for children aged 1-3 years.

- Six rounded tablespoons (48g) of leaf powder will satisfy half or more of a woman's daily iron and calcium needs during pregnancy and lactation [3].

Directions for cooking high-energy nutrient-rich porridge (at a cooking demonstration or, using smaller amounts, in the home)

These amounts make 3 1/2 full cups (400ml) of porridge.

- Mix one and a half cups of water (~600mls) with half a cup of cow milk (200ml) or ~30g/6 desert spoons of powdered milk and bring to boil in a cooking pot.
- Meanwhile mix half a cup of sorghum flour (~200g) with cold water to form a paste and add to the



Figure 3. Child eating high energy/nutrient porridge at Aweng PHCC (credit Nicki Connell)

Table 1: Nutritional value of Moringa fresh (raw) leaves and dried leaf powder [3]

Compound Analysed	Moringa leaves/100g	Moringa leaf powder/100g (~12 rounded table-spoons)
Moisture (%)	75	7.5
Calories (kcal)	92	205
Protein (g)	6.7	27.1
Fat (g)	1.7	2.3
Carbohydrate (g)	13.4	38.2
Iron (mg)	7	28.2
Vitamin A (mg) β carotene	6.8	16.3
Early readmission	2	1 (50%)

boiling water in a cooking pot. Let the porridge cook for 10 minutes.

- During the last 2 minutes of cooking, add 30g of oil (6 desert spoons), 30g of sugar (6 desert spoons), 24g of moringa leaf powder (3 table spoons) and 30g of sesame (6 desertspoons) or 30g of ground nut paste (6 desertspoons).

- Let the porridge cool while covered, then feed each child and/or PLW in the group. If the recipe is cooked in the home advise to feed it as soon as possible.

Note: One cup (~400ml) provides ~400kcal.

Although many children around the age of 18months and over traditionally eat family meals instead of porridge, the consistency of the recipes can easily be easily altered

MAIN ARTICLES

Table 2. Recommended kilocalories and amounts of high energy/nutrient-rich porridge for different target age groups

Age (average of ♂&♀)	Approximate RDA Kcal[4]	Recommended feeds of porridge per day	Kcal from porridge	Kcal from other sources
6-12 months	700	A third of a cup 3 times per day (plus breast milk)	400	350
1-2 years	900	Half a cup 3x per day (plus breastmilk)	600	300
2-3 years	1,100	1 cup 3 times per day + snacks	1200	~100
3-4 years	1,200	1 cup 3 times per day + snacks	1200	~200
4-5 years	1,300	1 cup 3 times per day + snacks	1200	~300
Pregnant women (additional energy requirements of pregnancy average of 2nd& 3rd trimester)	380	1 cup per day supplementary meal	400	~2,100 + depending on activity level
Lactating women (additional energy requirements of lactating women average of child 0-12mths)	570	2 cups per day supplementary meal	800	~2,100 + depending on activity level

Note: Breastmilk will continue to provide around a half or more an child's energy needs at 6-12 months and a third at 12-24 months

to suit growing children's preferences. GOAL however are actively promoting the consumption of different high energy micro-nutrient rich meals for children, to be served and eaten apart from the family foods. This ensures children receive a more balanced diet.

Family meals, even if they are prepared with a diversity of ingredients, often lack the required energy density that a child needs. Children need more energy/kg body weight than adults. However because children cannot physically eat large quantities, it is very important that their foods are energy dense.

GOAL has conducted cookery demonstrations using locally available foods in 19 clinics during 2012 (see figures 3) Sessions are carried out twice daily in the morning and afternoon during nutrition education sessions. Table 3 shows a summary of beneficiaries reached from January

– December 2012.

Cookery demonstrations are also incorporated into GOAL's Nutrition Impact and Positive Practice (NIPP) circles. NIPP circles are a GOAL initiated project, to address malnutrition in a preventative way through behaviour change, while rehabilitating MAM cases through supplemental feeding via the cooking demonstrations. With guidance, NIPP circle volunteers normally design the recipes for the cooking demonstrations and the participants of the circles provide the ingredients. A total of 7 NIPP Circles (7 female and 7 male circles) were formed during the pilot in 2012 in Twic County, Warrap State and Baliet County, Upper Nile State, with 64 households benefiting from improved knowledge and practice in cooking high-energy porridge.

References

1. UNICEF Conceptual Framework <http://www.unicef.org/nutrition/training/2.5/4.html>
2. Vella J. 1994. *Learning to Listen, Learning to Teach*. San Francisco: Jossey-Bass Publishers. p202.
3. Price M.L. Revised by Kristin Davis. 1985; Revised 2000. *The Moringa Tree*. ECHO Repository: ECHO Technical Note. 16.
4. FAO. 2004. *Human energy requirements* Report of a Joint FAO/WHO/UNU Expert Consultation. Available: <http://www.fao.org/docrep/007/y5686e/y5686e00.htm>. Accessed 6th March 2013.

Table 3. Participant numbers for cooking demonstrations by County/Administrative Area during 2012

	Twic County, Warrap State	Baliet and Ulang Counties, Upper Nile State	Agok, Abyei Administrative Area
Men	20,269	1,524	0
Non-PLW	32,464	3,599	661
PLW	21,186	3,130	1,146
Children	28,906	3,118	283
Total	102,825	11,371	2,090

Viewpoint: Self directed learning is NOT an easy way out for the teacher

Haitham M. El Bingawi^a MD Medicine, MRCP, MMed, DTM&H

The practice of medicine changes so rapidly that it is essential for health care professionals to continue to learn throughout their career. Self directed learning helps the learner to remain up-to-date on developments that occur in their profession. Therefore, the new learning technologies have placed an increasing emphasis on self directed learning [1].

Self-directed learning describes a process in which individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcome. It is a key issue in adult learning [2]. Knowles (1975) said “we are not talking here about something that would be nice or desirable....., we are talking about a basic human competence that has suddenly become a prerequisite for living in this world” [3].

The diagram in Figure 1 represents the process of continuing learning in medicine based on self direction [4].

However, a number of misconceptions regarding self direction in learning have emerged over the last two decades. Here are some examples:

- Self direction implies learning in isolation.
- Self directed learning is an all or nothing concept.
- Self directed learning is an easy way-out for teacher.

Self-directed learning does not mean that students' learning is independent of teachers and of organized teaching. The ‘hands off’ approach adopted by some teachers - based on the assumption that support would interfere with self direction - is therefore, inappropriate and may be counterproductive [5].

Here is a quotation by one student:

^a Assistant Professor of Internal Medicine, Department of Internal Medicine & Medical Education Development Unit, Al Baha University, Al Baha, Kingdom of Saudi Arabia

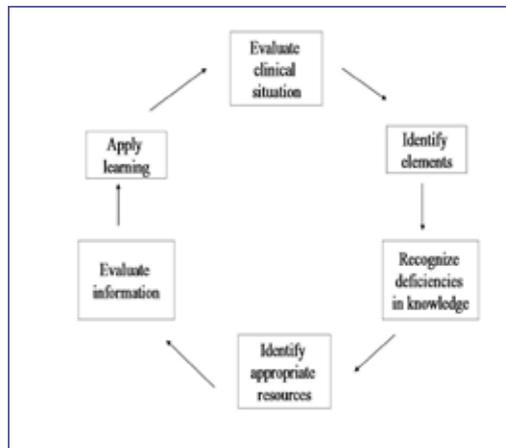


Figure 1. The process of continuing learning in medicine (Source: Medical Education Vol 34, 299-36. 2000. Reproduced with permission from John Wiley and Sons)

“... I mean, for them to tell you ‘go read up’, that for me is just throwing us further away . . . you will still not understand if you—okay, yes go read up, you will read up, maybe get a bit of background of what is going on, but I mean, if they give you the course—what to focus on”[6].

It is important to provide the necessary support and guidance for students to foster their development of self-directed learning skills, and therefore to become lifelong learners. The support depends on the students' stage in the training program. Those that are encountered early in the program need more

support than the latter ones [7]. Four major requirements for the support of self-directed learning [8]:

1. The environment must be socially and professionally safe before any learning will start.
2. It must be structured in such a way that students can find their way around the learning issues.
3. Teaching needs to be paced appropriately for students' level of experience.
4. Learning experiences need to be dependable and followed by prompt, supportive and adequately detailed feedback.

On the other hand, self-directed learning is not always the best way to learn for certain people, nor is it the best method for certain situations. Perhaps, it is more appropriate to think of self-directed learning as an ideal mode of learning for certain individuals and for certain situation [5].

In summary:

The field of medical education has witnessed a change in a student's role from passive to active learner; this moved the centre of gravity away from the teacher and closer to the student [9]. Even so it is strongly argued that the teacher should play an important role in helping students to become self directed, lifelong learners.

... Continue on page 47

A facial lesion ... the face of cutaneous tuberculosis

Okello Armgod Black^a MB.Ch.B, MUST

Introduction

Lesions of the facial skin can be difficult to diagnose in the absence of laboratory facilities. The patient described below is such an example where the clinician initially diagnosed facial kala-azar. It was only after the lack of therapeutic benefit and photographs were shared with international colleagues that the true diagnosis of cutaneous tuberculosis (TB) became apparent.

Case presentation

History

A 9-year-old non-immunized boy presented with a two years' history of an ulcer on the face. The ulcer progressed slowly beginning from the philtrum and enlarging peripherally to involve the nasolabial triangle as well as the cheeks (Figure 1). He had no history of cough, fever, night sweats or loss of weight. No other family members had similar lesions. He had visited the hospital on more than four occasions without any healing.



lymphadenopathy. Systematic examination revealed no abnormalities.

Based on the local experience of endemicity he was initially clinically diagnosed with muco-cutaneous kala-azar. Fluconazole and topical sulfadiazine was started.

Three months later, the lesion had advanced widely over the nasolabial areas and inter-orbital space with complete ulcerative destruction of the nasal bridge. Nasal orifices were partially obliterated. Ulceration had involved the left cheek, with the superior margin nearing the inferior eye-lid of the left eye. The inferior margins had involved the vermilion border of the upper lip with secondary exposure keratitis of the upper gum. He had difficulty feeding due to ulceration of upper lip. The rest of his body had widespread itchy papular lesions.

Investigations

- Rapid Plasma Reagin (RPR) test for syphilis and Human Immunodeficiency Virus (HIV) serology were negative.



Figure 1a and 1b. The facial lesions on the patient

Clinical examination

He was well nourished and did not look sick but covered his face with a towel. A BCG scar was absent. Face exposure revealed a regularly bordered, dirty excoriated ulcerative round lesion extending outwards. There were central crusts, plaques and fissures. It had pustular edges, not everted, undermined or fungating. There was no surrounding cellulitis. There was no regional

- Aldehyde gel test: positive. It should be noted that a positive test may also occur in tuberculosis, leprosy, syphilis and chronic malaria as well as in kalaazar.

- ESR: elevated 86mm/hour

There were no facilities for a Mantoux test, Ziehl-Neelsen staining for Acid-Alcohol Fast Bacilli (AAFB) on skin scrapings or biopsy for histology.

Diagnosis

Through the medium of this journal the photographs of this child's facial lesions were shared with a number

^a Boma Hospital, South Sudan dr.okello@gmail.com



Figure 2. Two weeks after the start of anti-tuberculosis treatment



Figure 3. Six weeks after the start of anti-tuberculosis treatment.

of colleagues including Emeritus Professor of Tropical Medicine at the University of Oxford, Professor David Warrell. Cutaneous TB was considered to be highly likely and appropriate treatment was advised.

Treatment

The Standard WHO regimen was started with rifampicin, isoniazid, pyrazinamide and ethambutol for a two months' intensive phase (2RHZE). This will be continued for a further four months of rifampicin and isoniazid (4RH). This will be given as Directly-Observed Treatment (DOT)

Outcome

The lesions started to heal rapidly within ten days of starting therapy (Figure 2). By three weeks there was almost complete disappearance of the skin ulcers with only residual mucosal lesions. At the beginning of the second month of DOT, the nasal orifice patency was improving allowing some nasal breathing. However he still breathes mainly by the mouth and has a hypo-nasal voice. He is currently in the second month of therapy (Figure 3).

Discussion

Cutaneous TB constitutes 1-2% of all extra-pulmonary TB cases in childhood and is often seen in association with malnutrition, low socioeconomic status and crowded living conditions. Cutaneous TB may develop due to *Mycobacterium tuberculosis* and *Mycobacterium bovis* and Bacille Calmette-Guérin [1]. There are a number of types of lesions:

1. Lupus vulgaris is the commonest. It tends to have sharply defined brown edges with a jelly-like consistency (apple-jelly nodules) and typically appears on the face around the nose, eyelids, lips, cheeks, ears and neck. It may follow inadequately treated earlier TB [2].

2. TB verrucosa cutis results from direct inoculation in a person who has had previous TB infection. The lesions appear brown-red and wart like especially on the

hands, elbows, buttocks, knees and feet.

3. Scrofuloderma arises from TB infection of underlying tissues e.g. lymphnodes. These are painless and ulcerate.

4. Tuberculid occurs in patients with a degree of immunity to TB. It may appear as a nodular vasculitis on the back of the legs (Bazin's disease). Crops of crusting lesions also occur in a similar distribution to that found with TB verrucosa cutis.

5. Miliary TB may manifest with small red spots that ulcerate and form abscesses and is more commonly found in immunocompromised patients.

Two diagnostic criteria are used [3,4]:

Absolute criteria: Positive culture of *M. tuberculosis* but the rate of positive culture is low [5].

Relative Criteria are used in absence of positive cultures:

- Evidence or history of active tuberculosis at other sites.
- Clinical history and physical appearance.
- The presence of acid-fast bacilli.
- Tuberculous granulomas seen on histology.
- Positive Mantoux test.
- Response to anti-tuberculosis therapy.

Diagnosis of cutaneous TB is difficult because of these various clinical forms, the relative infrequency of this condition and hence the inexperience of the non-specialist. Cutaneous TB must be considered in all cases with chronic skin lesions because TB prevalence is high in South Sudan. Early diagnosis and treatment is extremely important in order to prevent complications. The rapid response to treatment is well demonstrated by this case.

Complications include metaplastic change (Marjolin's ulcer) into squamous cell carcinoma and basal cell carcinoma. Deformities such as destruction of the nasal

SHORT ITEMS

bridge, palpebral destruction with secondary ectropion and exposure keratitis of eyes may also occur.

Where diagnostic facilities are inadequate as in South Sudan it is essential to take advantage of resources wherever they may be obtained. In this instance it was through this journal, the South Sudan Medical Journal, through which medium the clinicians were able to ask advice of tropical clinicians with experience in this field. The results of such international co-operation and friendship are clear to see (Figure 4).

Learning Points

- The compilation of a differential diagnostic list is essential when considering such unusual presentations. Tuberculosis must always be included.
- We need to consider an unusual presentation of a common condition before thinking of a common presentation of a rare one. In this case, we first considered mucocutaneous kalaazar (typical lesion presentation, rare disease). In fact, TB skin (rare presentation, common condition) did not feature initially among the differential diagnoses.
- Seek advice and co-operation. This is now much facilitated by the e-communications now available leading to a swift response.

All photographs taken by the author and published with permission of the patient and his next of kin.

References

1. Frankel, A., Penrose, C and Emer, J. Cutaneous tuberculosis. A practical case report and review for the Dermatologist. *J. Clin. Aesthet. Dermatol.* 2009; 2 (10): 19 – 27.
2. Tutanc, M., Arica, V., Basrslan, F., et al. The youngest patient of lupus vulgaris: a cutaneous tuberculosis case report. *Pak. J. Med. Sci.* 2012; 28 (3): 533 – 535.
3. Gawkrödger, D.J. *Mycobacterial infections*. In Champion R.H., Burton, J.L., Burns, D.A., et al. (Editors). *Textbook of Dermatology*, 6th. Edition, Oxford, London: Blackwell Scientific; 1998: 1181 – 1206.
4. Fitzpatrick, T.B., Eisen, A.Z., Wolff, K., et al. *Tuberculosis and other mycobacterial infections*. In *Dermatology in General Practice*. 5th. Edition. New York: McGraw-Hill: 1999: 2370 – 2395.
5. Sehgal V.N., Srivastava, G., Khurana, V.K., et al. *Int. J. Dermatol.* 1987; 26: 521 – 526.

Case Study – Central Pontine Myelinolysis

Clinical History:

Decompensated alcoholic liver disease and hyponatraemia. Relatively sudden onset of complex neurological symptoms including weakness, dysphagia, diplopia, disturbed consciousness and gait changes.

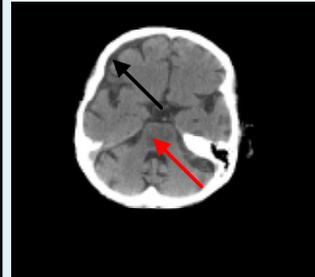


Figure 1

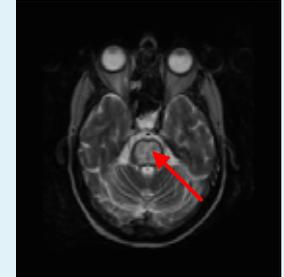


Figure 2

Picture 1: Non enhanced CT of the brain. This picture shows a hypodense appearance of the cerebral pons (red arrow) and a small right frontotemporal chronic subdural haematoma (black arrow).

Picture 2: Low resolution T2W image. This picture shows the extensive demyelination of longitudinally descending tracts and transversely crossing fibers in the basis pontis (red arrow).

Radiological Report:

CT Brain:

A non enhanced CT of the brain has been acquired. Picture 1 shows a hypodense appearance of the cerebral pons and a small right frontotemporal chronic subdural haematoma. The imaged portion of the fourth ventricle is unremarkable. No obvious space occupying lesions are seen within the cerebellopontine angle area bilaterally.

MRI Brain:

A fast low resolution T2W sequence of the brain has been acquired due to restricted patient compliance. Picture 2 shows acute diffuse oedematous changes affecting the cerebral pons in keeping with a central pontine myelinolysis. There is no evidence of midline shift or of signs of raised intracranial pressure. The cerebellopontine angle area including fourth ventricle is otherwise unremarkable. Incidental note of a small fluid collection within the sphenoid sinus is made.

Contributed by Dr med. Stephan Voigt, Consultant Radiologist, St. Mary's Hospital, Isle of Wight, UK. stephan.voigt@ion.nhs.uk

Report of a visit to UK on clinical attachment at Poole Hospital and St Mary's Hospital, Isle of Wight 6 October- 28 November 2012: an extract

Peter Pal Chol Nyan

I visited UK on a 7- week clinical attachment to Poole Hospital, mainly working in the department of diagnostic imaging (Ultrasound). The grant for my visit was secured from Gordon Memorial College Trust Fund (GMCTF) with the help of Dr. Frankie Dormon, a Consultant Anaesthetist at Poole Hospital and the Medical Lead of Poole Africa Link (which is the link with Wau hospital).



During my attachment I learned a lot about scanning though I was not actively involved hands-on most of the time. I was shown how to hold and manipulate the prob, where to place it anatomically with the help and cooperation of the Imaging staff. In rare instances, I was allowed to have a go with consent of the patients. I was engaged full time watching in the general USS and obstetric scanning.

I learned how to:

- measure the Nuchal Translucency(NT) which is a prelude to the screening for Down's syndrome and part of the anomaly scan,a technique which nobody does in South Sudan or, if it is being done,it is rare.
- recognize common abnormalities such as cardiac anomalies and renal abnormalities as well as conditions such as liver cirrhosis,fatty liver,liver tumours and hydronephrosis.
- do a routine fetal growth scan, by measuring the head circumference,abdominal circumference and femoral length, which gives you the expected date of delivery in weeks and days.

One interesting thing I noticed in the department of CT and MRI was that the whole machine was run by a team and everyone knows his/her area of responsibility.

I spent 5 weeks in Poole Hospital, one week in Bournemouth Hospital and one week in the St. Mary's Isle of Wight hospital in the department of general and obstetric ultrasound.

I felt that my visit was very worthwhile and beneficial,

even though the time was too short. I do not think one could be expected to learn all of the USS or any of diagnostic equipment within 7 weeks as the process involves a lot of technicalities and practicalities and as such each imaging modality needs a separate visit. Even so, I feel that the knowledge I gained in UK will be quite useful at home. While I will not be able to recreate something like this in South Sudan,I hope my experience will serve

to develop a sense of service delivery appropriate and relevant to the situation in my country.

In conclusion, I recommend that:

- The period of clinical attachment be extended from three to four months for various specialties especially radiology - because medicine without diagnostic services lacks accuracy.
- Assistance be given to us to take the International English Language Testing System (IELTS) so that those on attachment may communicate directly with patients and undertake examinations under supervision.
- Clinical attachment is considered for the following grades of healthcare professionals allied to medicine: physiotherapists, laboratory technicians, clinical officers, occupational therapists.Medicine is now more of team work and needs non-doctors who work alongside doctors to cooperate closely.
- Focused courses are provided to train clinical officers and senior nurses in specialized fields such as diabetes, epilepsy, stroke and anaesthesia.

My future plan and aspiration is to help to provide readily available radiographic services in South Sudan. This requires outside help from people of goodwill and commitment and enthusiasm from our people.

I would like to thank GMCTF for funding me, Dr Frankie Dormon and her husband James Pride, Dr Eluzai Hakim and Claire Chauncy.

The SSMJ Editorial Team would like to thank all our contributors and reviewers who worked tirelessly to produce this remarkable edition.

Obituary

Professor Meo, a life dedicated to South Sudan

Professor Meo graduated in Turin in 1962, and specialized in emergency and thoracic surgery. In 1968 he and his colleagues founded Comitato Collaborazione Medica (CCM), an NGO dedicated to health development in emerging countries.

He worked as a Medical Officer in a rural hospital in Kenya (Eldama-Ravine) between 1970-1972. In 1984 CCM began its activities in South Sudan in the city of Wau in collaboration with the Health Training Institute. Since 1991, following a Sudan Peoples' Liberation Movement



(SPLM) request, he started funding and operating a network of rural hospitals and Health Centers at Yirol, Billing, Adior, Turalei mission, Bunagok, rebuilding and restocking Rumbek hospital after the destruction of war as well as undertaking many surgical missions in remote areas in South Sudan.

Since his retirement in 2000, he dedicated most of his time to expand CCM activities in South Sudan and other African countries. Professor Meo became very close to the South Sudanese people during all the war years. During one of his missions in 1995, he was captured by the Government army of Sudan in Upper Nile and was held in hostage for 55 days. This experience further nurtured his ties with South Sudan. He was indeed very proud of being called "Mayodit" by his South Sudanese friends, patients and colleagues.

The main reason for his relentless activity, was to "bring surgical care to those who need it the most: the poor in the rural communities, even where conditions look almost impossible, at least by conventional surgery standards".

Three main principles have constantly inspired and driven his work:

1. Success relies on active participation of local people and communities with local political, administrative and traditional authorities consent and cooperation

2. Hospitals must be run by locals: capacity building, such as training and growth of local staff has to be a key goal of the mission itself. Many years of experience, working in South Sudan have demonstrated that

basic surgery saves lives and prevents disability. It can be done even in the most difficult (very adverse) conditions and with extreme scarcity of resources. Local professionals can be trained to learn required skills. This was one of the highest priorities for Professor Meo, who never stopped praising rural hospital personnel and staff for being

always hungry to learn, even if starting from basic levels of education.

3. Medical operations must be self-sustainable: structures, tools and technologies used in rural hospitals need to be appropriate for the local environment. As resources are limited and conditions adverse, everything must be done as effectively and inexpensively as possible.

With these principles Professor Meo greatly extended basic surgery in very remote areas. He also gave scientific dignity to this work that he used to call "surgery under very adverse conditions". On this topic he published several articles in specialized international medical journals, and presented it in scientific conferences, being recognized as an innovator in the matter. Recently he contributed to the South Sudan Medical Journal and was very proud of it as he had hoped to extend this valuable collaboration.

In June 2012, after returning from one of his recurring one-month surgical missions in Bunagok (Lakes State), he was diagnosed with a serious illness. In July he underwent a major surgery and faced with courage and faith the difficult recovery course. He died in his own home in Turin, Italy, surrounded by the affection of his family and his many friends on January 28th, 2013. He was 75 years.

The South Sudanese people, along with CCM and his family, have lost a great friend and a tireless travelling companion.

Resources

HIV/AIDS

HIV therapy and dyslipidemia in Tanzania

Approximately 75% of HIV-positive patients in Tanzania had lipid abnormalities three years after starting antiretroviral therapy, research published in the online edition of *Clinical Infectious Diseases* shows.

The study involved 6385 people starting first-line HIV therapy in Dar es Salaam. Their lipid profiles improved during the first six months of treatment, but by month 36 the prevalence of dyslipidemia had increased significantly from baseline. Regimens containing AZT (zidovudine, Retrovir) and nevirapine (Viramune) were shown to have more favourable lipid profiles than those based on d4T (stavudine, Zerit) or efavirenz (Sustiva).

The authors believe their findings have important implications for the care of people living with HIV in sub-Saharan Africa (SSA), and comment: “it has been estimated that incidence of cardiovascular disease will increase dramatically in the coming decades in SSA ... it is becoming imperative to monitor cardiovascular risk, identify risk factors associated with cardiovascular disease, and determine how these risks should best be managed in HIV-infected populations receiving ART.”

Cardiovascular disease is now a significant cause of death in people with HIV. The causes are uncertain but there is a consensus that they are likely to include a number of factors including lifestyle issues such as smoking and diet, the inflammation caused by HIV and the side-effects of some antiretroviral drugs, including dyslipidemia.

Access to HIV therapy in sub-Saharan Africa is expanding. Despite this, relatively little is known about the cardiovascular risks associated with antiretrovirals in this setting.

Ref: Liu E et al. First-line antiretroviral therapy in changes in lipid levels over 3 years among HIV-infected adults in Tanzania. *Clin Infect Dis*, online.

Comparison of Stopping vs Continuing Cotrimoxazole Prophylaxis among HIV+ Children on Long-term ART

Cotrimoxazole (CTX) prophylaxis reduces morbidity and mortality in HIV+ children prior to ART; its long-term impact in children on ART is unknown. The study took place among 1206 children in the Anti-Retroviral Research for Watoto (ARROW) trial in Uganda/Zimbabwe, 758

were randomized to stop (n = 382) or continue (n = 376) daily CTX (open-label) after median 2.1 years on ART. Eligible children were aged >3 years, on ART >96 weeks, currently on CTX, using insecticide-treated bed-nets if living in malaria endemic areas and had no previous pneumocystis pneumonia (PCP). Co-primary endpoints were hospitalization/death and grade 3/4 adverse events (AE). It was concluded that continuing CTX in children on ART for > 96 weeks is beneficial, with persisting reductions in hospitalizations for malaria and other infections across all ages and CD4 levels. Children/adolescents on ART in resource-limited countries should continue CTX long-term. Supply-chain logistics must be strengthened to ensure this occurs.

Ref: Mutsa Bwakura-Dangarembizi et al. Paper #86 CROI 2013 Atlanta 3-6 March 2013

Viewpoint *Continue from page 41*

References

1. Towle A. & Cottrell D. 1996. Self directed learning. *British Medical Journal* 74, 357
2. Knowles M.S. 1975. *Self-Directed Learning: A Guide for Learners and Teachers*. New York: Association Press
3. Clare K. 2006. ‘Undergraduates’ learning profile development: what is happening to the men? *Medical Teacher* 28:1, e16 — e24
4. Mifflin B.M., Campbell C.B. & Price D.A. 2000. A conceptual framework to guide the development of self-directed, lifelong learning in problem-based medical curricula. *Medical Education* 34 (4), 299–306
5. Brockett R. G. & Hiemstra R. 1985. *Bridging the theory-practice gap in self-directed learning*. In Brookfield (Ed), self directed learning: from theory to practice. New direction for continuing education. San Francisco: Jossey-Bass
6. McMillan W.J. 2007. “Then you get a teacher”—Guidelines for excellence in teaching?. *Medical Teacher* 29:8, 209 — 218
7. Mulholland H. 1993. How to write a study guide. *The Journal of Continuing education for general practitioners. Hospital Update plus* 90-92
8. Dunn D., De Saintonge D. & Chaput M. 1999. A student’s view of self-directed clinical learning. *Medical Teacher* 21:3, 302 — 307
9. Harden R. M. & Crosby J. 2000. ‘AMEE Guide No 20: The good teacher is more than a lecturer - the twelve roles of the teacher. *Medical Teacher* 22:4, 334 — 347.



JUBA COLLEGE OF NURSING AND MIDWIFERY

JUBA, REPUBLIC OF SOUTH SUDAN

Unique Opportunity!

Would you like to visit South Sudan to help train nurses and midwives?

Experienced nurses and midwives needed to help with clinical teaching programme

Travel and accommodation costs covered - we just need your expertise



The Juba College of Nursing and Midwifery (JCONAM), was established three and a half years ago.

South Sudan has very high maternal mortality rates – 2054/100,000 of population compared with UK's 7/100,000 – and infant mortality of 135/1000 live births. Graduates of JCONAM will therefore play an important role in the delivery of crucial antenatal, maternal and child health services.

Unfortunately, the graduation of the first batch of students at JCONAM has been delayed because of a shortage of tutors. In the UK, senior nurses and midwives supervise trainees on the wards and assess them against a set of predefined competences. This is not common practice in Juba, so the local ministry of health is appealing for two experienced volunteer nurses and two midwives from the UK to help with a 'crash' hands-on clinical teaching programme between the beginning of June and end of July to prepare this first batch of graduates for their historic final examinations. If you would like to be part of this unique project, contact Dr. Eluzai in the email below in the first instance for a discussion of what's involved.

Accommodation and subsistence will be provided locally for the nurse and midwifery volunteers but we need urgent financial assistance to buy their air tickets and insurance which cost in the region of £950 per nurse/midwife. If you would like to donate to this vital work, nursing and midwifery representatives will be happy to discuss it with you – contact: Dr. Eluzai Hakim, Vice-Chairman of the Juba Link Charity (no 1123754) & Medical Adviser to the Link, St Mary's Hospital, Newport, Isle of Wight PO30 5TG, UK, eluzaihakim@doctors.org.uk

Every effort has been made to ensure that the information and the drug names and doses quoted in this Journal are correct. However readers are advised to check information and doses before making prescriptions. Unless otherwise stated the doses quoted are for adults.