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A review of cleft lip and palate management: Experience of a Nigerian Teaching Hospital

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ABSTRACT

Background: Cleft lip (CL) and palate (CLP) management is multidisciplinary. A cleft team was formed in a Nigerian Tertiary Hospital to address the health needs of cleft patients in the centre. **Aim:** This paper aims at documenting the Aminu Kano Teaching Hospital (AKTH) management protocol for orofacial clefts and also to review our experience with CLP surgeries performed at AKTH since our partnering with Smile Train. **Materials and Methods:** A retrospective review of all the cleft patients surgically treated from January 2006 to December 2014 under Smile Train sponsorship was undertaken. A descriptive narrative of the cleft team protocol was also given. **Results:** One hundred and fifty-five patients (80 males, 75 females) had surgical repairs of either the lip or palate. CL patients were 83 (53.55%), while CLP patients were 45 (29.03%) and isolated cleft palate patients were 27 (17.42%). **Conclusion:** The inclusion of various specialities in the cleft team is highly desirable. Poverty level amongst our patients frequently limits our management to surgical treatment sponsored by the Smile Train, despite the presence of other residual problems.

Key words: Cleft lip, cleft palate, management

INTRODUCTION

The management of cleft lip (CL) and palate (CLP) patients is multidisciplinary[1,2] and may span the lifetime of the patient in developed countries.[3] In the developing countries, however, much of the emphasis is on the surgical repair of the lip and the palate despite the reports on residual speech and hearing defects and poor facial development from CLP management in the developing world.[4]

Aminu Kano Teaching Hospital (AKTH) Kano has been involved in cleft care since the year 2000. AKTH partnered with a Non-Governmental Organisation (Smile Train) in 2006 to provide free surgeries to its cleft patients. A cleft team composed of maxillofacial surgeons, otolaryngologists, anaesthetists and the social welfare departments was instituted at AKTH. This initial team was later expanded to include paediatricians, clinical psychologists, speech pathologists, paedodontists and orthodontists.

This paper aims to document the AKTH management protocol for orofacial clefts and also review our experience with CLP surgeries performed at the AKTH since partnering with Smile Train.

MATERIALS AND METHODS

A retrospective review of CLP management under the AKTH/Smile Train partnership was undertaken from January 2006 to December 2014. All the records of surgically repaired CLP patients managed at the AKTH Kano, within the period under review, were retrieved and analysed. An analysis of the demographics, pattern of presentation, pre-operative management, surgical procedures and post-operative care were undertaken.

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For the purpose of this review, all cases were classified as: 'Cleft Lip (CL)', 'Cleft Lip and Palate (CLP)' and 'Isolated Cleft Palate (ICP)' CL referred to those subjects presenting with only a CL and no cleft palate (CP). They were further subdivided into unilateral CL and bilateral CL. CLP referred to those cases with both a CL and a CP. They were also divided into unilateral or bilateral based on the CL type. ICP referred to cases with only palatal clefts and no cleft of the lip. This was not divided into unilateral or bilateral as the case files and records did not always capture this data.

The AKTH cleft management protocol revolves around the cleft team. The protocol commences with the identification of CLP cases, parental counselling, paediatricians review, including nutritional advice and weight monitoring. The protocol also includes reviews by the cleft team and surgical repairs. A schematic of the protocol is given in Figure 1.

CLP identification was done by visual examination. Once identified, cleft patients are referred to the maxillofacial unit of the hospital by the staff from all the departments within the hospital. The maxillofacial unit documents the cases and serves as the anchor for the cleft programme.

Parental counselling is done by both the maxillofacial unit and the Paediatrics department. Parents were counselled on cleft aetiology, patient feeding, nutritional advice and cleft treatment protocols. Parents were reassured that the defects can be surgically corrected. A systemic review of the patient was done by the paediatrician to identify other congenital anomalies and to differentiate syndromic and nonsyndromic clefts.

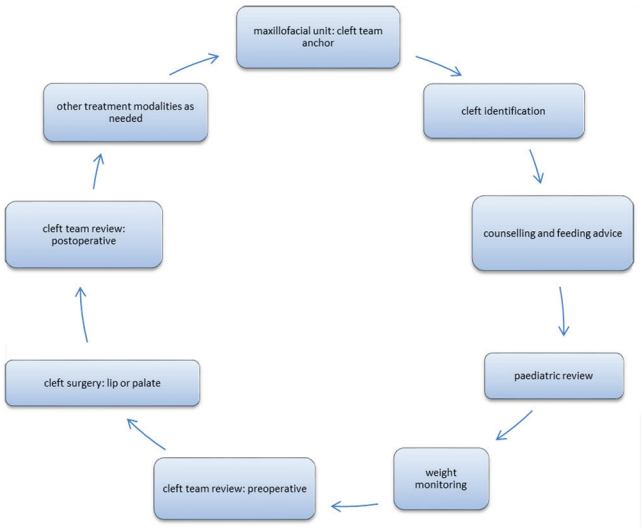

Figure 1: Flow chart of cleft lip and palate management

Nutritional advice and feeding tips are re-emphasised during subsequent reviews while monitoring the child's growth and development. Proper weight monitoring will facilitate the surgical repairs at optimal times. Lip repair is done at 3 months of age in our centre. A weight of 4.5 kg is adequate for lip repair. CP repair is done at 18 months of age with a weight of 8.5 kg being adequate for the repair.

A joint cleft team review of the patients with maxillofacial surgeons, otorhinolaryngologists, anaesthetist, orthodontist, clinical psychologist, social welfare and nursing services is held preoperatively and postoperatively. Any specific challenges with individual cleft patient management are identified and resolved by the cleft team. Presurgical orthopaedics in the form of lip strapping is sometimes instituted on a case by case assessment.

General anaesthesia (GA) is provided by experienced anaesthesiologists in the head and neck as well as paediatric anaesthesia. For CLP repair, we utilised orotracheal intubation with the tube secured to the lower lip midline. The tube is placed here to ensure that the tube does not distort the lip architecture (in the case of lip repairs) and also to ensure the tube is not close to the palate (in the case of palatal repairs). We utilise only nonkinkable (reinforced) orotracheal tubes for cleft palatal repair.

Cleft surgery — Lip repair

The 'rule of 10' (age of 10 weeks, weight of 10 pounds and haemoglobin value of at least 10 g/dl) serves as a guide[2] when planning for the surgical repairs of CL in early childhood under GA. Surgery is carried out under GA with experienced head and neck as well as paediatric anaesthesiologists. Cardinal points are marked on the cupid's bow of the lip. About 4 ml of 2% lignocaine in 1:200,000 adrenaline is infiltrated into the lip.

Several techniques are used for CL. For incomplete unilateral CL, modified Millards or straight line technique is used; while Millards repair and occasionally, the straight line technique were used for complete unilateral CL. In the case of bilateral CL, bilateral turn down flaps were used. Furthermore, Millards forked flap was occasionally used while Clayton DeHaan repair was used when only the philtral tissue was retained. The vermilion of the cupids bow was reconstructed either from the lateral lip segments or the prolabium depending on the surgeon's preference. Occasionally, a vomerian down fracture was done to facilitate lip

repair. Adult CL repairs were done on the dental chair under local anaesthesia (approximately 4-6 ml of 2% lignocaine in 1:100,000 adrenaline).

Cleft surgery — Palate repair

A dingman retractor is used to visualise the defect properly. Techniques used in our centre include Bardach 2-flap palatoplasty, V-Y pushback repair, double reverse 'Z'-plasty or straight line repair for the soft palate.

Nursing care

Cleft patients are admitted 3-4 days in advance of their operation dates. This timing allows for review of the patients along with preoperative investigations by the cleft team members. Patients remain on admission for about 7-8 days after the cleft repair for post-operative monitoring and to ensure that sutures are removed before discharge. Adult cleft patients treated under local anaesthesia are the exception to this rule. They are treated purely as outpatients and return to the clinics for reviews and suture removal.

CL dressings are left in place for 48 h only; afterwards the wound is left open to heal. CP patients were initially fed via nasogastric tubes in the early post-operative period. This practice has been discontinued and replaced by regular oral toileting using a warm saline solution delivered using a hypodermic syringe into the oral cavity.

Other treatment modalities

Other treatment modalities such as paedodontic and orthodontic treatments though available are offered at a cost to the patient (these treatments are not part of Smile train's sponsorship). These treatments have been poorly accessed by our cleft patients though they constitute a part of the AKTH cleft protocol.

RESULTS

In the period under review, 155 CL and palate patients (80 males, 75 females giving a male:female ratio of 1:0.938) had surgical repairs of either the lip or palate. Of the 155 patients managed, CL patients were 83 (53.55%), CLP patients were 45 (29.03%), while 27 (17.42%) patients were managed for ICP. The pattern of the distribution of orofacial clefts is presented in Table 1. Left side dominance was found in patients managed for unilateral clefts either as CL alone (45; 54.22%) or as CLP (21; 46.67%).

A total of 161 cleft surgeries were done in the period under review. This consisted of 113 CL repairs and 48 CP repairs. This included four simultaneous lip and palate repairs and two secondary palatal repairs due to palatal fistulas. The simultaneous lip and palate surgeries done in our centre were secondary repairs (revisions) of the lip at the time of palate repair.

Table 1: Pattern of presentation of the various cleft types

Type of cleft	Cleft side	Male *n* (%)	Female *n* (%)	Total (%)
CL	Right	16 (19.27)	13 (15.67)	29 (34.94)
	Left	25 (30.12)	20 (24.10)	45 (54.22)
	Bilateral	6 (7.22)	3 (3.62)	9 (10.84)
	Total	47 (56.63)	36 (43.37)	83 (100.00)
CLP	Right	6 (13.33)	4 (8.89)	10 (22.22)
	Left	9 (20.00)	12 (26.67)	21 (46.67)
	Bilateral	9 (20.00)	5 (11.11)	14 (31.11)
	Total	24 (53.33)	21 (46.67)	45 (100.00)
ICP		12 (44.44)	15 (55.56)	27 (100.00)
Total		83 (53.55)	72 (46.45)	155 (100.00)

ICP: Isolated cleft palate, CLP: Cleft lip and palate, CL: Cleft lip

DISCUSSION

The pattern of the presentation of CLP patients in AKTH was similar to those reported by Oluwasanmi in 1970[1] (CL = 58.4%, CLP = 24.8%, CP = 10.6%) and Iregbulem in 1982[4] (CL = 49%, CLP = 32%, CP = 19%). Other Nigerian authors[5-7] have reported similar findings with (CL = 40-60%, CLP = 30-40% and CP = 10-20%). These values, however, differ slightly from that reported by Eigbobo from Port Harcourt, Nigeria in 2011[8] where CP patients were more than CLP patients (CL = 25%, CLP = 42%, CP = 33%). The reason for this difference may be related to the selection criteria utilised in this study. The preponderance of left sided clefts reported in the present study was similar to the reported prevalence in 'Kaduna'[9] and 'Lagos',[10] both in Nigeria with the prevalence values of 66.4% and 54.9%, respectively. This finding has been attributed to the delayed development of the facial artery on the left side when compared with the right side in the human foetus.[11]

The number of surgeries carried out in the period under review suggests that some patients with a CLP underwent lip repair but not palatal repair. It was seen that some mothers or parents were more concerned with the lip repair (which is external and easily visualised) than with the palatal repair. Another possibility is that some parents may have been discouraged from having palatal repair at our centre during the few times surgery was postponed due to the unavailability of reinforced (unkinkable) orotracheal tubes. These parents may have abandoned the palatal repair or sought treatment elsewhere.

The incidence of palatal fistulas (2 out of 48 repairs) is similar to that reported in the other centres.[12] Common causes of palatal fistulas[13] include lack of proper muscle repositioning, inadequate mobilisation of palatal tissue resulting to suturing under tension and deficiency of palatal tissues. Furthermore, the absence of dentoalveolar guidance (using pin-retained feeding plates to guide the palatal shelves together, as practiced in some centres) may have contributed to the incidence of palatal fistulas.

The timing of our CL surgeries was guided by the 'rule of ten' and this helps to ensure there is adequate bulk of tissue and the child's fitness for surgery. For the bilateral CL, we still perform a vomerian down fracture in patients with excessively proclined prolabiums.[14] This surgical correction is assumed to be more convenient for our patients when compared with the frequent hospital visits required for nasoalveolar moulding of the prolabium. The timing of CP surgeries remains controversial, but we opted for 18 months timeline to ensure the adequate bulk of tissue for the repair bearing in mind the import of palatal repair before definitive speech patterns are formed.

The role of the cleft team in the overall management of the cleft patient cannot be overemphasised. AKTH has been successful in creating a cleft team with a good representation of professionals. However, from the operative and procedural standpoint, it appears their contributions are targeted mainly to the surgical repair of clefts. The reason may be that this is the only aspect of the cleft management, that is, free to the patient. Furthermore, this appears to be the main concern of the majority of cleft parents. These patients appear to be content once surgical treatment is done.

Expanding the role of the cleft team in our environment to include other nonsurgical treatments may require patient education on these other treatments and possibly some alternate source of funding. The provision of free cleft surgeries appears to be the drive for patient presentation at this time. Follow-up and systematic review are also part of our protocol, however, this has been greatly limited by poor patient compliance. Poor compliance to follow-up by our patients may be related to their contentment following first surgical repair (lip repair) in patients with CLP.

Despite the successes the AKTH cleft programme has achieved, there are limitations which include theatre space and time, seamless integration of all members of the cleft team in the management of the patients. There is also the need for specialisation among surgeons and more specialised care, especially for craniofacial clefts.

CONCLUSION

The inclusion of various specialities in the cleft team is highly desirable. Experience suggests that cleft patients are more interested in surgical repair. The poverty level of the majority of the population makes the provision of nonsurgical cleft management difficult. Continued patient education and funding for nonsurgical treatment may address these issues.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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