Research Article

Retrospective Review of Patients Operated on with Bilateral Cleft Lip through Surgical Outreaches in Kenya

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This was a study to evaluate the characteristics and outcome of patients operated on with bilateral cleft lip through surgical outreach programs in Kenya between January 2006 and December 2011. Files for fifty-nine patients operated on during the study period were evaluated. The mean age for surgery was ten months with about forty-five percent of the patients more than one year of age. No presurgical orthopaedic devices were utilized on any of the patients. Mulliken surgical technique and the Manchester technique were the commonest surgical techniques in equal proportions. An overall complication rate of about 7.5 percent was noted. In conclusion we noted a delay in the surgical management of the majority of our patients. This resulted in a backlog of cases. There is thus a need to intensify more surgical outreach camps as well as training more surgeons to assist in the management of clefts. Cleft surgery is a relatively safe surgery that could be carried out in relatively remote centers through surgical outreach programs. This was evidenced by the low complication rates in our series.

1. Introduction

Cleft lip and palate are common congenital malformations with the overall prevalence ranging between 1:500 and 1:1000 from the various communities [1, 2]. High prevalence rates have been noted among the native Americans, Orientals, Caucasians, and lastly the Blacks in that order [1–3]. The prevalence of bilateral cleft lip has been noted to be about 20 percent of all cleft lips [1–3].

Bilateral cleft lip has been noted to be twice as hard to manage and the results twice as disappointing. However, this is not necessarily true. Many authors have reported very satisfactory results with bilateral cleft lip surgeries [4, 5].

The best way to manage bilateral cleft lip deformities is through the multidisciplinary approach encompassing plastic surgeons, orthodontists, nutritionists, geneticists, counselors, and maxillofacial surgeons [6, 7]. The reality in many developing countries, however, is that it is almost impossible to craft such a team given the limited skilled labor force. While presurgical orthopaedic devices may have a positive role in the management of bilateral cleft lip, these devices are not readily available in many countries.

In this paper, we present our experience in the management of this condition in Kenya. Kenya like many developing countries in Africa has got very few qualified plastic or maxillofacial surgeons. The majority of them are localized in big cities. However, most patients with cleft deformities are located in rural centres far away from the cities and could thus only be reached through outreach programs. We present the results of the patients operated on through such programs in our country.

2. Materials and Methods

This was a retrospective chart review of the patients operated on by the authors in various outreach facilities in Kenya. The Facilities were St. Elizabeth Mission Hospital, Mukumu (about 300 kilometres from Nairobi), Isiolo District Hospital (300 kilometres from Nairobi), Longonot hospital (100 kilometres from Nairobi), and Kapenguria District Hospital (400 kilometres from Nairobi).

All files for the patients operated on between January 2006 and December 2011 by the authors were reviewed.
Supplementary information was retrieved from the operating theatre registers and the surgeons’ operations database. Information collected for analysis included any presurgical intervention measures, age at surgery, type of anesthesia employed, surgical procedure employed, duration of surgery, and complications. Cases with inadequate data were excluded from the study. Data was analyzed by the SPSS computer software for the descriptive statistics.

3. Results

A total of 59 patients operated on between January 2006 and December 2011 with bilateral cleft lip were reviewed in this study. 6 patients were excluded from the study due to inconclusive data leaving 53 patients for the study. The male-to-female ratio of the patients was 1.2 to 1. The age range for the patients was 3 months to 27 years, with a mean age of 2.5 years. Table 1 summarizes the various age groups of the patients operated on.

All patients were managed as inpatients with a mean hospital stay of five days. No presurgical orthopaedic devices were utilized on any of the patients. There was no lip adhesions surgery. Prophylactic antibiotic cefuroxime was utilized routinely for all patients at induction. Oral amoxicillin was then given for five days after surgery. Local anaesthesia was utilized in 5 patients (9 percent of the cases) with the rest under general anaesthesia. The Manchester type of surgery comprised 52 percent of the surgeries with the Mulliken type of surgery comprising 48 percent of the surgical procedures. The average duration of surgery for the Manchester type of surgery was one hour ten minutes while the Mulliken type of surgery was one hour forty minutes. The complications encountered in this study were partial lip dehiscence in 3 patients and postsurgical pneumonia in 1 patient. No mortalities were encountered. The overall complication rate was thus 7.5 percent.

4. Discussion

Bilateral cleft lip has been noted in the literature to be twice as hard to manage with the results half as good. The defects in the bilateral cleft lip are characterized by the following:

- (1) lateral and inferior displacement of the lower lateral cartilages,
- (2) fibroadipose depositions between the lower lateral cartilages,
- (3) rudimentary/underdeveloped columella,
- (4) protruded premaxilla,
- (5) underdeveloped prolabium with no muscular elements.

All these factors contribute to making the bilateral cleft repair a more difficult one. Many strategies have been developed to try and rectify some of these defects prior to the surgery. Among these is the presurgical orthopaedics. The use of presurgical orthopaedics is still controversial with a number of studies either showing that it has no role in the management of cleft lip or that it may have deleterious effects [8–11]. The main reason for the use of a presurgical orthopaedic device is to assist on the alignment of the premaxilla and hence enable easier repair of the muscle. The other advantage is the assistance in the correction of the nasal deformity. In all our cases none of these devices were utilized. The main reason for this was the cost and the lack of the technical knowhow in making these devices.

A good proportion of our patients were operated on after their first year of life. Most centers in the developed countries operate cleft lip at around four months of age, using the rule of ten as a general guiding principle [5, 12]. This is, however, not the case in the developing countries like ours. There are two main reasons for this. One is the “late” diagnosis of cleft deformities and the other is the lack of resources to enable prompt management of cleft deformities. These two factors have resulted in a backlog of cases in many developing countries, as evidenced by an older population of the patients that we encountered in this study.

Probably the best way to deal with this backlog of cases is through surgical outreach programs as demonstrated in this study. Well-organized programs can be very fulfilling to the patients and the surgical team as well. Successful outreach programs require good coordination between the visiting team and the medical personnel in the facility being visited. Roles and responsibilities must be clearly defined and the home team must be comfortable to do the postoperative care and management of the patients.

About half of the cases were operated on in our series using the Manchester type of repair with the other half treated with the Mulliken type of repair. While there was no clear cut guideline on what repair to use, the Mulliken type of repair was utilized in cases where there was a poorly developed columella with severe nasal deformity. The Manchester type of repair was mainly utilized in incomplete bilateral cleft lip or cases with relatively well-developed columella. With these approaches we were able to get good nasal repair in the majority of the cases Figures 1(a), 1(b), 2(a), and 2(b).

The Manchester type of repair is a relatively easy repair to perform with a shorter learning curve as compared to the Mulliken or Nagata type of repair. It is also easier to teach and probably better to perform in outreach surgical camps as opposed to the Mulliken surgical technique. It, however, to minimally addresses the nasal deformity and therefore for patients with severe nasal deformity would always result in suboptimal results. Mulliken type of repair best addresses the nasal deformity in bilateral cleft lip [5]. It encompasses greater

<table>
<thead>
<tr>
<th>Age</th>
<th>Frequency</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Less than 6 months</td>
<td>14</td>
<td>26.5</td>
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<tr>
<td>6 months–1 year</td>
<td>16</td>
<td>30</td>
</tr>
<tr>
<td>1–5 years</td>
<td>9</td>
<td>17</td>
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<td>15</td>
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<td>&gt;15 years</td>
<td>6</td>
<td>11.5</td>
</tr>
<tr>
<td>Total</td>
<td>53</td>
<td>100</td>
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dissection of the nose with removal of the fibrofatty tissues between the lower cartilages. This enables the correction of the splayed lower cartilages allowing for the columella lengthening and recreation of the nasal tip complex. The surgery would thus naturally take longer than the Manchester surgery which does not incorporate more extensive nasal dissection. Its disadvantage is the extra scarring along the alar rim as compared to the Manchester repair.

Our overall complication rate in this series was about 7 percent. Partial wound dehiscence was the commonest complication, noted in 3 patients. The much feared prolabium flap necrosis with the Mulliken repair was not noted in any patient. The complication rates in this study compare fairly well to those from different parts of the world [13, 14].

There was no statistical difference in the complications between the two surgical procedures employed.

In conclusion, well-planned outreach programs could be effective in the management of bilateral cleft lip in many developing countries such as Kenya. Bilateral cleft lip surgery in good hands is a safe surgery and could be managed effectively in rural and remote parts of the country through surgical outreaches. Proper patient selection with the choice of the appropriate surgical procedure would always result in good surgical outcome with minimal complications. One needs to acquaint himself to the various surgical options available and then chooses the appropriate procedure for the case at hand. In many developing countries surgical outreaches are probably the only option for addressing the backlog of cases. There is, however, a need to train more surgeons in these countries to be able to perform cleft lip surgeries more so in the rural areas.

References


