Cleft Uvula: Incidence in Negroes

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Genetic counseling is playing an increasingly larger and more important role in the health sciences. The public is becoming more interrested in diseases and conditions that may be inherited. Counselors are often questioned by parents and potential parents about such things as familial tendencies of certain diseases, whether they should have more children, and the effects of consanguinity on offspring. Fraser (*4*) stated that congenital malformations were the most frequently asked about conditions in his questionnaire to a group of genetic counselors.

Cleft uvula has been referred to as a form of cleft palate (*1, 7, 9*). Meskin and associates (*8*) state that "information regarding the incidence of cleft uvula could potentially be highly significant in studies of cleft palate etiology and in genetic counseling". Warkany (*10*) points out the great dearth of knowledge about etiologic factors causing congenital malformations and the great need for parental counseling in several areas, one of which is congenital malformations.

Studies of the incidence of clefts of the palate have shown a wide range difference in occurrence in Negroes and Caucasians. The difference in incidence has ranged from one per 753 to one per 1,000 in Caucasians (*5, 6*) and from one per 1,400 to one per 4,394 in Negroes (*2, 5, 6*).

The literature includes several studies reporting the incidence of cleft uvula. However, there is very little information on the incidence of cleft uvula in the American Negro. Since there is such a marked difference in the incidence of clefts in several racial groups, a study on cleft uvula in Negroes could be of great value in providing additional information about the genetic mechanism of clefts. This study was undertaken to investigate the incidence of cleft uvula in a large population of American Negroes.

Materials and Methods

This survey was made of 3,319 college students at predominantly Negro private schools. There were in the study 1,477 males and 1,842 females, all college freshmen. The survey was conducted during the years 1964, 1965, and 1966. The uvulas were examined during routine phy-

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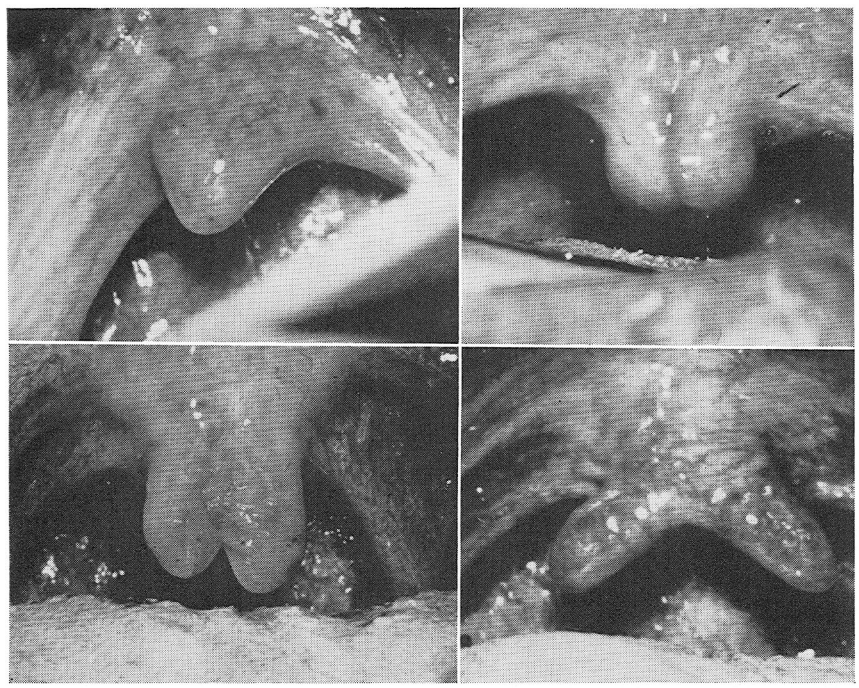

FIGURE 1. The clefts of the uvula were classified as follows: upper left, type A, normal; upper right, type B, uvula bifurcated up to one-fourth of its total length; lower left, type C, uvula bifurcated from one-fourth to three-fourths its length; and lower right, type D, uvula bifurcated from three-fourths to its total length. (*8*, with consent of editor and author.)

sical examinations. The individuals were examined by direct vision using pen type flashlights and tongue blades.

The classification used by Meskin, Gorlin, and Isaacson (*8*) was used in this study. The clefts of the uvula were divided into four categories on the basis of their morphology: type A, normal; type B, uvula bifurcated up to one-fourth of its total length; type C, uvula bifurcated from one-fourth to three-fourths of its length; and type D, uvula bifurcated from three-fourths to its total length (see Figure 1).

Findings

Nine cases of bifid uvula were observed in the 3,319 students. There was an incidence of one case in every 369 people or .271% occurrence. There were two cases of type D, six cases of type C, and one case of type B.

There was no difference in the incidence of cleft uvula in the sexes. It occurred four times in 1,477 males or at .271% and five times in 1,842 females or .271% (Table 1).

TABLE 1. Incidence of cleft uvula in 3,319 individuals.

	number studied	*number of clefts observed*	*percentage*
male	1,477	4	.271
female	1,842	5	.271
total	3,319	9	.271

Discussion

The findings indicate that for the American Negro the incidence of cleft uvula is much higher than the incidence of cleft palate (1: 369 versus 1: 1,400). In the same way, for the American Caucasian the incidence of cleft uvula is much higher than the incidence of cleft palate (1: 76 versus 1: 700). The incidence of both cleft uvula and cleft palate is much lower in the American Negro than in the American Caucasian.

After a review of the formation of the soft palate and uvula by a union of the palatal shelves in a posterior direction (*1*), one is not surprised to find a greater occurrence of cleft of the uvula than of the palate in live subjects. One would expect a greater percentage of conditions that would cause minor disturbances in the developmental process of the individual. There could be a question of survival rate implied here, in that the more severe condition might be seen in conjunction with other more severe syndromes. Thus the individual suffering from the minor condition would be more likely to reach full term and birth.

Stark (*9*) has indicated that a lack or a diminution in mesoderm will lead to the formation of a cleft in the area that is mesoderm poor. He also noted that a relative lack of mesoderm or total lack in a given area can account for the wide variation in the severity of the deformities. This seems to agree with the observation by Coccaro and Pruzansky (*3*) that there is less soft tissue at the tip of the nose in individuals with clefts than in normals. Meskin and associates (*8*) noted a higher incidence of cleft uvula than of cleft palate. In a later study on the parents and siblings of 54 cleft uvula probands, Meskin and associates (*7*) found a high frequency of cleft uvula. They noted that the high frequency of clefts suggests the presence of hereditary factors in the transmission of the anomaly. It was noted that the above observation is consistent with a transmission pattern of autosomal dominance with limited penetrance similar to that reported for isolated cleft palate.

Summary and Conclusions

In a study of 3,319 Negro college students, nine cases of cleft uvula were observed. There was no difference in the percentage occurrence between the two sexes. Cleft uvula occurs more often than cleft palate in

the American Negro. However, cleft uvula of the American Negro occurred less often than was reported in Caucasians.

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