

Ambulatory Cleft Lip Surgery in a Developing Country

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Background: Ambulatory cleft lip surgery has been practiced extensively in many developed countries, however cleft lip repair in most developing countries involve patient hospitalization of varying duration. Driven by the recent acute shortage of pediatric bed space in our hospital, an increasing number of cleft lip surgeries are being performed on out-patient basis. The aim of this study was to report our experience with ambulatory cleft lip surgery at the University College Hospital, Ibadan.

Methods: A retrospective review of Cleft lip Surgeries performed between February 2007 and January 2010 was done. Data of patients who had cleft lip surgery was retrieved from our Smile Train data base, the operating room surgery records and the Nurses' admission/discharge records on all the wards on which the patients were either received or admitted. Information obtained included the demographic characteristics of the patients, complications reported, length of stay (LOS) for in-patients and the need for re-admission before the first follow-up clinic appointment among the two groups.

Results: Eighty three patients were identified but complete data was obtained for forty patients. (Retrieval rate of 48%) The ambulatory group comprised of 15 patients while- the in-patient group had 25 patients. The mean patient age was 5.7 years in the ambulatory and 9.7 years in the in-patient group. Both groups were homogenous for other parameters. None of the patients in the ambulatory group was re-admitted for any post-operative complication while only one patient in the in-patient group had a post-operative complication necessitating prolonged hospitalization.

Conclusion: Ambulatory cleft lip surgery was found to be safe in our practice with comparable patient outcome to the in-patient group. It is anticipated that this may assume increasing prominence in the scope of cleft lip management in many more centers in the developing world.

Key words: Cleft lip repair, Out-patient cleft lip surgery, Ambulatory cleft lip surgery

Introduction

The care of patients with clefts of the primary palate in our hospital as well as in many other centers around the world involve pre-operative evaluation of the patients in the out-patient clinic, admission for surgery, operative correction, postoperative in-patient care for varying duration of days and outpatient follow up care. However, many more centers in the developed economies are adopting ambulatory cleft lip repair in order to bring down the treatment cost. Several reports from the developed countries^{1,2} have documented the safety and effectiveness of ambulatory cleft lip repair however there are limited reports on the practice and safety of ambulatory cleft service from the developing low and middle income countries³.

The practice of ambulatory cleft lip repair in many western countries was driven by enhanced patient safety, increased efficiency and cost reduction. Whereas these same values are as important in the developing countries, many centers have continued to practice the traditional in-patient management of the patients with length of stay ranging between two to four days or

more. It is unlikely that this practice can be sustained any further because of the changing dynamics of health care funding in many developing countries. Whilst there has been a relative minimal improvement in the health care infrastructure, there has been a progressive increase in the uptake of patients for cleft lip and palate surgeries in many centers over the past couple of years because of the recently introduced free surgical treatment provided by SMILE TRAIN, an American based nongovernmental organization. Alongside this increase came the challenge of securing pediatric bed spaces for the in-patient care of cleft lip and palate patients in many centers including ours. This need necessitated the option of increasing out-patient management of some of the patients. The aim of this study was to report our experience with ambulatory cleft lip repair in our hospital and to add to the sparse literature from the low and middle income countries on ambulatory cleft lip surgery.

Patients and Methods

A retrospective review of cleft lip surgeries performed at the University College Hospital, Ibadan by the authors over a three year period between February 2007 and January 2010 was carried out. Data of patients who had cleft lip surgery was retrieved from our operating room records, the admission and discharge record books on the wards and the Smile Train data subset form Ibadan. The patients were divided into two groups: The ambulatory group comprised of cleft lip patients who were admitted for surgery on the morning of the operation and were discharged later the same day while the in-patient group were those who were admitted a day before their operation and kept on admission till the first day post-surgery or beyond before discharge.

Information obtained included the demographic characteristics of the patients, complications reported (if any) among the patients that were hospitalized and those treated as day cases, number of days on admission for hospitalized patients and the need for re-admission before the first follow-up clinic appointment among the two groups. The patients with cleft lip anomaly were reviewed by one of the authors in the outpatient clinic where the initial evaluation was done and necessary investigations ordered. The patients were adjudged to be fit before they were scheduled for surgery. The patients were usually admitted a day before the scheduled surgery but when there was no available bed space for admission, the patient was requested to come to the ward on the morning of surgery. Both the in-patient and out-patient groups were routinely evaluated by the anesthesiologist before anaesthesia was administered.

All the patients had Mallards' repair, the children had general anesthesia via endotracheal intubation for their procedures while the adult patients had their surgery under local anesthesia using 1% xylocaine with 1 in 200,000 dilution of adrenalin solution. The in-patient group were admitted to the ward post operation and discharged home the following day while the ambulatory group were discharged from the post anaesthesia recovery room when their post-operative condition have been adjudged to be satisfactory. The outcome measures were the post-operative complications necessitating hospitalization beyond the usual 2 days or the need for re-hospitalization before the scheduled follow-up date. Descriptive statistics of the data was done.

Results

Eighty three (83) patients were identified but complete data was obtained for forty (40) of them (Retrieval rate of 48%) The patients were divided into two groups, the ambulatory group (n=15) and the in-patient group (n=25)

The median age was 7 months (range 3 months to 25 years) and the mean age was 5.7 years in the ambulatory group while the median age was 10 months (range 3 months to 33 years) with a mean of 9.7 years in the in-patient group. (Table 1)

Both groups were homogenous for other parameters. One patient in the in-patient group had post operative complication necessitating extended hospitalization for five days. None of the patients in the ambulatory group was re-admitted for any post-operative complication. All the patients in both groups had satisfactory wound healing and had their sutures removed in the clinic on the 5th post-operative day.

Table 1. Summary of Patients' Characteristics Between the Two Groups

	Ambulatory group	In-patient group
Number (n)	15	25
Mean age	5.7 years	9.7 years
Median age	7 months	10 months
Age range	3 months – 25 years	3 months – 33 years
Re-admission rate	0	0
Average number of days on admission	Nil	1.24 (1 – 5)

Discussion

The traditional standard of care for cleft lip repair in many centers across the world include preoperative clinic evaluation, admission of patient for surgery and post-operative in-patient management for between 2 to 5 days for patient monitoring, establishment of satisfactory resumption of feeding by the babies and adequate post-operative analgesia among other things. In some centers the patients are routinely kept on admission till the 5th post-operative day for suture removal before they are discharged.

Without doubt, the additional period of hospitalization puts a burden of increased utilization of hospital resources and pediatric bed space and a concomitant increase in the cost of care on the system. Improved quality of care and better patient outcome in many advanced countries birthed the possibility of shorter patient hospitalization and the introduction of ambulatory surgical service in many of these countries. In addition, the dynamics of health care economics has been a major impetus that has driven the evolution of ambulatory cleft lip surgery in many developed countries.

The emphasis on **cost** reduction, increased efficiency and improved safety standards in health care delivery has prompted significantly shortened patient hospitalization in many countries. The advantages of ambulatory surgical service include reduced economic burden on the hospital, reduced risk of nosocomial infections and the provision of a familiar environment for the child during the recovery period⁴.

Ambulatory cleft lip repair has been in practice in the developed countries since the 1980s⁵ and several studies^{1,2,3,5} have reported on its' high safety standard. In one of the largest studies that compared the perioperative complication rates between ambulatory and in-patient cleft lip patients in two hospitals across two countries, the United States and Australia Rosen et al¹ found a 3.3% (n= 91) and 7.1% (n=14) readmission rates in the out-patient and in-patient of the Children's Hospital, Los Angeles respectively compared to a readmission rate of 2% (n=50) among the inpatient group of the Royal Children's Hospital, Australia. These differences were

not however statistically significant. Similarly, Kim and Rothkopf² in their ten year review of 24 patients with unilateral cleft lip comprising 11 outpatients and 13 inpatients found no complications in the outpatient group but minor complication of wound separation in 2 patients (15.4%) in the inpatient group. They concluded that outpatient cleft lip repair is a safe alternative.

In a similar study conducted in Saudi Arabia, Al-Thunyan et al³ affirmed the safety of ambulatory cleft lip repair and suggested that patients with pre-existing cardiac problems should be managed as in-patients while patients that develop post-operative respiratory complications in the ambulatory group should be hospitalized for further care.

The patients in both arms of our study demonstrated satisfactory surgical outcome with high safety record. None of the patients in the ambulatory or in-patient group was readmitted for any complication following their discharge from the hospital although one patient (4%) in the in-patient group had extended hospitalization for 5 days for a respiratory complication. The high safety record is attributable to the presence of a multi-disciplinary cleft team in our hospital and the comprehensive pre-operative evaluation in the outpatient clinic and maintenance of a strict guideline of indications before the patients are booked for surgery. The booking criteria include 1. Satisfactory weight gain over the course of out-patient clinic appointments, 2. A packed cell volume of not less than 30%, 3. Absence of respiratory tract infection and 4. Absence of fever amongst other things. In addition, patients who present with any other congenital anomalies are referred to the appropriate specialists and managed until safety for general anaesthesia and surgery are guaranteed. The three predominant causes of delay in booking of our cleft patients for surgery include poor weight gain, suboptimal packed cell volume (less than 30%) and upper respiratory tract infection.

Early postoperative complications in primary cleft lip and palate surgery have been related to preexisting cardiorespiratory problems⁴. It is therefore important that preexisting cardiopulmonary conditions are diagnosed early and treated appropriately in addition to other possible causes of morbidity before the patients are booked for ambulatory cleft lip repair. Patient uptake for cleft lip repair is bound to increase in many developing countries currently battling with limited Paediatric bed spaces with the introduction of ambulatory surgical service. The improvement in institutional infrastructure along with the introduction of competent and experienced multidisciplinary cleft team will ensure high standard of care and safety records commensurate with the records in the developed countries.

Conclusion

Ambulatory cleft lip repair is a safe alternative to inpatient cleft lip repair. Extending its practice to many more centers in the developing countries will ensure greater uptake of cleft lip patients for repair and significantly reduce the waiting list of patients in accessing surgical care. An added advantage of ambulatory cleft lip repair is the potential significant reduction of transmission of nosocomial infection in the vulnerable infant age group.

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Conference presentation

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