

# Archform in Cleft Palate – A Computerized Tomographic Classification

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*This prospective study was conducted in King George's Medical College, Lucknow, India amongst fifty cleft lip and palate cases to study the various archforms. The maxillary arch form was traced from Computer Tomograph sections of all the cases pre and post-operatively. The various patterns of arch forms as observed from CT tracings exhibiting U & V shaped with sub-types denominated as posteriorly – convergent (c), divergent (d) and parallel (p). This simplified classification can be used in pediatric dentistry practice.*

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## INTRODUCTION

The newly born child with a cleft palate can present ethnographic and financial burdens, associated with mental distress to parents. Such a child always needs a comprehensive care. The management of cleft palate subjects is aimed to rehabilitate normally functioning and appearing individuals. Surgical care exhibits much more complexities than obtaining simple closure of hard and soft tissue defect at an appropriate age. The surgical correction must be achieved with management protocol of the cleft lip and palate team. There is a paucity of literature of the effect of repair on the archform in the Indian cleft palate population. In this scientific endeavor an attempt has been made to

study the various types and subtypes of arch forms in cleft palate patients with deviant functional oral physiology.

Kernahan in 1971 proposed a striped Y classification for rapid graphic presentation of the defect. This was further modified by Ehel Saki in 1972 and Millard in 1976. In the striped Y classification, the involved area is shaded to graphically represent the defect. The cleft area is recorded in the form of numeric codes which can be stored in computer to analyze the data regarding cleft in various ways.

The Spina classification is based on pre-incisive, transverse and post-incisive foramen cleft. Several other established classifications such as by Davies and Retchie (1922), Veau (1931) and Kernahan and Stark (1958) have also come up but none of the aforesaid classifications have served as an ideal to classify the generalized cleft palate presentation in direct corelevance to pediatric dentistry practices.

## MATERIALS AND METHOD

This prospective study was conducted in children with cleft lip and palate in the Department of Oral and Maxillofacial Surgery, Department of Plastic Surgery, King George's Medical College, Lucknow.

Computerized tomography of the maxillary arch of the patients was done in maxillary arch region and the median most scan exhibiting the complete archform was traced and the tracings were recorded on plain paper for all fifty subjects (Fig-1)

## OBSERVATIONS

The fifty cases were examined thoroughly and computerized tomographic scanning and tracing of arch forms

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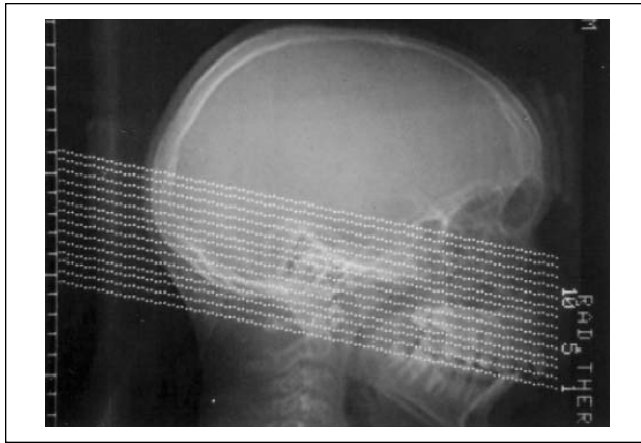


Figure 1. Showing various sections of Computerized Tomography

were performed preoperatively. The subjects were divided into two groups depending upon the age:

Group I – below six years of age having a total of twenty five subjects, the male and female distribution of cases were observed to be 11 and 14.

Group II – belonging to the subjects more than six years with the total number of twenty five subjects and male and female distribution were similar to Group I as depicted in Table-1.

Table 1: Distribution of Selected Cases

S.No.	Age Range	No. of Cases		Total
		Male	Female	
1.	<6 years	11	14	25
2.	>6 years	11	14	25
	Total	22	28	50

The distribution of cleft type was recorded as right unilateral, left unilateral and bilateral. The distribution of cases in both sexes among cleft type were recorded 15, 13 and 22 respectively. The incidence of the cleft in the males was 44% and 56% in females. (Table 2)

The subtypes were recorded on the basis of U and V shaped arch forms – The convergent, divergent and parallel arch forms are designated as Uc, Ud, Up and Vc, Vd, Vp. The total number of cases depicted were 34 with U shaped archforms and 16 with V shaped archforms. (Table 3 and Figure 2a, 2b, 2c)

Table 2. Distribution of Cleft type in both sexes

S.No.	Cleft Type	No. of Cases				Total	
		Male		Female		No.	%
		No.	%	No.	%		
1.	Right unilateral	7	14	8	16	15	30
2.	Left unilateral	5	10	8	16	13	26
3.	Bilateral	10	20	12	24	22	44
	Total	22	44	28	56	50	100

Table 3. Distribution of sub-types on the basis of U&V shaped arch form

	U-shaped			V-shaped		
	Uc	Ud	Up	Vc	Vd	Vp
Right	5	6	1	2	1	0
Left	3	5	0	1	4	0
Bilateral	4	6	4	1	6	1
Subtotal	12	17	5	4	11	1
Total		34			16	

**DISCUSSION**

Davis and Ritchie (1922) and Veau (1931) proposed a morphological classification based on the site and extent of the cleft, whereas Kernahan & Stark (1958) affirmed the classification depending upon the embryological principles whereas Kernahan in 1971 proposed striped Y classification for rapid graphic representation of the defect in numeric code.

All the classifications are based on different magnitude of parameters and the gradations do not fulfil the

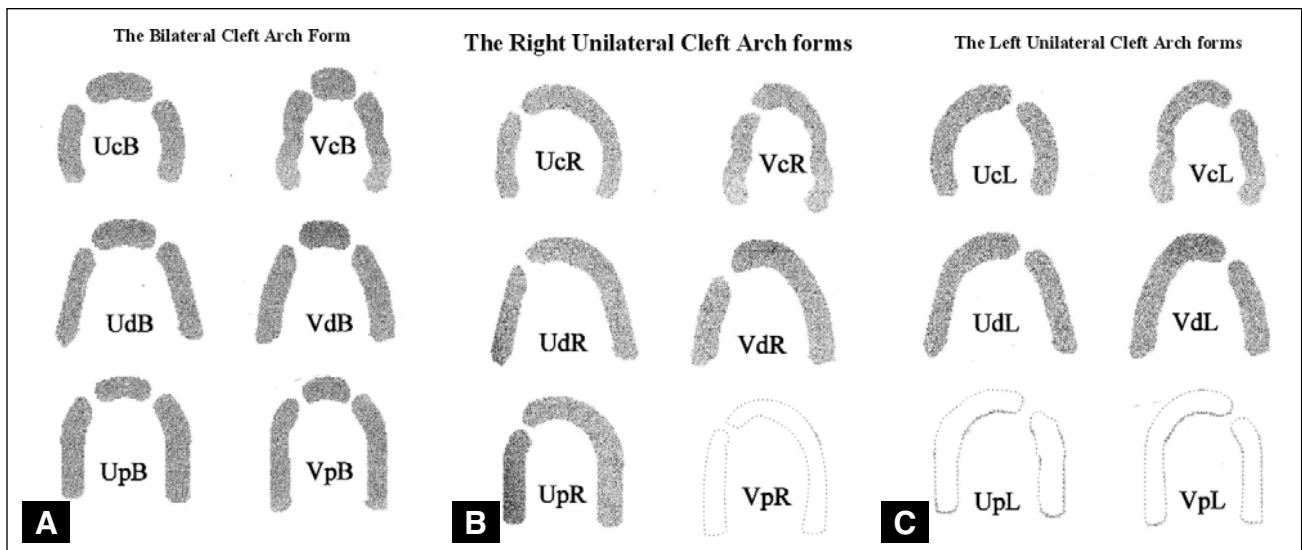


Figure 2a, 2b, 2c. Tracing recorded

criteria of an ideal classification having direct co-relevance with pediatric dentistry practices. So, an attempt was made to establish much simplified classification to categorize the cleft palate cases as per need of pediatric dentistry practice because the previous classification of U&V shaped arch form was limited to anterior segment only. The posterior arch form was not included in any cleft lip and palate classification showing limitation of expressibility.

In the present study a much wider categorization is followed as U and V shaped arch with either convergent [c], divergent [d], parallel [p]. Posterior shapes of arch forms denominated by a suffix alphabet of Right [R], Left [L] or Bilateral [B].

### CONCLUSION

The classification is being postulated with seven years long observation under different developmental conditions. The aim of the study is fulfilling the criteria of an ideal classification hence it can be used affluently in pediatric dentistry practices.

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## **INFLUENCE OF SUPINE SLEEP POSITIONING ON EARLY MOTOR MILESTONE ACQUISITION.**

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This study assessed the trends in restraint types used by children under the age of 9 years.

It is less than 10 years that the advocacy of positioning newborns to sleep in supine position gained favor in the pediatric literature after clear statistical proof of decrease of SIDS(Sudden Infant Death Syndrome) in babies less than a year old (New Zealand, England an USA).

This article was carried out at McGill University, Montreal, Quebec. A cross sectional, observational study was made in seventy one 4-months old and fifty 6-month old healthy infants, all born at term.

The findings report that infants sleeping in supine position can have delayed motor development by age 6 months.

But fortunately the authors stress that current recommendations promoting supine sleeping position should not be modified.