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CLEFT LIP AND CLEFT PALATE – A CASE REPORT

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ABSTRACT

Orofacial cleft comprise a range of congenital deformities and are most common head and neck congenital malformations Cleft of the lip are more common in males. Possible causes include maternal drug exposure, a syndrome malformation complex or genetic factors. Cleft lip can vary from a small notch in the vermilion border to a complete separation involving skin, muscles, mucosa, tooth and bone. Clefts may be unilateral or bilateral and can involve the alveolar ridge. The incidence of the cleft palate is more prevalent in females. Both high maternal age & paternal age are associated with cleft lip with or without cleft palate. The cleft palate is anomaly and influenced by environmental factors. Experimentally it is suggested that the cortisone therapy in the expectant mother in the early weeks of pregnancy or hyper-vitaminosis A induces the formation of the cleft palate. The cleft palate may be complete or incomplete. A complete cleft palate may be unilateral or bilateral. Sometime the cleft lip may also associate with the cleft palate.

Keywords: Orofacial cleft, Cleft palate, Cleft lip etc.

INTRODUCTION

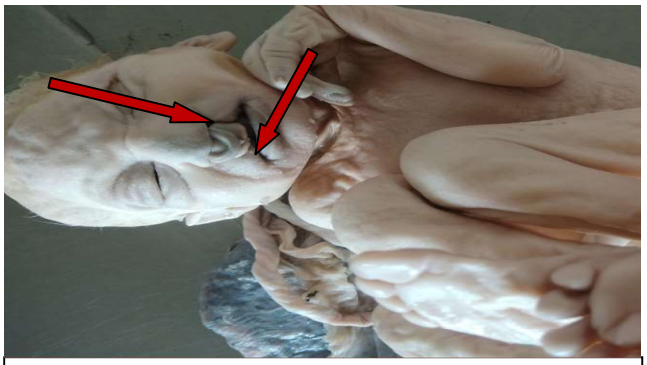
Lips form the boundary of the oral orifice. Palate is the partition between oral and nasal cavity. The incidence of cleft lip with or without cleft palate is 1:750 and the incidence of cleft palate alone is 1:2500.[1] Cleft of the lip are more common in males. Possible causes include maternal drug exposure, a syndrome malformation complex or genetic factors. Although both appear to occur sporadically, the presence of susceptibility genes appears important. Ethnic factors also affect the incidence of cleft lip and palate, the incidence is highest among the Asians (1:500) and Native Americans (1:300), and lowest among Negros (1:2500), the incidence of associated congenital malformations and of impairment in development is increased in children with cleft defects, especially in those with cleft palate alone. Incidence

of cleft palate is common in female.[2,3] The orofacial cleft can vary from a small notch in the vermilion border to a complete separation involving skin, muscles, mucosa, tooth and bone. Clefts may be unilateral or bilateral and can involve the alveolar ridge. Isolated cleft palate occurs in the midline and might involve only the uvula or can extend into or through the soft and hard palates to the incisive foramen. When associated with cleft lip, the defect can involve the midline of the soft palate and extend into the hard palates on one of sides, exposing one or both of the nasal cavities as a unilateral or bilateral cleft palate. The palate can also have sub mucosal cleft indicated by bifid uvula, partial separation of muscle with intact mucosa or a palpable notch at the posterior of the palate.[4,5]

Case Report

The female fetal cadavers obtain in the museum of Department of Rachana Sharir, Sri Dharmasthala Manjunatheshwara College of Ayurveda and Hospital, Hassan when observed the following abnormalities were obtained:

1. Bilateral cleft lip
2. Bilateral cleft palate



Photograph showing bilateral cleft lip and cleft palate

DISCUSSION

The lips bound the oral fissure. The two lips meet laterally at the angle of mouth. The upper lip present the median vertical groove called philtrum at the outer surface.[6,7,8] the lips are the mobile musculofibrous folds surrounding the oral fissure. It extend from the nasolabile sulci and nares laterally and superiorly and the mentolabile sulcus inferiorly. The lips are used for grasping, sucking liquid, keeping food out of vestibule and articulation of voice.[9,10] Lip development occurs between 4 to 6 week of gestation. The fused globular process in the midline and maxillary process on each side, these forms the upper lip, the philtrum from the globular process and the lateral parts from the maxillary process. The maxillary process contributes formation of the lateral part of upper lips, upper jaw and cheek.[11,12] The hare lip may affect the upper or the lower lip, but more frequently the former. The cleft lip is caused by the hereditary factors or by the environmental disorders. The incidence of this deformity is more frequent in males than in females; children with hare lip are usually born to aged mothers. Affecting the upper lip it may be central or lateral the central hare lip is rare, and is produced by the failure of fusion of the globular swellings with each other. The lateral hare lip is frequent and may be unilateral or bilateral. It may extend up to the anterior nares, and affects the junction between the philtrum and the lateral part of the upper lip. This deformity is caused by the failure of fusion between the maxillary process and the globular swelling of the median nasal process. Sometimes the lateral hare lip is associated with the facial cleft or cleft palate.[13] In the present case there is the failure of the fusion of the maxillary process with the globular process on the either side resulting the hare lip and it is bilateral hare lip.

Palate is the partition between oral cavity and nasal cavity. It has two parts hard palate and soft palate. Anterior 2/3rd is hard palate; formed by horizontal plate of maxilla and maxillary process of palatine bone.[14,15,16] Posterior 1/3rd is soft palate; formed of soft tissue which consists of two layers of mucus membrane. Between these layers there is fibrous basis called the palatine aponeurosis.[17] The soft palate is attached to the posterior margin of the hard palate.[18,19,20] The incidence of the cleft palate is more prevalent in females, and the maternal age presents no apparent relation with this deformity. The cleft palate is deformity and influenced by environmental factors. Experimentally it is suggested that the cortisone therapy in the expectant mother in the

early weeks of pregnancy, or hyper-vitaminosis A induces the formation of the cleft palate. The cleft palate may be complete or incomplete. A complete cleft palate may be unilateral or bilateral. In unilateral deformity, the palatine process fuses with the primitive palate and with the nasal septum on one side, whereas the other side shows complete arrest of fusion; this is associated with the unilateral hare lip. In bilateral cleft palate the primitive palate and the nasal septum hang freely into the roof of the oral cavity, and the pre-maxilla is attached more anteriorly close to the tip of the nose a bifid uvula is the commonest example of the incomplete cleft palate.[21] The primitive palate is formed by the fusion of the maxillary processes and the globular part of the median nasal process, and is continuous above with the primitive nasal septum which is contributed by the median nasal process. During the sixth week a shelf-like projection, the palatine process grows medially from the inner surface of each maxillary process these processes assume horizontal position, meet and fuse with each other, and form the permanent palate. Ventrally, the permanent palate meets and fuses with the primitive palate in a Y-shaped manner and each limb of Y passes between the lateral incisor and the canine teeth. The primitive palate (pre-maxilla) is wedge-shaped and carries four incisor teeth. The junction between the primitive and the permanent palates is represented in adults by the incisive fossa. Ventral three-fourth of the permanent palate is formed by the fusion of the palatine processes with each other and with the caudal edge of the nasal septum; this part is ossified in membrane and persists as the hard palate. Dorsal one-fourth of the permanent palate is formed by the fusion of the palatine processes which fail to fuse with the nasal septum and hang as a curtain which persists as the soft palate, the fusion of the palatine processes with each other and with the primitive palate takes place from before backwards and is completed by the eighth week.[22,23] Formation of primary and secondary palates complete the separation of nasal and oral cavities, permitting simultaneous respiration and mastication, sucking action in baby.[24] In this present study there is failure of fusion of the primitive palate with two palatine process and failure of fusion of two palatine process and inferior border of nasal septum in midline. These results in the open communication between oral and nasal cavities called complete bilateral cleft palate.

Deformities of the lip and palate are a result of disruption of normal development. The severity is dictated by the timing, severity and amount of disruption.[25] A critical period is immediately before the formation of the primary palate and central lip, as the lateral nasal process undergoes a burst of mitotic growth. Druing this period, development is highly vulnerable to genetic and teratogenic effects.[26]

CONCLUSION

The congenital orofacial cleft is a deformity that arises from a genetic or environmental insult during formation of the maxilla & palate in 1st trimester of gestation. Better knowledge of unexpected congenital anomaly like cleft lips and palate is the promise for better parental counseling about its complications (oral sphincter dysfunction, difficulty in speech and abnormal appearance of upper lip and nose), prevention of further recurrences in future progeny. Knowledge of orofacial cleft is helpful to the surgeon for selection of proper surgical procedure for repairing the cleft to restore normal feeding capacity, speech, and facial esthetics at early age before complication arises. Identification of the risk factors associated with cleft palate and lip, allows approaches to avoid them and there by lower the incidence of such type of congenital abnormalities. The cleft lip is the commonest birth defect that can be detected during 20 week of gestation by ultrasound scan. Use of the folic acid and avoidance of the risk factors during pregnancy can decrease the chance of the cleft lip and palate. By the proper dietary supplements and folic acid supplementation prior to conception up to 1st trimester is useful to avoid such risk.

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