

# AN ANALYSIS OF OUTCOME IN CLEFT LIP AND/OR PALATE PATIENTS BY USING VISUAL ANALOG SCALE SCORING SYSTEM FROM THE PARENTS IN NON-PLASTIC-SURGICAL HOSPITAL BASED SETTING

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## ABSTRACT

### BACKGROUND

Cleft lip and/or palate surgery is often times not accessible to all patients in developing countries, like Indonesia and other countries alike. Therefore, it is common to have the care of these patients becoming dependent upon charity care and events. Despite these efforts, there has been criticism that the performance and outcome have been suboptimal and unmonitored.

The objectives of this study are- 1) To identify a novel solution for resolving such issue for follow up and 2) To monitor the outcome by using Visual Analog Scale scoring system reported by the parents.

### MATERIALS AND METHODS

Parents were separately asked to provide assessment using Visual Analogue Scale score from 1 to 10 on the appearance of their children before surgery, immediately after surgery, and six months later.

**Setting and Design-** This is a prospective cohort study at our charity event in Gunungkidul, D. I. Yogyakarta (a small subset of the provincial district in Java Island) on January 14<sup>th</sup> 2017.

**Statistical Analysis-** The result was analysed using Kolmogorov-Smirnov distribution test and Friedman test.

### RESULTS

Thirty-five parents whose 20 children underwent cheiloplasty and 15 palatoplasty were enrolled as respondents. The VAS score for before, immediately after, and six months after cheiloplasty were 3.4 with 95% CI (2.79-4.01), 7.95 with 95% CI (7.33-8.57), 8.75 with 95% CI (8.27-9.23) and P-value <0.01. The VAS score for before and immediately after, and six months after palatoplasty were 4.33 with 95% CI (3.41-5.26), 7.80 with 95% CI (7.04-8.56), and 7.12 with 95% CI (6.54-7.63) and P-value <0.01.

### CONCLUSION

The outcome of cleft lip and palate patients in non-plastic-surgical hospital based setting showed a decent result by a significant increase in Visual Analog Scale score appraised directly by parents.

### KEYWORDS

Cleft Lip, Cleft Palate, Visual Analog Scale, Social Work, Palatoplasty, Cheiloplasty.

**HOW TO CITE THIS ARTICLE:** Davita TR, Narmada S, Soedjana H. An analysis of outcome in cleft lip and/or palate patients by using visual analog scale scoring system from the parents in non-plastic-surgical hospital based setting. J. Evid. Based Med. Healthc. 2018; 5(32), 2380-2383. DOI: 10.18410/jebmh/2018/491

### BACKGROUND

Cleft lip and/or palate (CL/P) is a common congenital craniofacial anomaly that can be found in various regions in the world. The incidence of CL/P in Indonesia itself is 1:800 births.<sup>1</sup> The number of CLP patients in Indonesia continues to grow in line with the increase in population. Each year there are approximately 7,500 newborns with these

defects.<sup>2</sup> CL/P surgeries are often times not accessible to all patients in developing countries, like Indonesia and other countries alike. Especially when they live in rural areas and away from major cities and medical centers with complete CL/P team.<sup>1-4</sup> Most of these patients also have lack of medical or insurance coverage for the care of the condition. Therefore, it is common to have the care of these CL/P patients becoming dependent upon charity care and events organized by several groups of Indonesian plastic surgeons. Despite these efforts, there has been criticism that the performance and outcome have been suboptimal and unmonitored. It is recognized that follow up care and outcome analysis has become the challenge in this type of setting due to the shortage of plastic surgeons in the area where the patients are treated. In this paper, we propose a novel solution in resolving such issue for follow up and monitoring the outcome by using Visual Analog Scale (VAS)

*Financial or Other, Competing Interest: None.*

*Submission 05-03-2018, Peer Review 09-04-2018,*

*Acceptance 26-07-2018, Published 02-08-2018.*

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*DOI: 10.18410/jebmh/2018/491*



scoring system reported by the parents. The follow-up and monitoring are completed in a local clinic or non-plastic-surgical hospital setting.

**MATERIALS AND METHODS**

This is a prospective cohort study at our “Senyum Gunungkidul” charity event in a non-plastic-surgical hospital based setting in Gunungkidul, D. I. Yogyakarta which was held on January 14<sup>th</sup>, 2017. Surgeries were done by five plastic surgeons with 10 years of average clinical experience. VAS score data of CL/P patients for before, shortly after, and six months after cheiloplasty or palatoplasty were obtained.<sup>5-7</sup>

<sup>7</sup> Inclusion criteria for cleft lip repair patients are at least three months of age, minimum weight of 10 pounds, haemoglobin value >10 g/dl, healthy fit patients, and there is no other comorbid or other congenital diseases. Inclusion criteria for cleft palate patients are at least one year old of age, healthy fit patients, and have no other comorbid or other congenital diseases. The exclusion criteria are patients who have other illness, malnutrition, or syndromic diseases that compromise surgical procedures, and those who are unwilling to take surgery after informed consent about possible risks and complications.

VAS score data were obtained from parents separately. Respondents were divided into two groups: those whose children underwent cheiloplasty and those underwent palatoplasty procedure. Respondents were asked to assess patients’ appearance before surgery, immediately after surgery, and six months after surgery using a scoring system ranging from 1 to 10, where 1 indicates totally unsatisfied/unattractive appearance and 10 indicates totally satisfied/attractive appearance. Scoring in cheiloplasty was measured mainly by the aesthetic appraisal from the

respondents. Meanwhile scoring in palatoplasty was measured by the closure of palate gap.

Each respondent was not allowed to discuss when data was collected. During the six months postoperative assessment, all respondents were reassembled again then photos of patients before surgery and photos shortly after surgery were showed to remind them about their children’s appearances at that time to provide a comparison. This assessment is expected to reflect the satisfaction level of the results of the operations performed.<sup>5-7</sup>

Data was analysed using Kolmogorov-Smirnov distribution test and Friedman test for the VAS score before, immediately after, and six months after surgery. The analysis was conducted using SPSS 20.0.<sup>7-9</sup>

**RESULTS**

A total of 35 respondents were assessed. Twenty of them have children who had undergone cheiloplasty while the remaining 15 have children who had undergone palatoplasty. Mean age for cheiloplasty was 11.4 years old which ranging from 3 months to 42 years old. The mean age of palatoplasty was 9.6 years which ranging 1 year to 23 years old. Patients sex proportion is 76.19% for male and 23.81% for female. Anomalies distribution is 75% for unilateral cleft lip and 25% for bilateral cleft lip. As many as 60% of the unilateral cleft lip is on the left side. Eighty percent of patients have unilateral cleft palate and 20% bilateral cleft palate.

Distribution data of cleft lip and palate patients using Kolmogorov-Smirnov test were not normal (P-value < 0.05). Therefore, the Friedman test was used to analyse the relationship between VAS score before surgery, immediately after surgery, and six months after surgery.

No.	Cleft Lip Patient Appearances	Average Scores / (Min-Max)	95% CI	P-Value
1.	Before cheiloplasty	3.40 / (1- 6)	2.79-4.01	<0.01
2.	Immediately post-cheiloplasty	7.95 / (5-10)	7.33-8.57	<0.01
3.	Six months post-cheiloplasty	8.75 / (7-10)	8.27-9.23	<0.01

**Table 1. Average Score using VAS of Cheiloplasty Results**

For the first group, table 1 shows the average VAS score of cleft lip patients that underwent cheiloplasty. The mean total increase of VAS score between before cheiloplasty and immediately after cheiloplasty was 4.55 (P-value < 0.01). There was a higher increase of VAS score between before surgery and six months after cheiloplasty 5.35 (P-value < 0.01).

No.	Cleft Palate Appearances	Average Score /(Min-Max)	95% CI	P-Value
1.	Before palatoplasty	4.33 / (2-7)	3.41-5.26	<0.01
2.	Immediately post-palatoplasty	7.80 / (5-10)	7.04-8.56	<0.01
3.	Six months post-palatoplasty	7.12 / (7-10)	6.54-7.63	<0.01

**Table 2. Average Score using VAS of Palatoplasty Results**

For the second group, table 2 shows the average VAS score of cleft palate patients that underwent palatoplasty. The mean total increase of VAS score between before palatoplasty and immediately after palatoplasty was 3.47 (P-value <0.01). VAS score from six months after palatoplasty was relatively 2.79 lower than the score from shortly after the procedure (P-value <0.01).

A total of 88.57% of respondents were satisfied with the operations performed in social charity event situations and 94.28% of respondents wished that this kind of charity activity can be held routinely.

## DISCUSSION

Gunungkidul is one of the regencies in D. I. Yogyakarta which has 18 districts with the capital center in Wonosari. It is a small subset of the provincial district in Java Island, Indonesia. Most of the districts are drought-prone areas during the dry season due to the geological and topographical conditions as karst areas. Traveling from Gunungkidul Regency to the capital city of Yogyakarta Special Region takes about 2 hours by car. The number of healthcare facilities and staff in this area is still very limited. There is not any plastic surgeon and plastic-surgical hospital setting in this area until now.<sup>10</sup> Based on these factors, Gunungkidul is a suitable place to do our charity event for cleft lip and palate surgery.

VAS score ranging from 1 to 10 was used to measure the aesthetic appraisal of patients undergoing cheiloplasty. The mean VAS score of patients before cheiloplasty was 3.4. The score immediately after cheiloplasty was 7.95 with a total increase of VAS score of 4.55 (P-value <0.01). There was 5.35 increase of VAS score between before and six months after cheiloplasty (P-value < 0.01). Cheiloplasty in non-plastic surgical hospital based setting provided a significant increase in aesthetic appearance outcome. VAS score six months after cheiloplasty was relatively higher than shortly after the procedure. Not only due to decreasing oedema, no post-surgery complications, and the good degree of lip proportion, but also favourable scar appearance may have contributed to this better VAS score.

On the other hand, in cleft palate patients, the mean VAS score was 4.3 before palatoplasty. Score immediately after palatoplasty was 7.80 with a total increased of VAS score was 3.47 (P-value <0.01). Meanwhile, VAS score from six months after palatoplasty was relatively 2.79 lower than the score from shortly after the procedure (P-value <0.01).

Palatoplasty in non-plastic-surgical hospital based setting in cleft palate patients provided a significant increase in satisfaction outcome. However, palatoplasty result was lower than cheiloplasty's in this charity event due to most of the cleft palate patients have passed the best timing for this procedure (average patients age was 9.6 years old). Palatoplasty in children is directed not only for closing the palate gap but also for producing normal speech, restoring Eustachian tube function, closing fistulas, and minimizing alterations in maxillary growth. However, palatoplasty in adulthood is mostly directed to improve patient's palate appearance and self-confidence but will not change much in their speech functions. Long, sustained speech, however, may still deteriorate, resulting in increased hypernasality. VAS score six months after palatoplasty was relatively lower than shortly after the procedure because some of the respondents still expected for speech improvement that affects the evaluation. The other factor that may have contributed to the lower VAS score in palatoplasty in this charity event was the fistula, one of the surgical complications that we found in 2 patients during follow up at six months after surgery.

## CONCLUSION

The outcome of cleft lip and cleft palate surgeries performed in a charity event with non-plastic-surgical hospital based setting provided a significant increase when appraised using Visual Analog Scale score directly by parents before and after the surgery. Further studies are needed to measure the consecutive long-term score in 12 to 24 months after surgery and to ask more questions to elaborate the reason why some respondents were not satisfied with charity event surgery setting. Future studies may also compare the difference between VAS score of surgeries performed in the hospital-based setting with fully equipped facilities and those in non-plastic-surgical hospital-based setting. This data is expected to be a catalyst for future humanitarian cleft missions in Indonesia and other countries as well.

## Acknowledgment

We would like to acknowledge our partner for participating in this study, Risal S. Djohan, MD, MBA from Dermatology & Plastic Surgery Institute in Cleveland Clinic, Ohio, USA who participated in a brief review of our manuscript. We gratefully thank all our charity event committees for their loyalty and support who helped us to make this social service event and research succeed. Certainly, thanks to entire respondents for their cooperation in answering our questionnaire.

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