OUTCOME OF THE MILLARD ROTATION- ADVANCEMENT PROCEDURE FOR THE UNILATERAL CLEFT LIP IN TWO HOSPITALS OF BANNU

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ABSTRACT

Objective: To evaluate the outcome of Millard's method in patients with unilateral cleft lip in two hospitals of district Bannu.

METHODS: This study was performed from Nov 2009 to Dec 2011. Eighteen patients with Unilateral cleft lips were selected. The age range was 4-15 months. All patients underwent Millard procedure. The surgery was performed by different surgeons in the ENT and Pediatric Surgery department in Khalifa Gul Nawaz and DHQ Hospitals Bannu.

Results: The total number of patients successfully operated in our study was 18 with 12 (66.6%) males and 6 (33.3) females with a ratio of 2: 1. Patients with complete cleft lip were 15(62.5%) while three (12.5%) were found with incomplete cleft lip. Wound infection was observed in 2 (11.1%) patients inspite of antibiotic cover. Three (16.6%) patients had post-operative vermilion notch. Postoperative follow-up of 6 months revealed the good results with an acceptable scar, good preservation of philtrum dimple and column, full vermilion and lengthened columella and good alar cartilage reposition.

Conclusions: Millard's technique is useful for repairing unilateral cleft lip in rebuilding nasal floor, the Cupid' bow and in correction of the columella deviation, except for a relatively insufficient lip height and columella length at the operated side. Therefore it is concluded that the Millard method is an ideal procedure for unilateral cleft lip repair.

Key words: Unilateral cleft lip, Millard's procedure, vermilion notch

INTRODUCTION

The cleft lip and/or palate are considered the second most common congenital anomaly (after club foot) accounting for about 13 percent of all Congenital anomalies and the overall incidence is 1 in 1,000 live births¹. A broad spectrum of variations in clinical presentation exists. Unilateral cleft lip involves deformity of the lip in addition to the alveolus and nose. Patients with this deformity require short-term and long-term care and follow-up from practitioners in multiple specialties. Patients usually need multiple surgical interventions, from infancy to adulthood, in order to achieve an acceptable functional and aesthetic quality².

There is no universal agreement at the timing and

technique of repair. Several techniques are in use in different centers with comparable long-term results. In spite of more than one treatment options for definitive repair, the goals are common which include the restoration of facial appearance and oral function, improvement of dental skeletal and occlusal relationships, improvement of speech, and the psychosocial state³. The most common procedure to repair a cleft lip is the Millard's rotation- advancement procedure presented in 1955 which entails a lateral flap advancement into the upper portion of the lip, combined with downward rotation of the medial segment. Dr. Ralph Millard performed the first procedure at a Mobile Army Surgical Hospital (MASH) unit in Korea. He published this method for the first time in 1957 and made another historical presentation in 1958^{4,5}. The Millard's procedure involves two flaps

known as rotation- advancement flaps which is a Z plasty. The medial flap at the philtrum is rotated laterally and lateral flap at the base of ala is advanced medially.

For many years a wide variety of surgical techniques for closure of unilateral cleft lip have been used. These include straight line closure as in Rose and Thompson repair, lateral lip tissue transfer such as Le Mesurier's quadrangular and Tennison's minimal incomplete cleft of the lip to the more triangular repairs⁶. Still many surgeons prefer the Millard rotation-advancement lip repair because the surgical scar is masked in the philtrum crest and the nostril floor and it improves the relationship of the alar base of the cleft side, producing harmonious symmetry of the nostril and the nostril sill. In addition, it uses and preserves the lip anatomy, returning lip tissue into its normal position, minimizing the amount of tissue that is discarded and reconstructing the orbicular oris muscle. One of the major disadvantages of this procedure is the lack of accurate measurements⁷. Millard's repair is popular worldwide as it meets all the requirements of good lip repair. Our choice for the selection of this procedure is twofold: it is easy to perform and carries good results.

METHODOLOGY

The aim and objective of this study was to evaluate the outcome of Millard's method in patients with unilateral cleft lip in two hospitals of district Bannu. The study was conducted in the ENT and Paediatric Surgery department of Khalifa Gul Nawaz Teaching Hospital and DHQ Teaching Hospital Bannu from Nov 2009 to Dec 2011.

A total of 18 cases were included in the study. It was a prospective and descriptive study. Non-probability convenience sampling was used. An inclusion and exclusion criteria was laid down.

INCLUSION CRITERIA

1. Patients of all paediatric age group and both sexes.
2. Unilateral cleft lip cases undergoing surgical repair.

EXCLUSION CRITERIA

1. Patients with bilateral cleft lip.
2. Patients in need of revision surgery operated elsewhere.
3. Patients with combined cleft lip and palate.

This was a combined study by Pediatric Surgery and ENT departments. The procedure was performed by two different qualified surgeons of ENT and Pediatric surgery department. The consent for the procedure was obtained from the legal guardian preferably parents. The institutional ethical committee was contacted for the approval of the study. All patients underwent a routine investigation like complete blood count, coagulation profile and hepatitis B and C tests. The patients were also preoperatively assessed by anesthetist for fitness for general anesthesia.

The procedure was performed under general anesthesia with a noncuffed endotracheal tube positioned midline. Prior to infiltration with a local anesthetic (0.5% lidocaine with 1:200,000 epinephrine), anatomic landmarks were marked with a methylene blue dye. Once the anatomic points are marked, incision lines were drawn that define the 5 flaps involved in the lip reconstruction. These are the inferior rotation flap of the medial lip element, the medial advancement flap of the lateral lip element, the columellar base flap of the medial lip element, and the two paired mucosal flaps of the medial and lateral lip elements. Two additional flaps that refine the repair often are used: a white roll flap and a vermilion triangular flap to allow for a smoother transition at the vermilion cutaneous junction and at the vermilion contour. Repair was performed in three layers i.e. mucosa, muscle and skin. The suture used for all layers was 5/0 vicryl with round body needle. Intravenous cephadrine was used as a single dose during operation followed by oral cephadrine for 5-7 days. All the patients were followed up for 6 months.

Our outcome measures for the Millard's technique was the role of the procedure in rebuilding nasal floor, the Cupid' bow and in correction of the columella deviation. We also analyzed the possible

complications like development of the vermilion notch, wound infections and total failure. Our criterion for repair was the level of acceptance by the parents. Though the acceptability was good but still there is a room for revision surgery in such patients as the minor deformities becomes more pronounced with the growth and development of the body structures.

RESULTS

The total number of patients successfully operated in our study was 18 with 12 (66.6%) males and 6 (33.3) females with a ratio of 2: 1 (Table-1). Patients with complete cleft lip were 15(83.3%) while three (16.66%) were found with incomplete cleft lip (Table-2). Wound infection was observed in 2 (11.1%) patients inspite of antibiotic cover. Three (16.6%) patients had post-operative vermilion notch (Table-3). Our criterion for repair was the level of acceptance by the parents. Though the acceptability was good (Table-4) but still there is a room for revision surgery in such patients as the minor deformities becomes more pronounced with the growth and development of the body structures.

Postoperative follow-up of 6 months revealed good results with minimal scar, good preservation of philtrum dimple and column, full vermilion and lengthened columella and good alar cartilage reposition except for a few complications mentioned earlier.

Table 1: Gender wise distribution

Gender	No	%age
Male	12	66.6%
Female	6	33.3%

Table 2: Type wise distribution of cleft lip

Type	No	%age
Complete	15	83.3%
Incomplete	3	16.6%

Table 3: Rate of complications

Complications	No	%age
Wound infections	2	11.1%
Vermilion notch	3	16.6%

Table 4: Acceptability of the procedure by the parents

Acceptability rate	No	%age
Acceptable	13	72.7%
Non-acceptable	5	27.7%

DISCUSSION

The age range of our patients was 4-15 months. The reason for late presentation is due to unawareness poverty, illiteracy and lack of health facilities in the periphery. Moreover the distance between the patient and health facilities as well as the religious taboos delay the early diagnosis and early referral of the patients for repair. While unawareness and difficulties in communication in the hilly areas are some of the other reasons for late presentation of these patients, poor weight gain and fitness for the procedure due to associated cleft palate is also found to be a reason for the delay in surgery. However the optimal timing of the surgical repair is still controversial. Some centers have advocated surgery in the early neonatal period, with a theoretical benefit in the scar appearance and nasal cartilage adaptability, thus minimizing the nasal deformity. To minimize anesthetic risks, some still adhere to the rule of 10s: perform surgical repair of cleft lip when the child has a hemoglobin of 10g, weight of 10 lb, and is aged 10 weeks. In general, however, most centers prefer to perform the unilateral lip repair when the infant is aged 2-4 months; anesthesia risks are lower, the child is better able to withstand the stress of surgery, and lip elements are larger and allow for a meticulous reconstruction³. HS Aden Walla also mentioned the age range in their study as 5-6 months and weight of the patient 5kg due to malnourished condition of their patients⁸.

These combined procedures are generally performed at 2.5 to three months of age⁹. While

Magnus Becker mentioned a mean age of 4.6 months¹⁰.

The male to female ratio in our study was found as 2:1. Sameh al Naumany observed almost the same ratio in their study¹. Cleft lip occurs more commonly in males, while cleft palate is more likely to occur in females. All of our patients, who underwent surgery, had a cleft lip on the left side. A unilateral cleft lip, commonly occurring on the left side, is more common than a bilateral cleft lip¹¹.

The most common complication we observed was vermilion notch which was mentioned also in another study¹². It is documented as the commonest complication encountered in the rotation advancement technique and some centers are not in favor of Millard's technique on account of this complication^{4,13}. The other complication which we observed in 2 cases was wound infection which resolved without any catastrophic sequel and was successfully treated with topical as well as systemic antibiotics.

CONCLUSIONS

We found the technique very reliable having good results keeping in view the aesthetic value as well as simplicity of the procedure. The overall results were good and encouraging regarding the acceptability of the parents of the patients concerned in a remote area where minimum health facilities are available.

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