

Outcomes of Reconstructive Surgery for Cleft Palate Patients: A survey on patients Admitted to Imam Khomeini and Apadana Hospitals during 2004-2010

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ABSTRACT

Cleft palate imposes numerous psychological, physical, and developmental effects on patients and their families. This study attempted to evaluate the outcomes of reconstructive surgery for closing cleft palate in patients admitted to Imam Khomeini Hospital and Apadana Hospital during 2004-2010. This was a retrospective study on 275 children undergoing reconstructive surgery for cleft palate at Imam Khomeini Hospital and Apadana Hospital during 2004-2010. The demographic data included age, sex, type of cleft palate, type of surgery and its complications referring to patient's profile. Most patients with cleft palate ranged from 1 to 3 years of age (86.9%). Most patients were young females diagnosed with hard and soft, unilateral submucosal cleft palate, whereas most cases diagnosed with bilateral cleft palate were young males. Most cases of anterior fistulas were found in patients with bilateral cleft palate, while most cases of defect were observed in soft palate and hard and soft cleft palate. The risk of postoperative complications tended to be higher in cases of bilateral cleft palate where soft and hard palates were involved at the same time.

Key words: Reconstructive surgery, Cleft palate patients, Bilateral cleft.

INTRODUCTION

As the most common congenital deformity affecting face and mouth, left lip and palate can leave its adverse effects on children from the very beginning of their birth. The affected children struggle with various problems in terms of appearance and beauty, speech, nutrition, hearing, and mental health. Oral cleft is a multifactorial condition involving both genetics and environment. The incidence of cleft palate is more widespread than cleft lip and palate combined. Children with cleft palate are often diagnosed with other birth defects, particularly heart defects and hearing loss (1). Although several non-invasive treatments have been developed for managing oral cleft related disorders like scars, wound, and infections, the surgery is still the first treatment option for the oral cleft (2-5). This disorder should be treated quite

carefully by a thorough examination of children's general health, nutritional status for prevention of malnutrition, weight loss, and insufficient physical development. If all health requirements are met, reconstructive surgery may be prescribed for both hard and soft palates. There is a wide variety of methods for reconstructing cleft palate and repairing the junction of palatal muscles (6, 7). The post-reconstructive complications include bleeding, infection, and fistula, the last of which is the most important (8, 9). Reconstructive surgery for cleft palate facilitates nutrition, proper speech, preventing impairment of bone growth, preventing middle ear conditions, and hearing loss (6, 8). There are three main morphological types of palates: cleft lip (CL), cleft palate (CP), and both together as cleft lip and palate (CLP). Onah et al. (2007) conducted a retrospective study on patients undergoing surgery at a reconstructive plastic center in Nigeria

focusing on the follow-up status of cleft palate repair(10). Over the period from 1993 to 1999, a total of 102 patients underwent surgery, of them 15 cases had cleft palate, 42 cases had cleft lip and 45 cases had cleft lip and palate. In 20 patients, reconstructive surgery worked for cleft lip, while it failed for cleft palate. There were 2 cases of cleft lip and palate both faced with treatment failure. Moreover, one case of cleft palate had to go under additional surgery due to disfigurement(10). Derakhshandeh *et al.* (2011) examined speech disorders and middle ear diseases after an initial palatoplasty in children with cleft palate (11). This retrospective study involved 120 medical records of patients with cleft lip and palate admitted to Isfahan Al Zahra Hospital during 2005 to 2007, extracting the data of the middle ear condition and results of speech production and nasality among 38 children 3 to 6 years of age with or without cleft lip. In addition to calculating the prevalence of cleft lip and palate, the middle ear condition was examined. In this respect, 47.4% of patients had experienced recurrent middle ear infections. In this

study, the frequency of cleft palate disorders, especially those involving speech production, tended to be higher than similar studies (11). The present study aimed to evaluate the outcomes of reconstructive surgery for closing cleft palate in patients admitted to Imam Khomeini Hospital and Apadana Hospital during 2004-2010.

MATERIALS AND METHODS

All patients included in the study had been previously undergone reconstructive surgery for cleft palate at Imam Khomeini hospital and Apadana Hospital based in Ahvaz during 2004-2010. Using a data collection form, the demographic data of patients including age, sex, type of cleft palate, and type of surgery were recorded by reference to individual profiles of patients kept at the Medical Registration Department. After data collection and analysis, the information on the patients undergoing surgery was compared in terms of the above variables. There was no need to calculate the minimum sample size, since the sample included all patients with cleft palate going under reconstructive surgery for cleft palate at Ahvaz Imam Khomeini Hospital and Apadana Hospitals during 2004 to 2010. Quantitative data and qualitative data were presented in terms of frequency and frequency percentage.

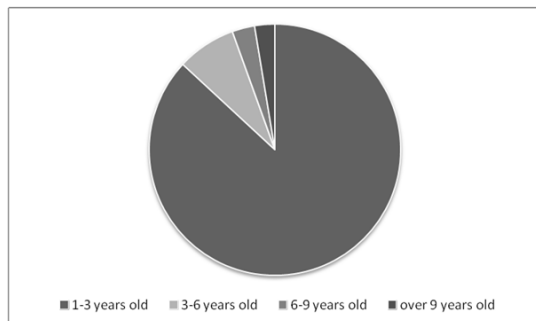


Fig. 1: Frequency distribution of children with cleft palate according to age

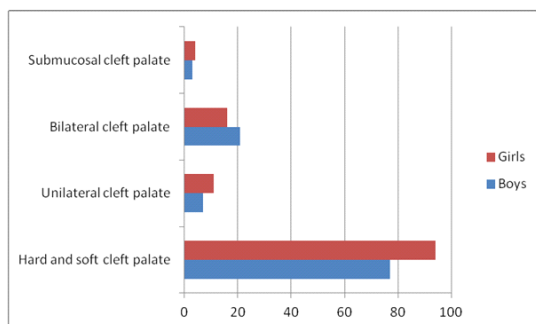


Fig. 2: Frequency distribution of sex in different types of cleft palate

RESULTS

Total of 275 patients aged 1 to 17 years old were studied. Of 275 children, 239 were 1-3

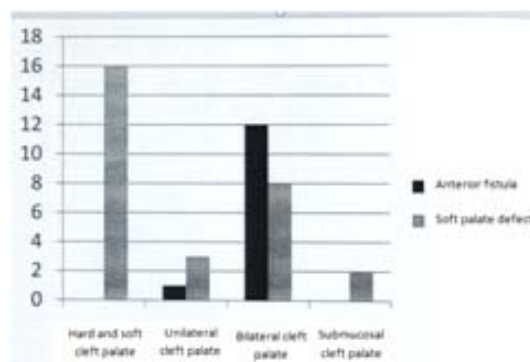


Fig. 3: Frequency distribution of anterior fistula and soft palate defects following reconstructive surgery for different types of cleft palate:

Table 1: Frequency distribution of cleft palate closure under reconstructive surgery for different types of cleft palate according to gender

Type of cleft palate	Boys	Girls
Hard and soft cleft palate	77	94
Unilateral cleft palate	7	11
Bilateral cleft palate	21	16
Submucosal cleft palate	3	4

years old (86.9%), 21 were 3-6 years old (7.6%), 8 were 6-9 years old (2.9%) and 7 (2.6%) were over 9 years old.

DISCUSSION

Alam et al. (2005) examined the incidence of fistula in patients undergoing reconstructive surgery for cleft palate at Booali Hospital in Sari, Iran(12). This study reviewed the medical profiles of 50 patients diagnosed with cleft palate and undergone surgery at Boo-Ali Hospital from 1997 to 2004. Among the subjects, 50% were girls and 50% were boys. The mean age of patients was 9.82±18.84 months(12). The patients had been categorized as follow: 6% in Class 1, 62% in Class 2, 18% in Class 3 and 14% in Class 4. During the post-operative follow-up of patients, 4% experienced fistula, where there were no cases of fistula and complications such as hematoma, postoperative infection or dehiscence among the rest of the patients (96%). There was no significant difference between patients with and without fistula in terms of VEAU classification, surgical technique, age, and sex of the patients. Generally, it was concluded that cleft palate surgery is accompanied by a key complication involving fistula which requires additional surgery. In this study, the incidence of fistula was 4% which is relatively lower than global range (0 to 50%). This can be associated with the proper techniques applied in surgery. This study intended to evaluate the results of constructive surgery for closure of cleft palate in patients admitted to Imam Khomeini Hospital and Apadana Hospital during 2004-2010. All patients included in the study had been previously undergone

reconstructive surgery for cleft palate at Imam Khomeini hospital and Apadana Hospital based in Ahvaz during 2004-2010. Using a data collection form, the demographic data of patients including age, sex, type of cleft palate, and type of surgery were recorded by reference to individual profiles of patients kept at the Medical Registration Department. There were a total of 275 young patients aged from 1 to 17 years. Cases of cleft palate left unrepaired in children over 9 years would be of great concern even on a limited scale. It would require further follow-up support by agencies so as to encourage families to resume treatment. The results suggest that the majority of patients are under 3 years old, which is an age group ideal for surgery. Jenson et al (1988) investigated the epidemiology, variability, and early somatic development of lip and cleft palate in Denmark (13). They reported that cleft lip was more likely to affect males at a 2:1 ratio. Conversely, cleft palate was more likely to affect females at a 2:1 ratio (13). Longnecker (1965) obtained the same ratio among the white, black, and yellow-raced patients (14). However, we found that only bilateral cleft palate as a severe type of the disease was more prevalent among boys. Most patients were diagnosed with both hard and soft submucosal cleft palate, while there were few cases of submucosal cleft palate.

CONCLUSIONS

The most age group of patients with cleft palate was 1 to 3 years old (86.9%) and majority of the patients were young females diagnosed with hard and soft, unilateral submucosal cleft palate, whereas most cases diagnosed with bilateral cleft palate were young males. In addition, most cases of anterior fistulas were found in patients with bilateral cleft palate, while most cases of defect were observed in soft palate and hard and soft cleft palate. The findings of this study showed no cases of anterior fistula neither in patients with hard and soft cleft palate or those with submucosal cleft palate. Furthermore, submucosal cleft palate and unilateral cleft palate were accompanied with the lowest incidence of complications, while bilateral cleft palate and soft and hard cleft palate were most affected.

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