

# A Short Note on the Birth Order, Parental Age and the Incidence of Oral Clefts

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## **Introduction**

The cleft palate and harelip, like so many other defects of development are the outcome of a premature arrest in the developmental process. The present paper is an attempt to find out the incidence of cleft palate, cleft palate and harelip, and harelip, along with the birth order and parental age.

## **Material**

The investigation was based on 6375 birth records obtained from two hospitals of Delhi. From 6375 births, 308 infants are with harelip, cleft palate and harelip.

## **Variables for study**

The report is based on the following criterias:

- a) variables determined at sex,
- b) variables determined at plurality,
- c) variables determined at parental age,
- d) variables determined at birth order.

## **Results and discussion**

It is generally accepted that factors which operate initially at the time of birth have no influence on the occurrence of clefts; the variables considered in this report may exert some influence on the gestation.

Presented in Tab. 1 are data for the comparison of sex distribution between the results of this study. It has been seen that the percentages of male and female cleft palate cases are fairly constant.

*Plurality of birth:* The difference between the single and multiple birth is significant (Tab. 2). Observed from Tab. 2 it can be stated that plural births are more associated with cleft palate births, than single births.

Tab. 1. Sex distribution for cleft palate and cleft lip

| Sex   | Cleft palate |       | Cleft lip |       | Cleft palate & lip |       |
|-------|--------------|-------|-----------|-------|--------------------|-------|
|       | N.           | %     | N.        | %     | N.                 | %     |
| ♂     | 65           | 54.62 | 71        | 54.20 | 31                 | 53.45 |
| ♀     | 54           | 45.38 | 60        | 45.80 | 27                 | 46.55 |
| Total | 119          |       | 131       |       | 58                 |       |

Tab. 2. Plurality of birth for oral clefts

| Type of birth | Cleft palate |       | Cleft lip |       | Cleft palate & lip |       |
|---------------|--------------|-------|-----------|-------|--------------------|-------|
|               | N.           | %     | N.        | %     | N.                 | %     |
| Single        | 37           | 31.10 | 21        | 16.03 | 19                 | 32.76 |
| Multiple      | 82           | 68.90 | 110       | 83.97 | 39                 | 67.24 |
| Total         | 119          |       | 131       |       | 58                 |       |

Steigler and his associates (1958), Murphy (1947), Palmer (1951), Pjair (1947) Richard (1965) have shown a close association between oral clefts and multiple births. Douglas (1958) along with Metrakos and Metrakos and Baxter (1958) emphasized the role of environmental factors in the determination of cleft palate. It is observed from the twin studies that a relationship may exist between plurality and associated anomalies, birth weight and complications of pregnancy.

*Parental Age:* The rate of occurrences was lowest among the lower age group of mothers and increases with each successively older age group to a peak of 26.05% among the 40-44 year-old mother (Tab. 3). Malpas (1937), Vaughan (1940), Phair

Tab. 3. Data regarding maternal age for cleft

| Group              | Maternal age in years |       |       |       |       |       |       |       |
|--------------------|-----------------------|-------|-------|-------|-------|-------|-------|-------|
|                    | N.                    | 10-14 | 15-19 | 20-24 | 25-29 | 30-34 | 35-39 | 40-44 |
| Cleft palate       | 119                   | 4     | 7     | 13    | 18    | 21    | 25    | 31    |
| %                  |                       | 3.36  | 5.88  | 10.92 | 15.13 | 17.65 | 21.01 | 26.05 |
| Cleft lip          | 131                   | 6     | 10    | 14    | 20    | 24    | 28    | 29    |
| %                  |                       | 4.58  | 7.63  | 10.69 | 15.27 | 18.32 | 21.37 | 22.13 |
| Cleft lip & palate | 58                    | 3     | 5     | 6     | 9     | 10    | 12    | 13    |
| %                  |                       | 5.17  | 8.62  | 10.34 | 15.52 | 17.24 | 20.69 | 22.41 |

(1947), Richard (1965) reported a positive correlation between the occurrence of oral clefts and advanced maternal age.

The same association is prevalent with oral clefts and paternal age with a peak (25.21%) of incidences at higher age groups (50-54 years) of fathers. The occurrence of oral clefts is lower in lower age groups of fathers (Tab. 4). This view is again in support of Murphy's (1947) and Richard's (1965) suggestions, who showed that a strong relationship exists between the incidence of all congenital malformations and the age of the father.

*Birth Order:* Tab. 5 shows a significant increase of oral cleft births in the upper

**Tab. 4. Data regarding paternal age for cleft**

| Group              | Paternal age in years |       |       |       |       |       |       |       |
|--------------------|-----------------------|-------|-------|-------|-------|-------|-------|-------|
|                    | N.                    | 25-29 | 30-34 | 35-39 | 40-44 | 45-49 | 50-54 | 55-59 |
| Cleft palate       | 119                   | 2     | 4     | 6     | 20    | 28    | 30    | 29    |
| %                  |                       | 1.68  | 3.36  | 5.04  | 16.81 | 23.53 | 25.21 | 24.37 |
| Cleft lip          | 131                   | 3     | 6     | 8     | 13    | 21    | 35    | 45    |
| %                  |                       | 2.29  | 4.58  | 6.11  | 9.92  | 16.03 | 26.72 | 34.35 |
| Cleft lip & palate | 58                    | 2     | 3     | 5     | 6     | 8     | 11    | 23    |
| %                  |                       | 3.45  | 5.17  | 8.62  | 10.34 | 13.79 | 18.96 | 39.65 |

**Tab. 5. Birth order for cleft group**

| Group              | Birth order |      |      |      |      |       |       |       |       |       |
|--------------------|-------------|------|------|------|------|-------|-------|-------|-------|-------|
|                    | N.          | 1    | 2    | 3    | 4    | 5     | 6     | 7     | 8     | 9     |
| Cleft palate       | 119         | 2    | 4    | 5    | 7    | 9     | 15    | 21    | 26    | 30    |
| %                  |             | 1.68 | 3.36 | 4.20 | 5.88 | 7.56  | 12.61 | 17.65 | 21.85 | 25.21 |
| Cleft lip          | 131         | 4    | 5    | 8    | 10   | 11    | 13    | 19    | 30    | 31    |
| %                  |             | 3.05 | 3.82 | 6.11 | 7.63 | 8.40  | 9.92  | 14.50 | 22.90 | 23.66 |
| Cleft lip & palate | 58          | —    | 2    | 3    | 5    | 6     | 8     | 10    | 11    | 13    |
| %                  |             | —    | 3.45 | 5.17 | 8.62 | 10.34 | 13.79 | 17.25 | 18.96 | 22.41 |

birth order. This may be a function of maternal or paternal age, or it may be a difference in birth order.

A strong disagreement on these variables is observed in the literature. Oldfield (1959) found 2% of more clefts in the primipara while Mazaheri (1957) discovered significantly more cleft palate births in later pregnancies. Mazaheri showed that there is a strong relationship between birth order and maternal age. Murphy (1947) and Phair (1947) pointed out the increased incidence of malformations in the later birth orders.

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## Summary

A study of 6375 births from the records of two hospitals of Delhi reveals that the incidence of oral clefts is more or less constant in both males and females. Evidence indicates that plural births are more associated with the harelip, cleft palate and cleft lip, than single births. In the same way, there is a positive association between oral clefts and higher age groups of parents. For this fact it can be mentioned that the incidence of oral clefts is lower in lower birth ranks and higher in higher birth ranks, which is again indirectly influenced by the higher age group of parents.

## Literature

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## RIASSUNTO

Uno studio di 6375 nascite rilevate dagli archivi di due ospedali di Delhi rivela che l'incidenza delle malformazioni orali è più o meno costante in maschi e femmine. Le nascite multiple appaiono associate con cheiloschisi, gnatoschisi e palatoschisi più di quanto non lo siano le nascite semplici. Analogamente, vi è associazione fra malformazioni orali e maggiore età parentale. Si può dire che l'incidenza di malformazioni orali aumenta all'aumentare dell'ordine di genitura, il che è indirettamente influenzato dalla maggiore età dei genitori.

## RÉSUMÉ

Une étude de 6375 naissances, effectuée sur les registres de deux hôpitaux de Delhi révèle que l'incidence des malformations orales est plus ou moins constante chez les deux sexes. Chéiloschise, gnatoschise et palatoschise sont plus fréquemment associées aux naissances multiples qu'aux naissances simples. Aussi, les malformations orales sont associées à l'âge des parents. L'on peut dire que l'incidence des malformations orales augmente avec l'ordre de naissance, ce qui est évidemment influencé par l'âge des parents.

### ZUSAMMENFASSUNG

Aus den Archiven von 2 Krankenhäusern in Delhi wurden Erhebungen über 6375 Geburten entnommen und auf Mundmissbildungen untersucht. Es zeigte sich darin kein Unterschied zwischen den beiden Geschlechtern. Bei Mehrlingsgeburten waren Cheiloschisis, Gnathoschisis und Palatoschisis öfter zu finden als bei Einlingsgeburten. Desgleichen zeigte sich ein Zusammenhang zwischen den Mundmissbildungen und dem Alter der Eltern. Man kann behaupten, dass die Missbildungen am Mund bei den späteren Kindern häufiger als bei den ersten Kindern sind, was bedeutet, dass indirekt das höhere Alter der Eltern dabei eine Rolle spielt.