

Educational Forum

Global surgery volunteerism with operation hernia: a trainee surgeon's experience

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ABSTRACT

Access to adequate health services is a universal right for individuals and lack of it can have adverse consequences. The elective hernia repair rate in Ghana remains low and a considerable number of inguinal hernias still present as emergencies. Operation hernia is a charitable, UK-based organization that supports the healthcare infrastructure in Ghana through the provision of elective hernia repairs to prevent complications. Mesh repairs are carried out using sterilized, affordable mesh which is made of polyester and is a cheaper alternative to the expensive, commercial mesh. In November 2017 Operation hernia sent two teams of Surgeons and scrub nurses to work in two hospitals in Ghana. This was a successful mission that resulted in more than 150 successful hernia repairs. This article is written by a full-time general surgical ST6 Registrar detailing her first experience as a volunteer surgeon in Volta Regional Hospital in the town of Ho and the rewards reaped from this global surgical volunteerism experience.

Keywords: Global surgery, Hernia, Operation, Rural, Training

INTRODUCTION

The lack of financial and human resources in some low and middle-income countries (LMIC) can adversely impact their provision of healthcare. There is a growing number of organizations worldwide that deliver medical and surgical aid to many communities.

OPERATION HERNIA

Operation hernia is an independent charitable organization which relies on surgical volunteerism for the provision of surgery and educational opportunities in rural hospitals in resource-poor countries. It was established in 2005 by two UK surgeons, Professor Andrew Kingsnorth and Mr Chris Oppong, from

Derriford hospital in Plymouth. The first visit was to Takoradi in Ghana, supported by the Plymouth-Takoradi link, which dates back to 2003 as a cultural and educational exchange program. To provide a permanent facility for future humanitarian missions, operation hernia set up a Hernia Centre at Takoradi Hospital with endorsement from the British Hernia society and generous donations from the British High Commission in Ghana.¹ Since then, additional hospitals in Ghana have been used as centres for Operation Hernia missions and these include Dixcove Hospital in the western region, Ho and Keta Hospitals in the Volta region, Bole Hospital and the Baptist Medical Centre at Nalerigu in the Northern region of Ghana. Operation Hernia has established a permanent training centre at Cape Coast Teaching Hospital in the central region of Ghana. Operation Hernia

endeavours to provide ‘high quality surgery at minimal costs to patients that otherwise would not receive it’ and it has recently celebrated a successful decade.

THE CASE FOR HUMANITARIAN HERNIA MISSIONS

The population of Ghana in 2016 was 28.2 million, which is less than half of the population of the United Kingdom. However, data from the World Health Organization (WHO) Department of Health Statistics reports that there are only 10 physicians in 100 000 population in Ghana compared to 280 physicians per 100 000 in the UK.² Such a low doctor-to-population density limits the provision of essential interventions such as elective surgery. In Ghana, the prevalence of inguinal hernias is around 7.7% and a study by Kingsnorth et al found that Ghanaian hernias were significantly larger than those in UK patients.³ The elective repair rate is low and a considerable number of inguinal hernias in Ghana present as emergencies.^{3,4} An epidemiological study by Beard et al suggested that if the current low annual rate of repair of hernias in Ghana (30 per 100, 000) is not augmented, in 10 years, there will be a backlog of one million hernias to be repaired.⁵ Operation hernia supports the healthcare infrastructure in Ghana through the provision of elective hernia repairs to prevent complications. Additionally, the use of mesh is novel to many surgeons who still carry out tension repairs of inguinal hernias. I have always had a keen interest in global surgery, particularly the provision of surgery in resource-scarce communities. This was my first volunteer trip and I was based in Volta Regional Hospital in Ho, Ghana.

WORK AT VOLTA REGIONAL HOSPITAL, HO, GHANA

Volta Regional Hospital is a teaching hospital in Ho, in the Volta region of Ghana which is situated in the south-eastern part of the country. It is affiliated with the University of Health and Allied Science in Ghana. Our team comprised three consultants, two senior Registrars and two scrub nurses. The team was distributed between two hospitals. My team of five (two consultants, one registrar and two scrub nurses) was assigned to Volta Regional hospital which is a two-and-a-half-hour journey by car from Accra. We took a box of medical equipment with us which contained sutures, mesh and hand-held diathermy to supplement the hospital resources. Three theatres were made available for us for the duration of the mission. We operated on a mix of young and elderly men with predominantly long-standing hernias. As a team, we made decisions about the types of anaesthesia to utilize, case distribution and order of each list. I had full lists of inguinal, inguino-scrotal and umbilical hernias each day to be performed under local or spinal anaesthesia. We knew we had to avoid General anaesthesia due to the limitation of resources. My assistant over the course of the week was a scrub nurse volunteer from the UK. It was highly satisfactory to see a copy of the World Health

Organisation Surgical Safety checklist printed and laminated on the walls.



Figure 1: The operation hernia team from 4-11th November 2017. From Left to Right: Dr Kelly Shine (consultant surgeon, USA), Mr Surjait Singh (retired consultant surgeon, UK), Mrs Suli Henderson (scrub nurse, UK), Mrs Leah Thorne (scrub nurse, UK), Ms Sala Abdalla (registrar surgeon, UK), Dr Beatrix Weber (consultant surgeon, UK), Mr Javed Muhammad (registrar surgeon, UK).



Figure 2: Sala Abdalla, Leah Thorne, Cyril Bansah (Resident Ghanaian doctor) (Volta Regional Hospital).

To carry out Lichtenstein mesh repairs we used sterilized, affordable mesh. The low-cost mesh is made of polyester and is a cheaper alternative to the expensive, commercial mesh. This makes it highly sought after in resource-limited settings. It was first used by Tongaonkar in India in 1996 where the composition of the mesh was a copolymer of polyethylene and polypropylene.⁶ The affordable net mesh used by Operation hernia is 100% polyester which is easy to handle and has been shown to

be cost effective with a relatively low rate of early and short-term complications.⁷



Figure 3: Surjait Singh and Suli Henderson (Volta Regional Hospital)



Figure 4: Theatre team at Volta Regional Hospital (Front row includes Kelly Shine and Leah Thorne, back row includes Suli Henderson and Sala Abdalla)

A recent randomized controlled trial comparing the low-cost polyester mesh to the commercial Polypropylene mesh found no significant differences between the two in the rates of post-operative complications and hernia recurrence.⁸ The low-cost mesh we used was imported from India and sterilized and packaged in the UK. We brought several packets with us and we cut it to a suitable size prior to implantation. There were three diathermy machines shared out between four theatres, but we managed well without major delays between cases. It was very important to be economical with sutures since we had a limited supply of types and sizes.

On one of the days I scrubbed with one of the consultants to assist her with a large hydrocele case and went on to perform a supervised Jaboulay repair of the hydrocele. I met a Ghanaian resident surgical doctor who was enthusiastic and keen to see mesh repairs of hernias. He

assisted me in the mesh repair of a large paraumbilical hernia and a Lichtenstein mesh repair of an inguinal hernia. I learned that it was his first-time handling mesh. We had time to discuss our individual training pathways and I learned about healthcare and the training program in Ghana. After this I had a case of bilateral inguinal hernias where the resident doctor assisted me in doing the inguino-scrotal side, following which I supervised him doing a mesh repair of the contralateral side. Later that day I performed my second Jaboulay hydrocele operation. On the fifth and final day of operating there was a palpable sense of sadness as the week was drawing to an end. We had a reflective meeting with the hospital management board and said our goodbyes to the team at Volta Hospital.

We carried out a total of 145 hernia repairs across both hospitals. There was only one early post-operative complication which was a symptomatic haematoma following a right inguinal hernia repair that required evacuation. The patient made a good recovery thereafter. All operations were documented in an operation hernia database and in hospital records. All patients were discharged with analgesia and a 5-day course of antibiotics which is an antibiotic policy that is common to all hospitals in Ghana. Arrangement were made for follow-up in two weeks for wound check.

The following day we all met back at the guest house in Accra and later that evening we all flew back to our respective countries.

THE VALUE OF GLOBAL SURGICAL VOLUNTEERISM WITH OPERATION HERNIA

The gross disparity in the availability of adequate surgical care between the high income and low income is well documented. The Lancet commission estimates that 5 billion people, about 65% of the world's population, have no access to safe and affordable surgical care.⁹ Volunteering schemes like Operation Hernia have played a pivotal role in addressing the unmet surgical need and advancing the provision of elective hernia surgery globally. The desire to provide surgical care to those with inadequate means of access is inherent in many surgeons and immensely rewarding, as I have experienced first-hand on this mission.

This volunteer mission to Ghana gave me a new perspective of health service abroad and the opportunity to practice surgery on a global platform, outside of the National Health Service (NHS). During the course of the week I delivered a service of open mesh repairs of symptomatic hernias of varying sizes and complexity, assessed patients for suitability for surgery and constructed operative lists, provided on the job training for local doctors, nursing and theatre staff all while carefully managing the limited resources and medical stocks. The options of sutures and dressings were limited, and sterile gloves were in short supply; I had to improvise

with a size that was slightly bigger. Diathermy machines needed to be shared at times between theatres, some of the instrument sets were incomplete and the availability of disposable equipment was very limited. The need for adaptability, team-work and cooperation was paramount, and as a team, we were focused and worked tirelessly on delivering high quality patient care with the available resources.

Moreover, the degree of critical thinking and planning required in this setting enabled me to enhance my leadership and management skills in ways that cannot always be taught on courses. The benefits extend beyond the provision of care to professional training for local doctors and nurses and fostering of good relations with the local clinicians and management staff. The staff in Volta regional hospital were hardworking, considerate and accommodating. The enthusiasm and diligence of the local doctor that I trained was refreshing and I have encouraged him to send me reports on his progress.

TRAINING OPPORTUNITIES FOR UK AND FOREIGN SURGICAL TRAINEES

Operation Hernia has trained several local doctors in mesh hernia surgery. It has organised several formal training workshops in Ghana, Rwanda, Uganda and Tanzania. Operation Hernia has also contributed enormously to the training of UK surgical trainees, and in collaboration with the Association of Surgeons in Training (ASiT), it funds a training fellowship for senior surgical trainees.¹⁰ There are numerous other opportunities to get involved in international volunteer efforts. Conferences such as the annual Global Surgical Frontiers Conference in the UK can be tremendously informative and a good networking opportunity. College websites and simple online searches can also yield a lot of information on volunteering abroad. Moreover, Hospital Trusts are encouraged by Colleges to provide study leave to trainees who go on such missions that are valuable for their training in hernia repairs.

BENEFITS TO THE NHS

I have returned to work in the NHS with enhanced awareness of the obstacles that communities face in countries with limited resources. The opportunity to go into a different environment and culture and use the skills that I have assimilated from my training to help others was invaluable. Indeed, this has been the best working holiday.

CONCLUSION

While volunteer experiences like Operation Hernia are primarily driven by altruistic motivations, they can also provide many learning opportunities and are extremely

rewarding for patients, volunteers and hosts. Conflicts of Interest None.

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