Research Paper

Access to oral & maxillofacial surgery in Sub-Saharan African countries

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ABSTRACT

In many regions of Africa, and especially in rural areas, basic health services are scarce, access to general surgery very difficult and Oral and Maxillofacial Surgery non-existent. In these regions, patients with pathologies in the maxillofacial area, whether malformations, tumours, infections, trauma, etc., do not have the possibility of receiving any treatment, and the mortality rate from any of these pathologies is very high. Patients who survive with these maxillofacial pathologies will have to face all their lives, in addition to the limitations of their disease, the stigma of social marginalization linked to the obvious visibility of any facial deformity. Achieving universal access to surgery (including oral and craniomaxillofacial surgery) for all human beings is part of the Sustainable Development Goals set by the UN for 2030. Achieving these goals requires the cooperation of all: public and private sectors, academic institutions, professional associations, NGOs, international agencies, medical industry and the entire global Oral and Craniomaxillofacial surgery community.

1. Article

A chance meeting, at the Ministry of Health in Madrid, in 1999, with the person who coordinated a group of NGOs in Equatorial Guinea was the author's introduction to the problems faced by patients in sub-Saharan Africa, and specifically, the difficult situation in that country, where health services were almost non-existent. When asked who operated on children who were born with clefts of lip and palate, she replied "Nobody. Many die or are abandoned. Some reach adolescence or adulthood living a life of marginalization".

In Equatorial Guinea, as in many rural areas of low resource LMICs, orofacial clefts are associated with high mortality and morbidity.⁶ These children rarely survive with this extra handicap in a place where the infant mortality rate is already very high in children even without any health problems, and in some cases, they are subjected to infanticide because of family and social rejection as well as the extra burden they place on families already overloaded with children.

Consequently, it was decided to launch the Equatorial Guinea project. In this country, as in many rural areas of the LMICs, charity missions are the only possibility of accessing cleft lip and palate surgery. In our case, we wanted to avoid being accused of performing "safari surgery", and we decided to plan, in collaboration with the Government of Equatorial Guinea, a long-term sustainable system for children with craniofacial malformations to have access to a comprehensive treatment

programme. The Ministry of Health of this country had several National Programmes aimed at treating malaria, onchocerciasis, AIDS and tuberculosis, and our organization, the Fundación Española de Cooperación Sanitaria (FECS), proposed the creation of a National Program for the Registration and Care of Patients with Craniofacial Anomalies, under the following conditions:

- Constitute a long-term structural project, inserted in the national health system and in its health policy.
- Facilitate the continuous monitoring and evaluation of the project, both its implementation and its impact.
- Have sufficient structure to ensure compliance with the objectives set, accrediting the experience and operational capacity necessary for it.
- To promote the formation of a local workforce capable of progressively managing projects autonomously in the future, and the participation of the community in the conception and development of the programme.
- Give preference to working with trained local staff where available.
- Pursue the self-financing of projects once external aid ceases.
- To obtain from the local authorities, the contribution of the human and material resources that allow and ensure the sustainability of the project.

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The Programme was based in the General Hospital of Bata, and twice a year a team of expert cleft surgeons from Spain visited it. Although we tried to escape the prototype of “mission surgery”, and establish a broader cooperation programme, including a follow-up and complete treatment of patients in the long term, and a system of training and exchange with local professionals, the conditions of the country in those years made it very difficult to develop the programme, which operated for several years, until the government decided to close this hospital, the only public hospital on the mainland of Equatorial Guinea.

Health is one of the keys to human development; populations with high rates of disease have many difficulties for economic growth. But health is also a basic human right, enshrined in the Universal Declaration of Human Rights. That is why, in 1948, the WHO was created with the aim of achieving the highest possible level of health for all human beings.³ Hence, the concept of Global Health.

The enormous burden of major communicable diseases in sub-Saharan Africa, malaria, tuberculosis, onchocerciasis, AIDS, has kept the problem of surgical pathologies hidden for decades.^{1,3,11} Large international public and private health agencies and organizations have focused their efforts on these major endemic diseases, and have ignored the problem of access to surgery. However, in the absence of surgical treatments, mortality and morbidity rates for common, easily treatable pathologies such as appendicitis, hernias, fractures, ectopic deliveries, congenital anomalies or cervical and breast cancer,¹ are very high. Despite the growing need, the development and provision of surgery and anaesthesia in LMICs has been almost absent from the discourse of Global Health.^{1,3} It has not been until recently that, within the concept of Global Health, the concept of Global Surgery³ has emerged.

In 2015, the Lancet Commission on Global Surgery¹ published a report that confirmed the extent of this problem. According to the Commission, in sub-Saharan Africa, 93% of people had difficulty accessing safe, timely and affordable surgical services. In most of the continent, health services are paid 100% out-of-pocket, and access to the few surgical services available, usually in cities, are economically inaccessible to most, forcing long and costly journeys and often leading to catastrophic expenditure for many people and families who need them. Only the highest classes living in the cities have access to surgery in general,^{3,6} and in most of the rural areas, where the majority of the population is located, patients with surgical pathologies simply do not receive any type of treatment.

As the incidence of major infectious diseases reduce, diseases susceptible to surgical treatment are increasingly appearing as a priority. In 2015, the 68th WHO Assembly^{2,10} recognised that “many diseases that can be treated surgically are among the top 15 causes of physical disability worldwide, that 11% of the global burden of disease is due to conditions that can be effectively treated through surgery,” and that “the sustainable provision of essential and emergency surgical care and anaesthesia services is a critical part of primary health care, reduces mortality and disability, decreases the number of deaths from birth defects, and prevents other adverse health outcomes arising from the burden of trauma and non-communicable diseases”.^{2,10}

This 68th WHO Assembly declared the strengthening of essential and emergency surgical care, and anaesthesia, as components of Universal Health Coverage (UHC), including in this care “common conditions requiring surgical treatment such as obstructed delivery, birth defects, cataracts, cancer, diabetes, acute abdominal conditions, burns and injuries due to domestic, work and traffic accidents”.³ The current WHO Director-General, Tedros Adhanom Ghebreyesus proclaimed that “No country can achieve Universal Health Coverage if its population does not have timely access to safe and affordable surgical services. That is why it is vital that countries invest in surgery”.³ In the same year, in 2015, the World Bank joined this wave of attention on the global problem of access to surgery with the publication of its report “Essential Surgery”, within the third edition of its Disease Control Priorities (DCP).

As a result of all these global reports and commitments, in 2018, the 16 member states of the Southern African Development Community

signed an agreement to prioritize the provision of surgical services as part of the regional health strategy.³ And to begin this path they launched the National Surgical Obstetric and Anaesthesia Plans (NSOAPs)^{1,3,8,9} with the aim of it being implemented in district hospitals, reaching rural areas.

There are no reliable direct data on the incidence of maxillofacial surgical pathology, the number of surgeries, or the number of surgeons in most sub-Saharan African countries. The available data come from various estimates and extrapolations from heterogeneous and unclear sources,¹ but everything indicates that oral and maxillofacial pathology is part of the great tragedy of the lack of access to surgery in these countries. Few patients in sub-Saharan Africa have access to treatment for pathologies of the oral and maxillofacial region, including benign and malignant tumours, trauma and its sequelae, infections or malformations. In all the surgery campaigns we carry out in Africa, we see desperate patients with various pathologies at advanced stages, hardly seen anymore in developed countries. This is quite frustrating because in many cases the means to treat them are not available.

The density of health professionals in LMIC is disproportionately low,¹ and the conditions of the few health facilities in rural areas are very poor. The WHO SAT database investigated more than 800 facilities in LMICs to find that many did not even have electricity or drinking water, and that 55% of district hospitals in several African countries did not have an anaesthetic machine, 35% did not have a laryngoscope, and 70% of operating rooms did not have a pulse-oximeter.¹

The investment needed to generalize access to surgery in sub-Saharan Africa should include the training of health professionals: surgeons, anaesthetists, nurses, etc.; hospital infrastructure, operating rooms with all the necessary equipment and furniture, and a health system that offers free or affordable cost to the population. The support of international institutions, agencies and organizations is very important in order to achieve these objectives. A global effort is needed, with the help of the more developed countries. And in our case, also from the global community of oral and maxillofacial surgeons and their organizations. This is how the concept of Global Surgery extends to that of Global Oral and Maxillofacial Surgery,³ an area of study and practice that seeks to improve the health of populations in the oral and cranio-maxillofacial field, through research, training, access to treatment, the establishment of quality services, and the evaluation of results, with special attention to those underserved populations and populations in crisis.³

Clearly, the best thing is to develop strong and independent health systems, with trained local professionals, who can train the next generation, with sufficient infrastructure and equipment, with free access of the population to surgical care; and that international organizations would be only there to support, coordinate, collaborate, and implement global health policies. But, the Lancet Commission itself points out that, while all this is developing in LMICs, local and international NGOs can play an important role in providing services and strengthening the local health system, helping local health workers address unresolved health needs, and enhancing local training programs.

Despite all the criticisms and their limitations,^{4,5,13} missions or surgical campaigns in LMICs cannot and should not always be considered a neocolonialist practice. They are very justified when there is nothing better, as is often the case in Africa, and as long as they are focused on collaboration with any existing local health institutions and workforce. In this way, surgical campaigns have been historically carried out aimed at different pathologies. In large areas of the continent, patients with clefts of the lips and palates never have a chance of receiving an adequate treatment programme, either because of the absence of surgical services or because of the difficulty of access to the few paid local surgeons in the cities. These children often have problems feeding properly, developing speech, developing teeth, ear infection problems, etc., which make them more vulnerable than normal children, and it leads them to a high mortality rate in these countries. It is common in our campaigns to attend young people as well as adults who have

survived and who throughout their entire lives carry and exist with the stigma of deformity.⁷

These campaigns or missions have to meet certain requirements, basically offering patients the same as they are offered in HICs (High Income Countries): maximum quality and safety in care, with expert surgeons and anaesthesiologists, sufficient infrastructure and equipment, sterilization capacity, pharmacy, nursing care, emergencies, and evaluation of results. They cannot displace, compete with or hinder local health services, but integrate into them, into their policy and under their direction, according to their needs, helping in the training of local professionals. And without a doubt, it is better to replace the short visits of expert surgeons, by long exchanges of training and clinical practice.⁵ In this sense there are numerous and good examples such as the organizations Smile Train and Operation Smile, global efforts to offer treatment to patients with cleft lip and palate, which at the same time try to strengthen local health systems and train their professionals. Or the partnership of the University of Dhaka with surgeons from Australia and Japan that established in 1994 the first Master's programme in Oral and Maxillofacial Surgery in Bangladesh,³ and has since led to the development of several advanced services of the specialty in the country. Another example is the GSR Craniofacial Institute, founded and directed by Professor Gosla Reddy in Hyderabad (India), which offers complete treatment including surgery, orthodontics, speech therapy and long-term postoperative care, at low or no cost to thousands of patients with craniofacial anomalies each year, and has trained hundreds of specialists from India and 25 other countries. The GSR Craniofacial Center even provides schooling for abandoned or orphaned cleft children. A further example is the Craniomaxillofacial Surgery Center in Janakpur, Nepal, promoted by the NGO Future Faces with the intention of addressing the surgical needs in oral and craniomaxillofacial surgery of that very poor region of Nepal. This NGO supports the training of local specialists through mentoring and an international exchange programme, which includes stays of international specialists at the Centre, and stays of trainees in Centres of Excellence in India and Europe, the latter through additional funding from the European Association of Craniomaxillofacial Surgeons.

In the last 20 years there has been significant economic and social progress in many African countries, but unfortunately there has also been a setback in others, especially those involved in violent conflicts. Islamist guerrillas, tribal wars, warlords, and the disappearance or inoperability of states and their institutions hold millions of people hostage to various armed groups, in situations of extreme poverty, low life expectancy and skyrocketing infant mortality rates. Armed conflicts are much more frequent in Africa than in any other part of the world. According to the World Bank, the majority (54%) of those living in fragile and conflict contexts, in 2015, were in sub-Saharan Africa. In these regions, populations do not have access to any type of health services, let alone surgery. For example, the noma has reappeared in recent years with force in Niger, Chad, Burkina Faso and Mali, a large part of the Sahel terrorized by Islamic militias such as Boko Haram, where numerous hospitals have been destroyed or closed, and international health organizations and agencies expelled.

In 2011 FECS launched a new project in the Tabora region, Tanzania, this time with a different perspective. Tabora is also a region with few health services, and there we decided to collaborate in a broader community development project. Over an old Dispensary in very poor conditions, we have built a small hospital that is growing progressively with the aim of being a reference centre for the region in basic health services and also in surgical services, including oral and craniomaxillofacial surgery. This hospital is part of the local health system, and is supported and controlled by the health authorities, which fund part of the community health programmes, such as vaccination and treatment of HIV patients, and also provide human resources.

The Coronavirus pandemic prevented us from being able to launch the newly completed and equipped operating theatre pavilion in April 2020, which we have delayed until December 2021. It will have a local

surgeon and an anaesthesiologist, and it will comply with the ten basic principles proposed in Panel 2 of the Lancet Commission¹ for the provision of safe and quality surgical services:

- 1 Trained surgical provider
- 2 Trained anaesthesia provider
- 3 Infrastructure, equipment and supplies necessary to perform safe general anaesthesia, loco-regional anaesthesia, laparotomy, caesarean delivery, and treatment of open fracture (including, for example, electricity, water, personal protective equipment for staff, basic laboratories, and HIV-testing capabilities)
- 4 Decontamination and sterilization capacity
- 5 Blood supply that is safe and affordable (screened and cross-matched blood)
- 6 Drugs, including antibiotics, pain medicines, and anaesthetics (from the WHO Model List of Essential Medicines)
- 7 Nursing care, which includes a record of appropriate physiological observations
- 8 24 h surgical cover with the ability to review and respond to a deteriorating patient
- 9 Quality-improvement processes, including audit of perioperative mortality
- 10 Risk assessment and operation planning for planned procedures

Also following the stratification of surgical procedures of the Lancet Commission as 'must-do, should-do, and can-do',¹ our hospital is now ready to begin the first stage (must-do), which includes high-value acute procedures such as laparotomy, appendectomy, caesarean sections, hysterectomy, dilation and curettage, treatment of fractures and wounds, opening and drainage of infections. And also some second stage (should-do) procedures, such as treatment of hernias and superficial soft tissue tumours. As for Oral and Maxillofacial Surgery, in a first stage we will include oro-facial traumatology, dento-alveolar surgery, infections and the removal of small tumours.

To this we will add the realisation of periodic surgery campaigns, with volunteer surgeons for more advanced procedures such as thyroidectomy, mastectomies, deformed foot, urinary incontinence of obstetric origin, etc. In the Tabora region, there is no cleft surgeon and patients with clefts of the lip and palate have never had the opportunity to receive treatment. Since 2012 we have already started sending a team of surgeons once or twice a year to perform oral and craniomaxillofacial surgery campaigns, including clefts. In the future we hope to have local professionals with the appropriate training who can gradually replace volunteer surgeons for this and other surgical pathologies.

If there is a main factor for the future development of surgical services in sub-Saharan Africa, it is the training of surgeons and anaesthetists, and this is the field in which international organizations can collaborate most through financial and educational support, facilitating training opportunities through the contribution of teaching staff, exchanges with local universities, scholarships for postgraduate studies in surgery in reference hospitals. Achieving universal access to surgery (including oral and craniomaxillofacial surgery) for all human beings is part of the Sustainable Development Goals (SDG 3) set by the UN as goals for 2030. Achieving these goals requires the cooperation of all: public and private sectors, academic institutions, professional associations, NGOs, international agencies, medical industry and the entire global Oral and Craniomaxillofacial surgery community.^{3 12}

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