Nonsyndromic Familial Congenital Lower Lip Pits

Abstract
Congenital pits on lower lips unassociated with any syndrome are a rare developmental malformation. Vermilion border of the lower lip is the most common site of occurrence. Mostly, these lip pits are inherited as an autosomal dominant trait with variable penetrance. The females are more affected than males. This is a case report of a 7-year-old female child with nonsyndromic congenital lower lip pits, where two of her other family members were also affected.

Keywords: Congenital, familial, lip pits, nonsyndromic

Introduction
Congenital lower pits are a rare developmental malformation. They commonly occur on the lower lips. They were first described and reported in 1845 by Demarquay. They are also referred to as fistulas of lower lip, paramedian sinuses of lower lip, humps of lower lip, and labial cysts. Lip pits are commonly associated with various syndromes such as Van der Woude syndrome (VWS), Marres–Cremers syndrome, popliteal pterygium syndrome, and oral-facial-digital syndrome. Infrequent oral manifestations are syngnathia (congenital adhesion of the jaws), narrow, high-arched palate, and ankyloglossia. Rare extraoral manifestations include limb anomalies, popliteal webs, and brain abnormalities. They are transmitted as an autosomal dominant trait associated with 1q32-q41 chromosome, with increased prevalence in females.

This is a case report of a 7-year-old female child with nonsyndromic congenital lower lip pits, where two of her other family members were also affected.

Case Report
A 7-year-old girl reported to our department with a complaint of pain in relation to maxillary deciduous molars. On extraoral examination, there were depressions present bilaterally on the vermilion border of the lower lip [Figure 1]. These depressions were asymptomatic. There was no evidence of cleft lip and cleft palate. In her family history, the father reported that he had two sons and one daughter. The sons were 12 and 15 years old. His 15-year-old son had bilateral depressions on the lower lips since birth. The father reported that the depressions on the vermilion border of the lower lip of his son had become less conspicuous with increasing age. At present, the bilateral depressions on the vermilion border of the lower lip of the son were not visible. One of the girl’s maternal uncles had congenital depressions present bilaterally on the vermilion border of the lower lip. These depressions also gradually decreased in-depth and became inconspicuous [Figure 2]. None of them had any medical problem. They also did not have cleft lip or cleft palate. The transmission of the autosomal dominant trait is shown in Figure 3.

Intraoral examination revealed deep carious lesions in maxillary deciduous molars on the left side. There was a periapical infection associated with maxillary deciduous first molar of the left side.

Based on the medical history and clinical examination, the diagnosis of nonsyndromic congenital lower lips was made. Lip pits were left untreated as the girl was asymptomatic and parents were not interested in its treatment. Her carious teeth were treated, and she was called for periodic checkup.

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Discussion

There is a report of 0.001% population affected with congenital lower lip pits. About 65%–75% of them are associated with cleft lip and palate.[7,8] Lip pits may be divided into three types relative to their location: commissural, midline upper lip, and lower lip. It can also present as circular or oval, transverse, slit-like, or sulci. When various types of pit occur in an individual, the term “mixed type” is used.[9] Lower lips are referred to as fistula labii inferioris, labial humps, labial cysts, labial fistulae, and paramedian sinuses of the lower lip.[10,11] Depending on the degree of expression of gene, the clinical manifestation of lower lip pits can vary. It can extend from slight depressions on the vermilion border of the lip and fistulas that penetrate subjacent minor or major salivary glands and drain small amounts of saliva.[12] Dome-shaped elevations, and/or openings, with no depth presumably represent microforms of lower lip pits. The lip elevations may occasionally fuse in the midline, producing a snout-like structure.[9] There may be a solitary pit in the center of the lip, two pits, or a single pit on either side of the lip. They may occur on the surface of the wet vermilion or dry vermilion or on the margin between the wet vermilion and dry vermilion.[13] Lip pits are usually circular or oval in shape but have also been described in the literature as transverse, slit-like, or sulci.[9] They may be shallow or deep, varying from an asymptomatic slight depression on the vermilion border of the lower lip to deep fistulas that penetrate the accessory salivary glands. These may drain small amounts of saliva, either visible or expressible, in the lip pits.[13-15]

Congenital lower pits were first described and reported in 1845 by Demarquay.[1] Gurney in 1940 reported four cases of lip pits in a family. Fogh Andersen in 1943 recorded 11 cases of lip pits in three family groups. Test and falls, in 1947, reported lip pits in five generations of the same family.[3] In 1954, Van der Woude, in her study of five pedigrees, reported the combination of lower lip pits along with cleft lip and palate which was based on a single dominant gene; she recognized a syndrome and called it as VWS.[16]

Congenital lower lip pits are rare developmental anomalies of the lips occurring in families either alone or associated with other anomalies. Most of the cases have been linked to chromosome 1q32-q41.[5] A second locus has been mapped to 1p34.[17] Recently, Kondo et al. identified mutations in the gene encoding interferon regulatory factor-6 causing VWS.[18,19] However, approximately 30%–50% of all cases arise as de novo mutations.

Various theories have been proposed to explain the etiology of lip pits. Few of the proposed theories are intrauterine disease of the labial glands, an attempt by the lower lip to close a cleft of the upper lip, amniotic adhesions, abnormal invagination of the lip mucosa, faulty union...
of the mandibular processes, and presence of epithelial pearls. None of these explains the anomaly adequately. Lip pits can result from notching of the lip at an early stage of development with fixation of tissues at the base of the notch, or it may follow a failure of complete union of embryonic lateral sulci of the lip. A recent theory postulates that at 5.5 weeks during the developmental stage of the head and neck, the fusion of the mandibular arch and sulcus lateralis of the lower lip occurs, while the fusion of the maxillary and frontonasal processes occurs about at 6 weeks. It is hypothesized that a common event may simultaneously disturb fusion in both locations. This event results in a strong association between the lip pits and cleft lip or palate. Patients with lip pits may suffer from anomalies such as hypodontia, syndactyly of the hands, clubfoot, bifid uvula, ankyloglossia, hypernasal voice, syngraphia, accessory nipples, anomalies of limb, and cardiovascular anomalies. In some cases, the lip pits are deep with sinus tract formation. There is drainage of accessory salivary glands in these tracts. As a result of contraction of the oribcularis muscle, there is mucous discharge from these pits. This can cause esthetic problems, especially before and during mealtimes, causing distress to the patient. Persistent secretions can lead to chronic inflammation and secondary infection. The management of lip pits in such condition is surgical excision. Complete excision of the sinus tract is advocated to avoid mucoid cyst formation. A mucoid cyst can form in cases where the mucous gland attached to the fistula is left behind.

In our case, the patient had asymptomatic lower lip pits. She had two family members having such lip pits. All of them did not suffer from any medical problem. This case was interesting as the lip pits in this family became inconspicuous with advancing age. It is very important to identify and recognize the familial lip pits for genetic counseling. Detailed physical examination and interviews with relatives are necessary to identify the family members minimally affected by this condition. As the expression of the phenotype is variable, it is difficult to predict the effect on the unborn child. High-resolution ultrasound and fetal echocardiography may be useful to define the effect of the phenotype. In this case, the lip pits were asymptomatic. Hence, no treatment was done except for periodic checkup.

Conclusion

Congenital lip pits are a rare developmental anomaly. It can be esthetically deforming as well as symptomatic causing discomfort to the patient. Depending on the severity of the condition, the necessary treatment should be advised. The presence of familial lip pits should be recognized, and needful genetic counseling should be recommended. The presented case was asymptomatic with a history of lip pits becoming inconspicuous with advancing age.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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