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The Importance of Partnerships with Developing Countries: How to Establish A Microsurgery Course in Kenya?

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It is estimated that five billion people around the world are currently living without access to adequate surgical care.[1] Surgery is crucial for the advancement of global health as a reduction of the burden of surgically treatable illnesses benefits not only patients' quality of life, but also the nation's productivity and economic potential.[2]

It has been estimated that investing in surgical care would help sub-Saharan Africa's human capital grow significantly.[1,3,4] Kenya is a lower-middle-income country with a population of 52.5 million,[5] where progress has been made in expanding access to health care in the effort to provide equitable, affordable, and timely care through universal health coverage.[6] Recent reports have shown that 95% of regional and national hospitals are capable of delivering comprehensive surgical care; however, that percentage drops to 46% for secondary hospitals.[6] In 2016, it was estimated that in Kenya, there are currently 543 practicing surgeons across all specialties (1.21 surgeons per 100,000 people), of which 52% are general surgeons and 59% of them are based in Nairobi, suggesting a concentrated surgical workforce in the capital city.[7]

The Department of Plastic Surgery at Kenyatta National Hospital has been providing microsurgical reconstructions since 2011. A partnership was established between the University of Nairobi, Kenyatta National Hospital, the Kenyan Society of Plastic, Reconstructive and Aesthetic Surgery, and the MultiMedica Reconstructive Microsurgery Service to deliver an interactive and hands-on course for plastic surgery trainees based in Nairobi. The aim was to demonstrate complex reconstructions, provide expert advice for the service, and inspire the next generation of East African reconstructive plastic surgeons.

Prior to the course, participating consultants and trainees working in Nairobi were asked about their training in microsurgery, as well as their expectations regarding the course. Three plastic surgeons based in Italy and the United Kingdom traveled to Nairobi to support the course as invited faculty. A total of 30 residents attended the course.

Live Surgeries

Prospective patients interested in taking part in the live surgeries section of the course were triaged by the Kenyatta Hospital plastic surgery team first. Those who required surgical treatment that could not be delivered by the local team were presented in an online meeting 1 week prior to the course. Upon arrival, the visiting surgeons conducted a ward round, selecting three cases among the shortlisted five. Together with the local team, the surgical plan was discussed.

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Live surgeries were scheduled for the first 2 days of the course, allowing the visiting team to be present during the first postoperative week. A total of three cases were performed involving four free flaps in total, three deep inferior epigastric perforator flap to breast reconstruction, associated with mastopexy, and a scapular + parascapular flap for lower limb reconstruction.

On the day of the operation, the surgical plan was discussed with all the attending residents. This included technical and anatomical remarks. Patients consented for live-streaming to be broadcast through CCTV to a lecture room where most residents were present. Senior trainees were allowed to scrub and assist with these operations.

Postoperative ward rounds were conducted every day by the visiting team and local trainees. These allowed for further discussion and bedside teaching. No acute postoperative complications were observed while the visiting team was present.

Lectures and Cadaveric Course

A 2-day cadaveric and simulation course took place after the live surgeries. Each day started with lectures delivered by local presenting, key points for a selected number of workhorse free flaps prior to the hands-on sessions. Two keynote lectures were delivered by the visiting team, providing ample time for practical activities. Residents were divided into two groups: The senior cohort had the chance to raise flaps in cadaveric models, while the junior cohort practiced microsurgical skills in non-living models. Seven flaps were demonstrated and performed by the senior cohort at the cadaveric workshop: the scapular + parascapular, latissimus dorsi, superior gluteal artery perforator, lateral intercostal artery perforator flap, anterolateral thigh flap, medial sural artery perforator flap, gracilis, and gastrocnemius.

The Future

According to a study published in 2021 by the College of Surgeons of Eastern, Central, and Southern Africa (COSECSA) on surgical courses, low productivity on the academic level in the region is not only due to a lack of infrastructure, but also to a lack of collaboration and mentoring with international surgeons following visits.[8]

An hour-long, weekly online meeting with the departments is held to continue this partnership, during which patients and treatments are addressed. This enables us to keep bridging the gaps between units, follow the patients, and maintain the residents' educational environment.

This approach of building a genuine partnership benefits the patients while also rekindling Nairobi residents' and consultants' interest in microsurgical reconstruction. We believe this will lead to future research and clinical collaborations now that the visiting team has gained knowledge regarding the clinical setup in Nairobi, and the local team has seen what the visiting surgeons can provide from an educational perspective.

Authors' Contributions
All the author contributed to the text and revision.

Ethical Approval
Statement of institutional review board approval and/or statement of conforming to the Declaration of Helsinki: The present manuscript was exempted from IRB approval.

Patient Consent
In accordance with hospital policy, informed consent was obtained from all patients prior to surgery.

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Conflict of Interest
None declared.

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