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Key Points on Short Term Medical Mission International organization on Orofacial cleft

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Abstract

Background: Children suffering from congenital facial malformations in underdeveloped countries are the main objective of the STMMIs with the aim of easing their lives. Clarós Foundation (CF) has carried out 115 missions worldwide with the aim, among others, of treating patients with this type of orofacial cleft malformation. We think that the experience we have acquired in this field can be transmitted to new NGOs institutions that want or wish to continue in this line. The optimization of the use of means and human resources, both from the NGO and the local health workers, will make it possible to achieve greater outcomes and results when applied in the development of Short Term Medical Mission International (STMMIs) missions.

Material and Methods: We present the experience CF has acquired throughout the various STMMIs it has accomplished, during a period of 7 days each, specifying the details of its organization, patient selection, preparation of the surgery and its performance, in a well-organized manner to be fast, effective and safe in its results. During each of the 115 missions, the medical team has treated patients with this congenital pathology, in different proportions that go from 90% of the total cases to only 10% of the patients attended. The surgical techniques applied are those used in our medical center in Barcelona, which we may say, are the state-of-the-art surgical techniques used by the most advanced centers.

Results: A total of 1725 patients underwent surgery throughout 115 STMMIs, average duration of 7 days each, 115 STMMIs by 15 cases average. During this time 925 patients were operated for cleft lip and 800 patients for cleft palate. Male patients accounted for 58% and female for 42%. According to the age of the patients we found that the majority of cases were operated on babies 68.35% (1.179 neonatal period); 20.2% on children (300 cases) and (19.76%) adolescents (233 cases); and 1.10% adults in the 20-67 age range (13 cases).

Of the total number of operated patients (1.725), there have been few immediate and late postoperative complications, but we estimate them at 11%.

Conclusion: International cooperation between experienced NGOs and local medical teams turn out to be much more effective, less expensive and with better clinical results than those obtained without this collaboration. This organizational model can be very useful in order to know the details that these missions entail and apply them in your own activities.

Key words: orofacial cleft, STMMI organization, short term medical mission (STMMs), non-governmental organisation, international law

Introduction

Clarós Foundation (CF) is very active in organizing humanitarian medical missions around the world. Since the program started in 1992 in India, until today, all the missions have been carried out in countries of Latin America (Cuba), Eastern Europe (Moldova, Romania, Armenia), Africa (Liberia, Ethiopia, Senegal, Cameroon, Gabon, Sudan, Kenya, Democratic Republic of Congo, Cape Verde, Gambia, Burundi), Asia (Jordan and Uzbekistan). Missions are done upon the invitations of local hospitals and Governments. In many of these countries, medical missions have been repeated regularly every year, such is the case in Senegal - 10 missions, in India 14 missions, Romania 15, Cameroon 5, Gambia 3, Burundi 2, Gabon 5, Ethiopia 5, Cape Verde 10, etc...

CF has a network of over 50 volunteer health professionals, which includes ear, nose and throat surgeons, maxillofacial surgeons, specialists in facial plastic surgery, nurses, audiologists, anaesthetists and other professionals from other surgical specialties, such as vascular surgery or ophthalmology. Most of them come from different cities in Spain, Portugal, Poland, Romania, France, United States, as well as local native volunteers.

Surgical missions are made up of 8-10 members' unpaid volunteers with basic foreign language skills. These missions last 7-10 days, this is why they are called STMMIs. The local operating rooms (OR) are adapted so that two operations can be carried out simultaneously, which means that in each mission 80-100 surgeries may be conducted. To finance these

missions, donations are received from private individuals, private companies and bodies corporate that collaborate and support the Foundation, both through financial contributions and through the donation of medical equipment.

For over 25 years, Clarós Foundation has been committed to tackling the greatest inequities in this world and at the same time has observed many faults done by other NGOs regarding compliance with International Law. This is the purpose for preparing articles on the prevalence of international law by medical responses to domestic or external disasters, full-time relief practice such as *Médecins Sans Frontières* NGOs.

Short-Term Medical Missions (STMMs)

Medical missions are classified into short and long-term missions. In the last years there has been a shift in focus from long-term overseas assignments to short-term medical missions (STMMs), but both of them address unmet health care needs [1]. STMMs refer to an activity where health care professionals travel to a country with the purpose of providing medical help to the developing countries without compensation for a period from days to a few weeks. They differentiate themselves from other missions who provide medical assistance to people affected by conflict, pandemia, disasters or exclusion from healthcare services, such as *Médecins Sans Frontières* (MSF), military or other governmental expeditions or residency training programs [2].

We can divide STMMIs in three types: emergency, surgical, and mobile services. Emergency services provide early post disaster medical care anywhere in the world. Surgical services provide any surgical assistance which might be generally unavailable. Mobile services provide medical consultations and surgeries to support primary care in different sites [3].

Facial malformations have undergone a major evolution in their treatment and the final results achieved today are very good in developed countries unlike what occurs in emerging countries, where either they do not have access to being treated by local doctors or they do it with poor or bad results. In advanced and higher income countries there are strict protocols for action, time schedules and the participation of different multidisciplinary teams that coordinate to achieve the best result [4]. However, others with low resources, lack the most basic systems of diagnosis, prevention and treatment [5]. Specialized NGOs, like CF, have provided important help to fill in this gap.

It is estimated that each year more than 160.000 new patients with cleft lip and palate are born in the world. India, China and Indonesia, followed by Pakistan, accumulate the highest incidence. Other countries such as Democratic Republic of Congo, Ethiopia, Cameroon and Africa in general, although in smaller numbers, it is also frequent to find these malformative disorders. This is the reason why CF wanted to contribute to treating this type of pathology which receives a very positive social response. In most of the countries visited by CF, affected children are hidden from villagers to avoid bullying. It is, therefore, thanks to the efforts made by international aid workers, that this punished population has had support to improve its appearance and reduce its incidence [4].

Since 1996, CF has conducted 115 missions, partially focused on Orofacial cleft (OFCs), having treated a large number of patients, in different proportions, for cleft lip and palate, among other types of head and neck pathologies. These missions are composed of an experienced senior surgeon in maxillofacial surgery, assisted by two or three young surgeons who help, prepare and collaborate in the surgical acts, and consequently allowing the chief surgeon to be able to have much more activity and efficiency. In the same team there are two anesthetists who coordinate, allowing anesthesia and resuscitation maneuvers are fast (Table I). We also have an operating room coordinator and the person in charge of care surgical instruments. We operate either in two operating rooms (OR) simultaneously or in a single surgical OR with two independent tables and anesthesia trolleys to be able to alternate a surgery and a wake-up phase at the same time. This way, we can perform about 50 surgeries in a week-long STMMI. It is true that in certain places such as DR of Congo (Kinshasa), some 70-90 surgical procedures by mission have been performed, due at large to the number of cases existing. In other places visited with a low incidence of cases, only 10-15 cases were carried out.

It is important to mention that with years of experience our organization has been able to achieve double results with half the time used since all its components of nursing, OR circulating nurses, anesthesia doctors and young surgeons have improved training. We have to say that the circumstances have been used to teach, but we have never allowed young doctors to experiment alone with their skills. In the same way, the applications of the most current and new procedures and protocols have resulted in better surgical procedures and greater use of time. We believe that this system that we consider to be of good organization should be adapted to apply in a surgical activity as specific as the OFC patient.

Table I. Clarós Foundation Cleft lip and palate STMMI team

Clarós Foundation STMMI on orofacial cleft	
A- Clarós team	
• Facial plastic and ENT Senior Surgeon	1
• Junior Surgeon	2
• Anaesthesiologist Doctor	2
• Medical Coordinator	1
B- Hospital OR Staff	
• Circulating nurse	1-2
• Sterilization Coordinator	1
• OR scrub nurse	1-2
• Cleaning OR team	1-2
• Recovery room staff	1-2
• Stretcher	1
• Clarós Foundation Team	6
• Hospital Staff members	6-10
Total members	12-16

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Material and methods

A retrospective study was carried out examining all Cleft lip and Cleft palate including orofacial cleft on adult and paediatric over the past 25 years during 115 STMMs performed in India, Senegal, Cameroon, Sudan, Ethiopia, Ghana, Kenya, Gabon, Democratic Republic of Congo, Republic of Cabo Verde, Gambia and Burundi.

Patients

Our study included all the patients with cleft lip and cleft palate, associated or not referred to our team, during 115 STMMs from 1996 to 2021. All the patients were treated by the same senior surgeon specialized in head and neck surgery as well as facial plastic and ENT surgery.

Upon the invitation of different "First Ladies" of countries such as DR of Congo, Senegal, Gabon, Gambia or other countries, or by the members of Government as India, Ethiopia, Kenya, Burundi, etc., we organized the medical missions. We accepted the request and our first mission took place in India in 1992. In 1996, a Hospital in New Delhi proposed to settle collaboration with us. Since then, we continue to repeat these activities over the years. We started the STMMIs in 1992, one per year and from 2000 on we incorporated more activities until reaching 5-6 per year. A good campaign carried out in the local and state media and the participation of local pediatric teams, nurses, family doctors, specialists and pediatric surgery, hospitals, religious institutions and others is the key to recruiting patients. Curiously, in the first days of the STMMI mission, it is common for patients to attend timidly, but in the middle of the week many more appear, as if they wanted to first see the results in their peers before accepting the surgery of their own children.

The first patient selection is made by the Chief surgeon, assisted by 2 Junior Surgeons, to assess the degree of facial deformation conveniently selected according to the rules of CF (Table II). From this moment on, they are conveniently labeled with a badge containing the patient's personal data. Once accepted for surgery, the anesthetist performs the pre-anesthesia evaluation and takes into consideration possible surgical risks. Special interest in ruling out other associated anomalies (Fig1).

Figure 1. *Identification card "Macaron Malade" used in RD Congo, for OFC patients.*

Prevalence of the orofacial cleft during STMMI of CF

The location of the Oro Facial Cleft pathology can be divided into six groups: right or left unilateral Cleft lip and palate (CLP_1), cleft palate (CP), bilateral cleft lip and palate (CLP_2), isolated cleft palate (CP), isolated cleft lip (CL) and medial cleft (MC).

We have calculated the prevalence according to the type of cleft, side, sex, age and the place where it has been most frequent in Clarós Foundation STMMIs. The most common type found was unilateral CLP (40.1%), which was observed more on the left side (23.9%), followed by CP (29.8%). MC had a minimal relationship (0.5%) between facial cleft types.

The average incidence that we have observed during the Clarós Foundation STMMIs shows that in men it is more common to have unilateral CLP (right side, 63.9%) and bilateral CLP (59.1%), while women are more prone to have a CP (61.8%). The highest numbers of cases treated were in 2013, 2014 and 2015 during the CF STMMI carried out in DR of Congo.

Although patients of many ages (adolescents 20.2% and adults 11.5%) have been treated and operated on, it is true that most of the patients did so in the babies' special in neonatal period (68.3%).

Unilateral left CLP was the most common type. According to gender, men presented a greater number of CLP. In women, the incidence of isolated PC is higher than in men.

Table II. Prevalence of Cleft lip and palate in STMMIs of Clarós Foundation

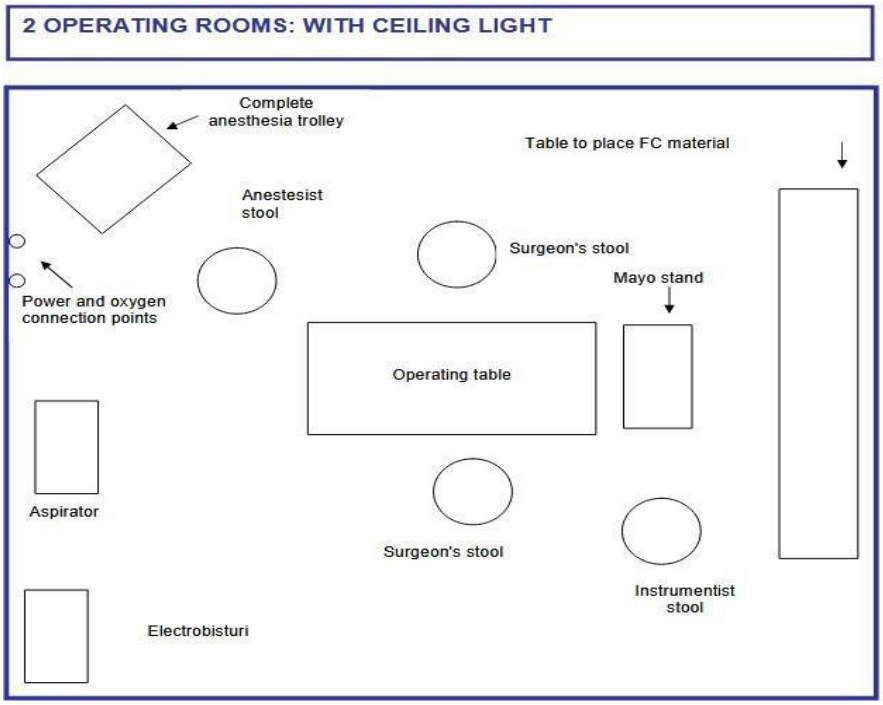
Malformation	Males	Females	Total
Cleft Lip	18,2 %	13,3%	31,5%
Clef lip& palate	25.5%	11,4%	36,9%
Cleft Palate	14.3%	17.3%	31,6%
Total	58%	42%	100%

As stated in different statistics consulted, we could say that it is estimated that in the world there is an average of 1.4 cases of orofacial cleft in 1.000 live births with extremes of 2.39 Latin America South and 0.38 Sub-Saharan East Africa, [4].

Table III. CF Criteria for surgery on Cleft Lip and Palate

Weight evaluation	Current Weight	Deviation of Real Weight
Age • 3 months -1 year • 1y to 1,5 years • 2-5 years • Adolescents • Adults	Weight (kg) 4 to 8 kg 8 to 10 kg 12 to 15 kg Not significant Not significant	 50% less 60% less ---------- ---------- ----------
Evaluating Factors	A-Minor criteria • Fever • Moderated Apnoeic breath • Diarrhea • Vomiting B-Major criteria • Obvious dehydration • Crying with cyanosis • Jaundice • Neurological child attitude (hold the neck, sit, walk, etc.) • Associated high Syndrome • Cardiac pathology • Other craniofacial malformations	
Indications for surgery rejection	• Low weight (<50% standard) • 2 or more minor criteria • 1 or more major criteria	

The infrastructure of the operating room (OR) was organized with two operating tables, anesthesia trolleys and electro cautery machine, ECG heart monitors, oxygen-pulsimeter, sets of operating instruments, emergency equipment and all other necessary medications and surgical supplies. We assured that the oxygen equipment for anesthesia was always available and with a sufficient reserve of extra cylinder and pharmaceutical medical material for all interventions (Figure 2).



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- Complete anesthesia trolley with power and oxygen connections.
- Operating room powerful light with several light bulbs.
- Aspirator
- Mayo stand for instruments.
- 3-4 stools
- Table to leave material
- Electrobisturi

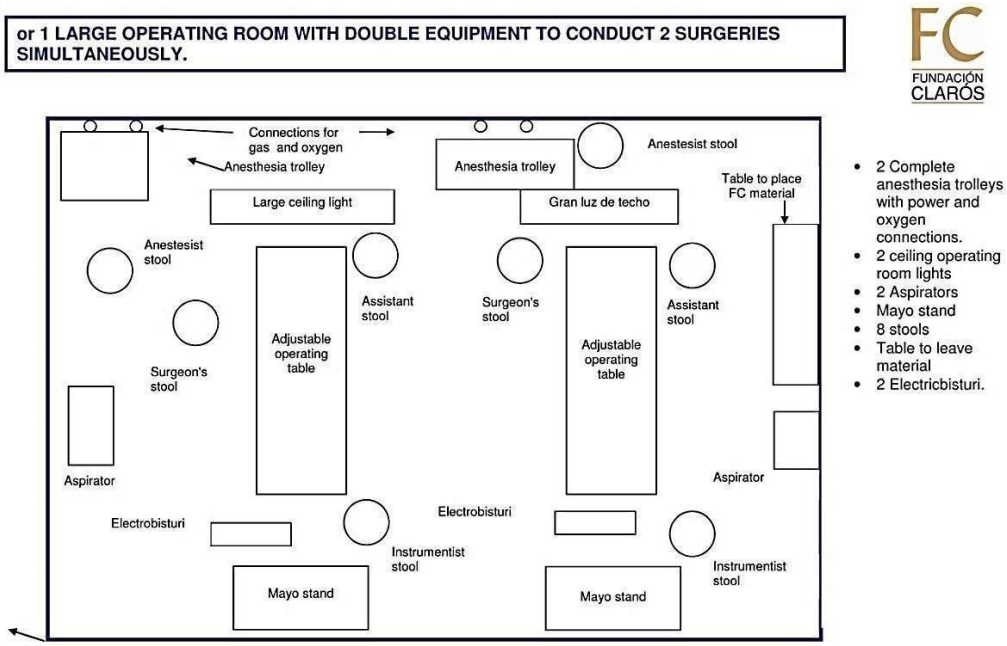

Figure 2. *OR distribution for orofacial cleft surgery by CF STMMIs.*

The mechanism of action of the surgical team is important as to coordination with the aim of not wasting time. With the established system of having permanently two simultaneous operating tables we allow that while a patient is being intervened, the next one is in the phase of being anesthetized and preparing the surgical field with the help of a Junior Surgeon assistant and a surgeon. The senior surgeon togetherwith a junior surgeon proceeds to perform the intervention of one of the patients. The transport system is carried out by the stretcher who transfers the patient to the recovery room, where the nursing team is responsible for monitoring together with one of the family members. In case the patient is a child, the warmth of the family is important.

The sutures used for the cleft lip were Vicryl 4/0 absorbable on a cutting needle size 17, 5 mm and were left until completely resorbed and reinforced by *steri-strape* strips on the lip. To avoid removal of stitches, that produces distress to the patient and family, we recommend absorbable stitches, as well as in Cleft Palate. "After lip surgery, use 'No-Nos' ® or handmade equivalent with the aim of avoiding the baby to touch his mouth and delicate points with fingers and hands (Fig 3).The diet the OFC patient should follow must be very well explained in order to avoid the results of the surgical activity. Smooth foods are typically recommended and bottles should be avoided, as they can rub against the stitches and break them. We recommend the use of teaspoons during the postoperative process as the best option to avoid suture breaks. Breastfeeding was recommended to be done in a few days to prevent sucking with the lips from tearing the sutures. Some foods can be irritating such as citrus fruits and tomatoes due to their acidic properties but once the child has more control, it will be easier to ingest them.

Treatment of patients with cleft lip and palate is complex. The objective of Cleft lip repair is to restore the anatomy of the malformed lip by suturing the upper lip, joining the *orbicularis muscle* of the lips and the skin and labial mucosa, leaving minimal scars. The procedure is done at the age of three months and with a minimum weight of the baby. This surgery is recommended to be performed before one year of age. Additional surgeries are often required to achieve the best functional results (Table III).

Figure 3. *Handmade arm helper for babies after orofacial cleft surgery.*

It's clear that the Cleft Palate Repair, consisting of closing the open palate to restore normal eating and drinking function and enhance normal speech development. The palate forms the floor of the nose and the roof of the oral cavity; therefore, a slit at this level causes free communication between these two cavities [5].

The first information we give the family is about the surgical steps that must be followed and the moment of the surgical intervention that we detail as follows: lip, palate, dent alveolar, scar revision, orthognathic surgery and rhinoplasty, to avoid late management that they result in nasal speech even in good palatal repair. A multidisciplinary team including: surgeon, anaesthetists, paediatrician, periodontics, orthodontist, speech therapist and psychiatrist), the surgeon will also help to facilitate the management of each case and reduce its complications (Table IV).

Table IV. Timing of Oro Facial Cleft Repair

Cleft procedure	Age at repair
Cleft lip	3 months
Palatoplasty	9-18 months
Alveolar bone grafting	9-11 years
Nasal reconstruction	12-18 year

Surgical Procedures

For cleft lip procedures, our team uses rotational surgical procedures with several minor modifications or Tennison's modality. For cleft palate, we use the von Langenbeck, Veau / Wardill / Kilner or Furlow technique.

Unilateral cleft lips (complete or incomplete) were repaired by Millard rotational advancement [6] or Tennison [7,8] (Triangular repair) techniques. Primary closed rhinoplasty was performed at the same time as all primary unilateral labial repairs. Bilateral cleft lips were repaired using the Millard bifurcated flap technique [9, 10]. Unilateral or bilateral complete / incomplete cleft palate was repaired with von Langenbeck palatorrhaphy technique [11] modified with intravelar veloplasty [12] both for children from 10 to 18 months and adults.

We have been able to appreciate that with the passage of time we have had more and more patients who have benefited from our OFC STMMI as we demonstrate in Table V. The better the missions are organized the better results and efficiency are obtained (Table V).

Table V. OFC Localisation and approximate time of surgery.

Malformation	Type	Surgical Repair timing
Cleft Lip	Unilateral Incomplete	< 1 hour
	Unilateral Complete	1 hour
	Secondary unilateral incomplete	< 1 hour
	Secondary unilateral complete	1 hour
	Bilateral Complete + Premaxila protruding	> 1h 30 min
	Secondary bilateral complete	1 hour
	Secondary bilateral incomplete	> 1h 30 min
Cleft Palate	Soft palate only	45 min
	Complete cleft Palate	> 1 hour
	Bilateral Incomplete	1h 15 min
	Bilateral Complete	> 1h 30 min
	Secondary fistula	1h 30 min
	Secondary Short Pharyngeal flap	1h 15 min

Table VI. Evolution of the distribution of patients operated on for OCF by the STMMI of CF during the periods of time.

Date form	1996-2000	2000-2010	2010-2020	Total
Gender				
Male	98(56.97%)	257(57.11%)	639(57.93%)	994(57.62%)
Female	74(43.03%)	193(42.88%)	464(42.07%)	731(42.38%)
Total	172(9.97%)	450(26.08%)	1103(63.9%)	1725(100%)
Surgery type	1996-2000	2000-210	2010-2020	Total
Cleft lip	93(54.06%)	240(53.33%)	645(58.47%)	925(53.62%)
Cleft Palate	79(45.94%)	210(46.67%)	458(41.53%)	800(46.38%
Total	172(9.97%)	450(28.08%)	1103(63.9%)	1725(100%)
Surgery Time	1996-2000	2000-2010	2010-2020	Total
Primary	152(88.3%)	405 (90%)	903(81.86%)	1153(66.84%)
Secondary	20(11.63%)	45 (10%)	200(18.14%)	572(33.16%)
Total	172(9.97%)	450(26.08%)	1103(63.9%)	1725(100%)
Age at surgery				Total
Neonatal	117(68.0%)	398(88.44%)	664(60.20%)	179(68.35%)
Childhood(2-7y)	45(26.15%)	35(7.78%)	220(19.94%)	300(25.44%)
Adolescent (8-20y)	9(5.23%)	14(3.11%)	210(19.04%)	233(19.76%)
Adult (20-67ys)	1 (0.6%)	3(0.66%)	9(0.81%)	13(1.10%)
Total	172(9.97%)	450(26.08%)	1103(63.9%)	1725(100%)

Results

From our experience, a total of 1725 patients underwent surgery throughout 115 STMMIs, average duration of 7 days each (115 STMMIs by 15 cases average). 53.62% of patients were operated for cleft lip (925) and for cleft palate, 46.38% (800) patients. Male patients accounted for 58% and female for 42%. According to the age of the patients we found that the majority of 1179 cases on babies neonatal period (68.35%); 300 children 2-7y (25.44%); 233 Adolescents 8-20y (19.76%); and, 13 adults in the 20-67 age range (1.10%).

Figure 4. *Bilateral Cleft lip deformity. Pre-Postop*

Figure 5. *Complete right Cleft lip and palate with pre-maxillary protrusion in a 3 month old girl. Pre-Post op.*

Figure 6. *Left complete cleft lip and palate 3 month old boy baby. Pre-Postop.*

Figure 7. *Bilateral complete cleft lip and palate. 4 month old boy. Pre-postop.*

Figure 8. *Left cleft lip and palate complete Girl 3 months' old girl. Pre-postop.*

Figure 9. *Right Cleft lip unilateral incomplete adult. Pre-Post op.*

Figure 10. *Bilateral completes Cleft lip with absence of premaxilla.*

Figure 11.*Unilateral incomplete right cleft lip. Adolescent. Pre-postop*

Figure 12. *Complete cleft palate. An adolescent and an adult case.*

Complications after cleft surgery are clinically unavoidable. Death can occur in patients with OFCs, because they are very fragile children and during anesthesia induction or during the same, it is feasible. During our missions we have reported two deaths, during anesthesia induction and a few days later, due to cardiac arrest. Special attention should be placed to airway problems, bleeding and malnutrition.

Haemorrhage, tissue reactivity, wound dehiscence, and local wound infection were the wound healing complications recorded after cheilorrhaphy for Cleft lip. Tissue reactivity was defined as an erythema and/or crust at the suture site that extended more than 3 mm from the surgical wound. This was defined as spontaneous suture disruptions that are not the result of trauma such as scratching. Local wound infection was diagnosed when the wound contained purulent material and/or showed other clinical signs of infection (warmth, erythema, and local tenderness).

Some authors consider that a longer hospital stay contributes to the occurrence of these complications [13]. The exact calculation of the complications of ORC surgery in an STMMI is very difficult to calculate since many, most of the patients disappear and are no longer controlled until, in case of complications, they return to the hospital where the NGO goes again or is another that arrives. Therefore, we only have evidence of those that occurred during the first days or those that the people in charge of reviewing them do communicate it to us.

Table VII. Postsurgical Complications Dehiscence of Cleft Palate (15%)

Complication	Type	Localisation
Immediate Intraoperative	• Excessive bleeding • Death 2 cases	
Early postoperative	• Hemorrhage • Respiratory obstruction • Hanging palate • Fever • Poor wound hygiene • Wound infection	
Long term	• Dehiscence of palate repair	• Soft-hard palate junction • Hard palate 1/3 posterior • Hard palate 1/3 middle • Uvula dehiscence • Hard palate dehiscence • Dehiscence of whole palate
Late postoperative	• Velopharyngeal incompetence • Abnormal speech • Maxillary Hypoplasia • Ear pathology • Dental malpositioning and malalignament	

The whistling deformity is a concave defect of the vermillion in the central portion of the upper lip. It is one of the most frequent sequelae of primary lip repair [14].

Figure 14. *Whistle deformity in the upper lip. Secondary Left Cleft Lip. Pre-post*

Table VIII. Post-op Cleft Lip complications

Complication	Type	Anomaly
Early	Partial dehiscence of the repair	
	Complete dehiscence of the repair	
Late	Poor results	Vermilion deficiency & irregularity
		Nostril stenosis
		Hypertrophic scar
	Nasal collapse	
	Whistle deformity	
	Fistula	

Discussion

Orofacial Clefts (OFCs) are anomalies that occur in many human populations. They are isolated or in combination with widespread development disease which has a deep impact on their lifetime. The incidence of patients with OFCs in the world varies greatly according to the countries to which we refer. It is not always possible to find out the incidence rate of many of them, especially the underdeveloped ones, since there are no reliable statistics available. These large differences are due to different ethnic origins, genetics, and various situations environmental and methods of ascertainment. For example, in Asia represent a 1.57 (1.54-1.60), North America 1.56 (1.53-1.59), Europe 1.55 (1.52-1.58), Oceania 1.33 (1.30-1.36), South America 0.99 (0.96-1.02), and Africa 0.57 (0.54-0.60) per 1,000 live births, respectively. The Blacks had the lowest rate of 0.58 per 1,000 live births. Birth defects, especially facial ones, represent a significant problem both at a family and social level and for the individual himself [15].

Countries with high incomes have access to very advanced treatments for their repair and the results obtained are good, even though there can always be more or less important sequelae that will require various treatments. Comparatively, it means that populations with limited financial means will hardly have access to treatment with the guarantees and results they would like [5].

Both cleft lip and cleft palate are malformations that most frequently affect the face of full-term children. They are one of the most common congenital alterations that affect the structures of the face [16]. About 10,000 children are born each year with a cleft lip and palate in East Africa. "It is not known exactly whether these problems are caused by genes that may be responsible for the fissures or by other factors, such as lifestyle or environmental factors"

According to Hlongwa the incidence of CLP in South Africa is 0.3 per 1000 live births, with a provincial variation of 0.1 / 1000 to 1.2 / 1000. The proportion affected by the different anomalies is 35, 3% cleft palate; 34.6% cleft lip and palate; 19.0% cleft lip and other cleft anomalies at 2%. The distribution by sex of CLP, 47.5% were men and 52.5% women, and this difference was statistically significant ($p < 0.001$). Regarding the affected side, it is left side in men (35.5%) and palate in women (43.4%), with predominance in men of unilateral cleft lip and palate (53.3%) [17].

The overall prevalence of OFC is estimated to be approximately 1 in 700 live births, accounting for nearly one half of all craniofacial anomalies - are born with either a cleft lip and / or palate and approximately 15% of all congenital abnormalities [18]. As reported by the World Health Organization (WHO), the prevalence at birth of OFC varies worldwide, ranging 3.4–22.9 per 10,000 births for CL/P, and 1.3–25.3 per 10,000 births for CPO [19].

The overall prevalence of CLP was 9.92 per 10,000. The prevalence of CL was 3.28 per 10,000 and that of CLP and 6.64 per 10,000 CLP prevalence at Birth of Cleft Lip with or without Cleft Palate [20].

Approximately 10,000 babies are born each year with a cleft lip and palate in East Africa, congenital deformities that can hinder the development of children, according to the African Foundation for Medicine and Research (AMREF) [21].

It can involve both soft and bony tissues, from the lip area to fissures that connect the oral cavity with the nasal cavity and can cause ear and eye damage. In the case of palatal fissures, the patient has difficulty feeding and breathing, speech problems, lack of development of the alveolar processes, problems of shape, number and tooth eruption that affect not only children's teeth, but also that of adults.

Finding fissured adults in our developed countries is really a total rarity; however, in the countries where we perform STMMIs isn't rare to be able to treat them, even at unusual ages. For us there is no upper age limit, but it is lower, establishing three months as the lower limit.

Newborns with an Orofacial Cleft have feeding problems due to lack of suction. Children who only have a cleft lip usually do not have difficulty feeding, but when the palate is affected, feeding can be difficult and represents a serious problem for their development. You have to think that the palate acts as a barrier to prevent food and liquids from entering through the nose. Children with a cleft palate swallow a lot of air and regurgitate food through their nose. These children must be fed with special bottles or placement of a nasogastric tube to be able to drink the milk. Its weight gain is very slow and requires pediatric care that in emerging countries does not have access.

CF has been fighting this pathology for years in a way that we could say "on a small scale" although we are aware that large institutions such as the NGO Smile created in 1982 [22]. Other smaller NGOs and Foundations from different countries collaborate in isolation to solve the incidence of these cases.

Our experience is based on the cases operated in India, Gambia, Gabon, Senegal, Cameroon, Cape Verde, Burundi, Ethiopia, Sudan, Kenya, DR Congo, among others but all with the same African profile. Estimatesare that they could represent 25% of the entire population affected by this pathology.

Conclusions

Thanks to the STMMIs carried out by specialized NGOs that deal with this type of pathology, solutions can be provided to a population lacking a well-organized public medical system in emerging countries. To guarantee that this is effective, we always try to involve all the local-regional hospital and extra-hospital staff to achieve the best benefits for the affected population. Analysing the complications of dehiscence we have to make the observation that depends on the experience of the surgeon and the care given to the patients. For this reason, postoperative recommendations are important to be followed. In Africa and other emerging countries, the concept that the child cannot go hungry is trulya deeply rooted culture of social status.

Only the close collaboration between the NGOs that carry out STMMIs specialized in Cleft Lip and Palate repair can improve the quality of life of these patients with craniofacial malformations. Teaching these surgical techniques to young teams of surgeons from countries in need is the key for them to have self-sufficiency in solving this pathology. Good organizations carried out by the institutions that are dedicated to it allow operating more and bettering in places where there are large numbers of them.

Patient Consent

Patients or their parents or guardians provided written consent for the use of the patients' image.

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To the entire FC team that for many years has accompanied its members to carry out these humanitarian activities.

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