

Case Report

Van der Woude Syndrome: A Case Report and Review of Literature

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Abstract:

Van der Woude Syndrome (VWS) is an uncommon autosomal dominant disorder that affects embryologic facial development and is characterized by two labial pits in the lower lip and is usually associated with cleft lip and cleft palate. Congenital lip pits are frequently associated with cleft lip and/or cleft palate in VWS; nevertheless, lip pits may be the only symptom in this condition. The prevalence of VWS is about 1 in 35,000 to 100,000 births and accounting for 2% of all cases with cleft lips and palates.

A 10-year-old boy presented with bilateral pits on the lower lip, one on either side of the midpoint. There was evidence of maxillary hypoplasia and he also presented with bilateral accessory auricles. Additional deformities such as cleft lip or palate were not present. The patient's parents were eager for aesthetic correction. The lower lip pits with their tracts were excised under general anaesthesia. Wound healing and aesthetic outcome was satisfactory. Histopathological examination revealed fibrous tract, squamous epithelisation and fibres of skeletal muscle.

Keywords: Van der Woude Syndrome; genetic disorder

Introduction:

Van der Woude Syndrome also referred to in literature as autosomal dominant inherited clefting syndrome is a rare autosomal dominant condition that affects embryologic facial development and is characterized by two labial pits (fistulae) in the lower lip and is usually associated with cleft lip and cleft palate¹. Despite the fact that Demarquay reported the fistula labia inferioris congenita in 1845², Van der Woude analyzed these traits and discovered a link between lower lip pits and cleft lip or palate³. Congenital lip pits are frequently associated

with cleft lip and/or cleft palate in VWS; nevertheless, lip pits may be the only symptom in this condition⁴. The prevalence of VWS is about 1 in 35,000 to 100,000 births and accounting for 2% of all cases with cleft lips and palates⁵. VWS may be associated with other congenital features as hypodontia, maxillary hypoplasia, high arched palate, ankyloglossia, limb anomalies and congenital heart defects⁶. The VWS gene has been assigned to deletion in chromosome 1q32-q41 with mutation in the interferon regulatory factor 6 (IRF6)⁷.

One of the severe manifestations of this gene mutation is popliteal pterygium syndrome, which has some features including lower lip pits or cleft lip or palate in common with VWS, with the addition of popliteal webs and genital anomalies⁸.

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Case report

A 10-year-old boy with congenital deformity of the lower lips was brought to a floating hospital cleft camp by his parents. The boy did not complain of any symptoms but his parents were eager for surgical correction for aesthetic reasons. On examination, there were bilateral pits on the lower lip, one on each side of the midline (Fig. 1). There was no discharge of saliva from the pits on pressure.

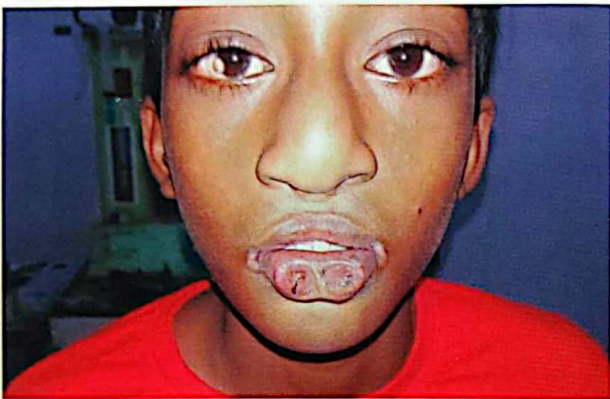


Fig 1: 12-year-old boy with Van der Woude syndrome, presenting with bilateral pits in the lower lip.

There was evidence of maxillary hypoplasia and he also presented with bilateral accessory auricles. (Fig. 2) Additional deformities such as cleft lip or palate were not present. Frank dental anomalies and malocclusions were also not evident.

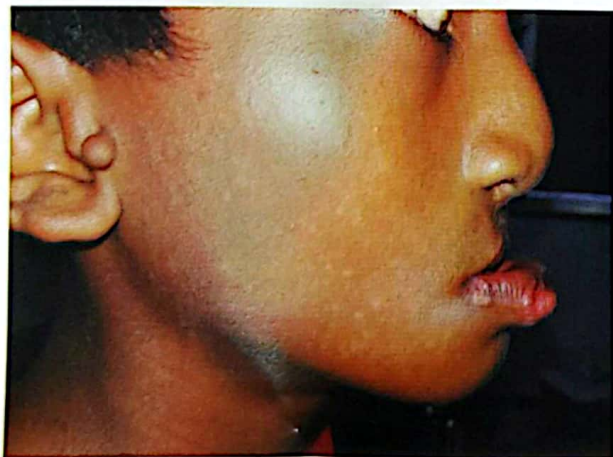


Fig 2: Lateral view showing, prominent lower lip and hypoplastic maxillae. Accessory auricle was also present.

A general medical check was conducted to rule out the possibility of systemic issues. Detailed investigations such as cephalometric examinations or genetic sequencing was not possible due to the remote location of the hospital, lack of facilities and financial constraints.

Procedure

Under general anaesthesia, excision of the pits along with their tracts was done. Haemostasis was ensured and closure attained by absorbable sutures. Postoperatively the patient recovered well and wound healing was satisfactory. The patient's parents were happy with the aesthetic outcome (Fig. 3).



Fig 3: Before and after excision of the lower lip pits.

Histopathological examination of the specimen (Fig. 4) revealed fibrous tract, squamous epithelialization and fibres of skeletal muscle.



Fig 3: Specimen of excised lower lip pits along with their tracts.

Discussion

Lip pits are very uncommon congenital condition anomalies, clinically presented as bilateral or unilateral depressions in the upper lip, lower lip, or the oral commissure with or without saliva secretion from their fistula⁴. The degree of clinical symptoms of VWS varies greatly even within family members, however lower lip pits, the main feature of VWS, may be the only symptom in this illness⁴.

The prevalence of VWS is about 1 in 35,000 to 100,000 births and accounting for 2% of all cases with cleft lips and palates⁵. The syndrome is an autosomal-dominant developmental malformation with variable expressivity and penetrance rate close to 80% to 100%⁵. The VWS gene has been linked to a loss on chromosome 1q32-q41, as well as a mutation in the interferon regulatory factor 6 (IRF6), however a second chromosomal location at 1p34 has also been discovered⁹. Lip pits can range in clinical appearance from asymptomatic minor depression to obvious discharging sinuses. These congenital malformations are of 3 types depending on their location: commissural, midline upper lip, and the most common kind is lower lip pits. They may be usually bilateral symmetric, but are occasionally bilateral asymmetric, microform, median, or unilateral¹⁰. They are likely to extend into the orbicularis oris muscle and sometimes communicated with the ducts of the underlying minor salivary glands, which may either continuously or intermittently drain small amounts of saliva¹¹.

There are other related traits that may or may not be present in a patient with the syndrome's cardinal indications. Cleft lip, cleft palate, hypodontia, ankyloglossia, high arched palate, limb deformities such as popliteal pterygium, and congenital heart conditions⁶.

Many studies have shown links between maxillary hypoplasia and VWD, as seen in our case¹².

Other associated features which can be seen are malocclusion, long face, narrow maxilla, protrusion of maxilla, high arched palate, crossbite, bifid uvula, and syngnathia¹³.

The following are considered in the differential diagnosis of Van der Woude Syndrome¹⁴:

1. Popliteal pterygium syndrome (PPS) that includes popliteal web, cleft lip and/or palate, lower lip pits in 60% cases, and anomalies of genitourinary system, such as cryptorchidism and bifid scrotum in males and hypoplastic labia majora and uterus in females. People with VWS have a risk of giving birth to offspring with PPS¹⁵.
2. Hirschsprung's disease (aganglionic megacolon combined with cleft palate and lip pits)¹⁶.
3. Orofacial digital syndrome type 1, with prominent orodental, facial, digital, renal, and central nervous system abnormalities. Orofacial signs include cleft palate, bifid tongue, hypodontia, and median cleft of the upper lip and/or lip pits¹⁷.
4. Ankyloblepharon Filiforme Adnatum—partial or complete full thickness fusion of the lid margins, cleft lip and palate, hydrocephalus, meningocele, imperforate anus, bilateral syndactyly, infantile glaucoma, and cardiac problems such as patent ductus arteriosus and ventricular septal defects¹⁸.

As the disorder shows a high affinity with clefts and a familial type of occurrence, close examination of relatives to recognize lip pits and clefts is critical for genetic counseling⁴. Although it is accepted in the literature that many individuals do not require or want surgery, the major rationale for excision of congenital lip sinus is correction of the aesthetic abnormality¹⁹. Recurrent inflammation will justify removal of the lip sinus tracts in a small minority of individuals⁵. The sinus tract should be completely excised, because if some of the mucous glands

attached to the fistula are left behind, this could allow a mucoid cyst to form. Loosening of the lip muscle has also been reported as a drawback of the operation²⁰.

Limitation

As the patient presented to us in a remote floating hospital, several necessary investigations such as cephalometric radiological examinations, detailed cardiac examinations and genetic sequencing could not be performed.

Conclusion

In conclusion, physicians should be aware of variable congenital disorders associated with lip pits. Among them, VWS has a variable clinical expression, and recognition of its lesser expression is difficult. Lip pits can be the only clinical finding which is suggestive of VWS, as in our case⁴.

If patients present with associated congenital abnormalities as mentioned above, a multidisciplinary approach for treatment should be undertaken, involving plastic surgeon, ENT surgeon, and dental and/or maxillo-facial surgeon, as required.

Since there is a probability of developing cleft defects by the offspring of the patients, genetic counselling is of great significance in these patients²¹.

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