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Profile of post operative cleft lip and palate in aceh cleft lip and palate center period of November 2018 - October 2019

[1]Syamsul Rizal, [2]Mirnasari Amirsyah, [1]T. Romi Imansyah Putra,
[2]Rezania Razali, [3]Doni Permana Putra

[1] Plastic, Reconstructive and Aesthetic Surgery Division, Faculty of Medicine Universitas Syiah Kuala, Banda Aceh, Indonesia
[2] Physiology Departement Faculty of Medicine Universitas Syiah Kuala, Banda Aceh, Indonesia
[3] Clinical Research Unit, Aceh Cleft Lip and Palate Center, Banda Aceh, Indonesia
*Corresponding: Syamsul Rizal; Plastic, Reconstructive and Aesthetic Surgery Division, Faculty of Medicine Universitas Syiah Kuala, Banda Aceh, Indonesia,
Email: sy.rizal@unsyiah.ac.id

Abstract. Cleft Lip and Cleft Palate or Orofacial Cleft, which is known as the cleft lip is a condition of birth defects where an unusual opening or cleft is formed on the lips or palate.[1] Cleft lip or labioschisis is a congenital anomaly that formed in the first trimester of pregnancy because of the mesoderm is not formed in that area so the nasal and maxillary processes that have been fused into a gap.[2] Cleft lip can be caused by genetic and environmental factors.[2] This study aims to determine the profile of post operative cleft lip and palate in Aceh Cleft Lip and Palate Center period of November 2018 - October 2019. Methods This study used a retrospective descriptive method by using the data that collected at the Aceh Cleft Lip and Palate Center, in November 2018 - October 2019. The total number of patients that performed the surgery was 318 patients. Results From this study, presentation by sex: 173 male patients (54%), 145 female patients (46%). Presentation of cleft abnormalities experienced by the patients**:** Cleft lip 85 patients (27%), Cleft palate 64 patients (20%), Cleft lip and palate 169 patients (53%). Presentations for each type of surgery were: Cheilorrhaphy 131 patients (41%), Palatorrhaphy 109 patients (34%), and Rhinoplasty 78 patients (25%). While the presentation by the age limit according to the Cheilorrhaphy operation indication: Appropriate 71 patients (54%), Not appropriate 60 patients (46%), presentation by the age limit according to the Palatorrhaphy operation indication: Appropriate 57 patients (52%), Not appropriate 52 patients (48%). Conclusion From this study, it can be concluded that the most profile is male sex, cleft lip and palate, Cheilorrhaphy surgery and the corresponding for age limit of Cheilorrhaphy operation indication is appropriate, the corresponding for age limit of Palatorrhaphy operation indication is appropriate.

Keywords: Profile, Cleft Lip, Cleft Palate, Cheilorrhaphy, Palatorrhaphy, Rhinoplasty

Introduction

Cleft Lip and Cleft Palate or Orofacial Cleft, which is known as the cleft lip is a condition of birth defects where an unusual opening or cleft is formed on the lips or palate.[1] Cleft lip or labioschisis is a congenital anomaly that formed in the first trimester of pregnancy because of the mesoderm is not formed in that area so the nasal and maxillary processes that have been fused into a gap.[2] Cleft lip can be caused by genetic and environmental factors.[2]

In general the incidence of cleft lip with or without cleft palate is 1: 750-1000 births, while the incidence in Asian race is 1: 500 births, Caucasian race 1: 750 births, and African American race 1: 2000 births.[3] Cleft lip with or without cleft palate is more common in men with a ratio of 2: 1.[4] According to the RISKESDAS in 2007, the percentage of cleft lip presentations in Nanggroe Aceh Darussalam province reached 7.8% and it made Aceh as one of the top 7 provinces with the highest number of cleft lip sufferers in Indonesia.[5]

The clefts could be classified into 3 categories: cleft lip (CL), isolated cleft palate (CP), cleft lip and palate (CLP) as well. CL refers to that the patient has cleft of lip alone. It could be further classified by laterality, unilateral or bilateral. Unilateral CL indicates only one side of the lip involved, either left or right; while bilateral CL both sides of the lip involved. Isolated CP means the patient has palate cleft alone. Unilateral CP indicates that the vomer connected with one side of the hard palate, otherwise CP is not differentiated with laterality. CLP refers to that the patient has clefts both on the lip and on the palate. Unilateral CLP means only one side of the lip and palate involved, either left or right, while bilateral CLP both sides of the lip and palate involved.[6]

Cleft lip has a lot of functional and aesthetic implications for patients in social interaction,

especially the ability to communicate effectively and the appearance of the face.[7] Apart from causing impaired speech function, cleft lip can also cause hearing, mastication, swallowing, growth and arrangement of teeth and aesthetics problems.[4]

In general, the prognosis in patients with cleft lip and palate is good when the patient is given treatment. The best treatment for patients with cleft lip and palate is surgical.[8]

Cheilorrhaphy is the surgical correction of the cleft lip deformity. The cleft of the upper lip disrupts the important circumoral orbicularis oris musculature. The lack of continuity of this muscle allows the developing parts of the maxilla to grow in an uncoordinated manner so that the cleft in the alveolus is accentuated. At birth the alveolar process on the unaffected side may appear to protrude from the mouth. [9]

Palatorrhaphy is a surgical procedure aimed at closing the anatomical defect of palate. This procedure also aims to minimize the disruption of the growth of the maxilla and dento-alveolar. In addition, palatorrhaphy also has a correction effect for muscle positioning abnormalities from soft palate, especially on the levator palati.[10] Palatorrhaphy is usually performed in one operation, but occasionally it is performed in two. In two operation the soft palate closure is usually performed first and the hard palate closure is performed second. The primary purpose of the cleft palate repair is to create a mechanism. [9]

Rhinoplasty is one of the complex surgical procedures as it deals with skin, cartilage and bone, and all of that is done in the middle of the face, which makes it very noticeable and less forgiving. Now, to do the procedure on a cleft lip and palate patient is twice as hard, since you must contend with asymmetry, deficient bone and soft tissue. Primary and secondary cleft rhinoplasty may be necessary to achieve optimal aesthetic results for patients.[11]

Age	Treatment
Perinatal diagnosis	Parental counselling with cleft surgeon
2 weeks up to 6 months	Pre-surgical orthopaedics (if indicated)
3–6 months	Cleft lip repair and primary nasal correction
10–14 months	Palate repair + myringotomy and tubes
> 3 years	Lip revision (if indicated)
≥ 4 years	Surgical correction of VPI (if indicated)
≥ 7 years 8–10 years (mixed dentition)	Lobule rhinoplasty (if indicated) Alveolar bone graft
> 12 years	Definitive septorhinoplasty (if indicated)
≥ 15–18 years (skeletal maturity)	Orthognathic surgery (if indicated)

Figure 1: Typical Surgical Treatment Pathway.[12]

Surgical treatment in patients with cleft lip should be conducted based on the rule of ten, 10 weeks of age, 10 pounds of body weight and haemoglobin 10gr/dl.[13]

The purpose of surgery on patients with cleft lip and palate are aesthetic improvement of the lips and nose, closure of the cleft palate, normalization of speech and hearing, normal chewing function, dental health and normal psychosocial development.[13]

Based on the explanation above, it can be concluded that the cleft lip and palate is one of the problems in the field of plastic surgery that requires immediate treatment and critical attention. This makes the author interested to conduct a research about the profile of post operative cleft lip and palate in Aceh Cleft Lip and Palate Center period of November 2018 - October 2019.

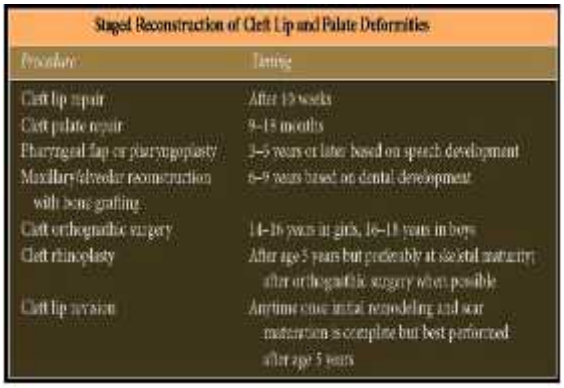

Figure 2: Staged Reconstruction of Cleft Lip and Palate Deformities.[9]Methods

This study used a retrospective descriptive method by using the data that collected at the Aceh Cleft Lip and Palate Centre, in November 2018 - October 2019. The total number of patients that performed the surgery was 318 patients

Results and discussion

During the period of November 2018 – October 2019 there were a total of 318 cases of cleft lip and palate performed at the Aceh CLP Center.

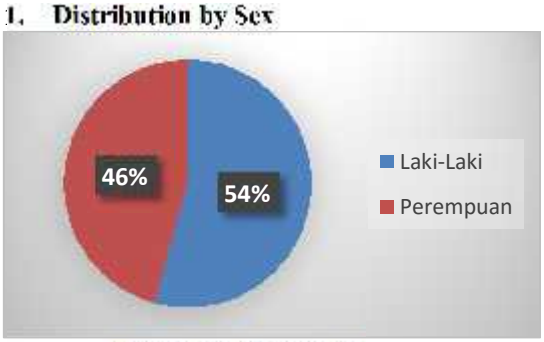

Figure 3: Distribution by sex.

Based on the diagram, it can be seen that the distribution according to sex in patients who performing surgery at Aceh CLP Centre in the period November 2018 – October 2019, obtained that more male sex compared to female sex. Of the total, 54% were male patients and the remaining 46% were female patients. This as explained in the book of *Grabb and Smith's Plastic Surgery* (2007) Males are predominant in the cleft lip and palate population.[14]

It's also in accordance with the research conducted by Gian Luca Gatti, et al. (2017) that seven hundred fifty-two patients with primary diagnosis of cleft lip and/or palate underwent surgical correction at S Chiara Pisa Italy Hospital, 432 (57.45%) male and 320 (42.55%) female.[15]

2. Distribution of Cleft Abnormalities Experienced by the Patients

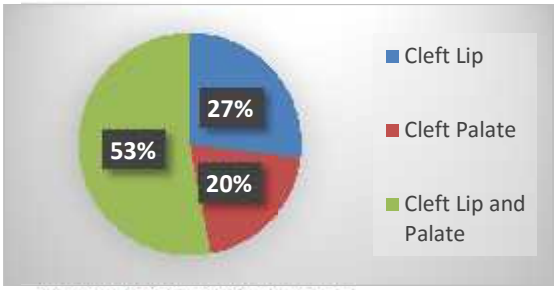

Figure 4: Distribution of Cleft Abnormalities Experienced by the Patients

This is in accordance with the previous research by Gian Luca Gatti, et al in 2017 at S Chiara Pisa Italy Hospital in the period of 2009-2015 that cases of cleft lip and palate were the most cases, that diagnosis was cleft lip (CL) in 215 patients, cleft palate (CP) in 202 patients, and cleft lip and palate (CLP) in 335 patients.[15]

ZHOU QJ, et al (2006) that the cases of cleft lip and palate (59.58%) are more than the cleft lip (23.39%) and the cleft palate (17.04%).[6]

3. Distribution by Type of Surgery

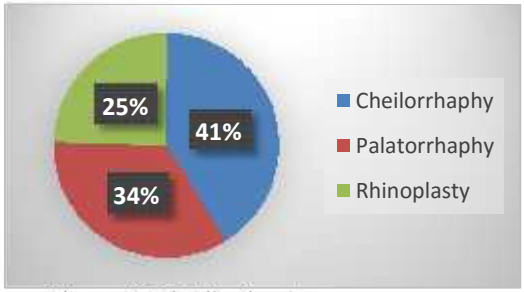

Figure 5: Distribution by type of surgery

The diagram above shows that from the total of 318 cases of cleft lip and palate that performed surgery at the Aceh CLP
Center in the period of November 2018-October 2019, it was found that the types of surgery most widely performed was Cheilorrhaphy in 131 patients (41%), then Palatorrhaphy in 109 patients (34%) and the last was Rhinoplasty in 78 patients (25%). This also shows that the most cases obtained at the Aceh CLP Center during the period November 2018 – October 2019 were cases of cleft lip so that the most types of actions were obtained was Cheilorrhaphy.

Cleft lip is usually assumed by cheilorrhaphy surgery and cleft palate by palatorrhaphy surgery.

Riana AR (2015) found that cleft lip and palate were most commonly found (total 263 or 61.31%), followed by cleft lip only (total 143 or 33.33%) and cleft palate only (total 23 or 5.36%).[16]

From the data also found that patients who performed cleft lip surgery in adolescence, this is related because the cleft lip treatment is a multidisciplinary treatment that takes years. Advance surgery are carried out for treatment of the other damages such as repairing the shape of the nose and facial bone formation.[2]

The purpose of the primary or first lip repair surgery is to close the cleft lip so that it can help close the distance gap of the gum so that the patient can breastfeed normally and the patients nutritional intake can be maintained, while also to get a better look of the lips and face.[2,17]

4. Distribution by the Age Appropriateness for Cheilorrhaphy Surgery

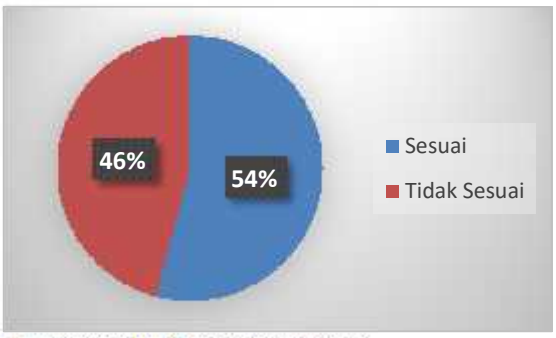

Figure 6: Distribution by the Age Appropriateness for Cheilorrhaphy Surgery

The diagram above shows that the age-appropriate distribution of Cheilorrhaphy surgery is the most appropriate for 54%.

It can be said that most patients already have an awareness to treat the problem of cleft lip early on.

The ideal timing and method of cleft lip and palate (CLP) repair remains an enigma, despite many studies, surveys, and reports in the literature. There are innumerable primary surgical protocols, matching the large number of centers and cleft surgeons. There are many factors to be considered while framing the protocol. The main considerations are the psychosocial factors, facial growth, speech, and dental alignment. Over and above these factors, the training undergone by the cleft surgeon influences the choice of the primary surgical schedule. In practice, surgeons start with the protocol that they observed at their training institute and later modify it based on their surgical acumen, literature reports, and discussions with colleagues during scientific meetings. The majority of the centers worldwide

prefer to repair the cleft lip at 3 to 6 months of age and cleft palate at 6 to18 months of age.[18]

Lip repair surgery called Cheilorrhaphy is performed at the age of 3 months or 10 weeks of age, 10 lb in body weight or 5 kg and and at least 10 gr of hemoglobin per deciliter of blood (rule of tens).[19]

Some other studies stated that the cleft lip surgery can be performed when the baby is 3-5 months. The longer the surgery is done, the prognosis can be worse, because the surgery is done in stages, in order to prepare the jaw before the eruption of teeth begins.[20, 21]

5. Distribution by the Age Appropriateness for Palatorrhaphy Surgery

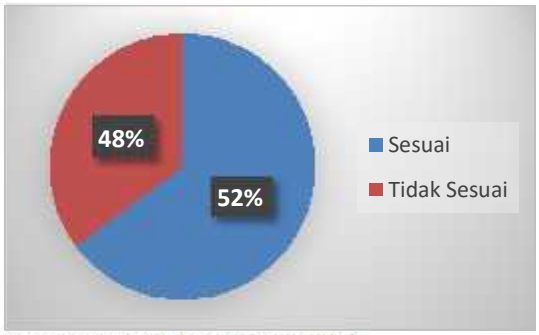

Figure 7: Distribution by the Age Appropriateness for Palatorrhaphy Surgery

The diagram shows that the distribution according the age-appropriateness for palatorrhaphy surgery at the Aceh CLP Center period of November 2018 – October 2019, obtained 57 patients appropriate (52%) and 52 patients who are not appropriate (48%).

This is as explained in the Grabb and Smith's Plastic Surgery (2007) that The conventional timing for cleft palate repair was arbitrarily set at 18 to 24 months as a compromise between speech and facial growth. The current consensus, based on an increased understanding of speech development, is that cleft palate repair should be completed before 18 months of age; however, there is no general agree- ment regarding the earliest that surgery can be performed.[14]

Conclusion

From this study it can be concluded that the most distribution according to sex is male with 173 patients (54%), according to the type of surgery is Cheilorrhaphy with 131 patients (41%), and according to the age appropriateness for cheilorrhaphy surgery is appropriate with 71 patients (54%), according to the age appropriateness for palatorrhaphy surgery is appropriate with the total number is 57 patients (52%).

Ethical clearance

The authors declare that ethics approval was not required for this case report.

Conflict of interest

The authors have no conflict of interest to disclose.

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Author contributions

All authors drafted the manuscript. All authors listed have made substantial, direct, and intellectual contribution to the work and approved the final manuscript.

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