

# Van Der Woude Syndrome – A Review

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## Abstract:

### Aim:

To review the causes, symptoms, treatment, prevalence and diagnosis of VanDerWoude Syndrome.

### Objective :

This review aims at analysing the genetic defects and facts about this rare disease in human population.

### Background :

VanDerWoude syndrome is an autosomal dominant syndrome characterized by a cleft lip or cleft palate, distinctive pits of the lower lips, or both. It is the most common syndrome associated with cleft lip or cleft palate. Many cases of VWS are caused by mutations in a gene called Interferon Regulatory Factor 6 (IRF6). VWS affects one of 40,000 to 100,000 infants. Other features associated with VWS include hypodontia, narrow arched palate, congenital heart disease, heart murmur and cerebral abnormalities, syndactyly of the hands, polythelia, ankyloglossia and adhesions between the lower and upper gum pads.

**Reason :** To create awareness about VanDerWoude Syndrome among the people

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## INTRODUCTION:

Among the many disturbances of development and growth that involve the oral and perioral structures, cleft lip and palate is perhaps the commonest. Dental literature is replete with syndromes associated with cleft lip and palate, one of which is Van derWoude syndrome<sup>[1]</sup>. This syndrome (VWS) is one of the most common accounting for about 2% of all cases of Cleft Lip/Palate worldwide<sup>[2]</sup>. VWS is a rare autosomal dominant cranio-facial disorder characterized by paramedian lower lip pits (fistula labiiinferioriscongenita), cleft palate and or cleft lip. VWS is a form of syndromic orofacialclefting with very high penetrance and varied expressivity<sup>[3]</sup>. VWS clinically presents with congenital lip pits. These lip pits occur on paramedian portion of the vermilion border of the lip. In VWS, congenital lip pits occur in concurrence with cleft lip and/or cleft palate and represent the most common clinical problem occurring in 80% of the patients. Lip pits result due to notching of the lips at an early stage of development with fixation of tissues at the base of the notch or they may result from a failure of complete union of embryonic lateral sulci of lip<sup>[4]</sup>. Other anomalies that are frequently associated with VWS include hypodontia, submucous cleft palate and bifid uvula. Infrequent anomalies include congenital adhesion of the jaw, narrow arched palate and ankyloglossia (tongue tie)<sup>[2]</sup>. It was suggested that genetic defect of lip pits is due to microdeletion on chromosome bands 1q32-q41.10. Other anomalies beside oral manifestation like limb anomalies, popliteal webs, brain abnormalities, accessory nipples, congenital heart defects are also seen<sup>[5]</sup>. The syndrome affects about 1 in 1,00,000 – 2,00,000 people. There is no definite sex prediction. It is important to identify and treat these anomalies at an early stage thus improving the esthetics and function of the patient<sup>[6]</sup>.

## MATERIALS:

There were more than 50 articles about Van derWoude syndrome, in which most of them were case studies. Many articles stated that it is due to deformities of oral and perioral structures. Another set of articles explained about the the genetic mutation which causes this syndrome. A few articles were collected to study about the causes, symptoms and other related features of Van derWoude syndrome.

## DISCUSSION:

Shweta Advani et al described a case report about a 7-year old male child with a chief complaint of carious teeth in an article published in September 2012 in the journal of Contemporary Clinical Dentistry. On detailed general examination, it was seen that the patient was a treated case of unilateral cleft lip and palate, and two lip pits were present on the lower lip. When the lip was compressed there was mucous secretion. Intraoral examination revealed carious teeth with 16, 26, 36, and 46 and root stumps with 55, 64, and 65. A deep bite was also evident. The treatment planned was restoration of carious teeth followed by extraction of root stumps. The patient was also advised to undergo orthodontic treatment and a cosmetic lip correction for the lip pits. The occurrence of forms of VanderWoude's syndrome should be kept in mind. It is important to diagnose these syndromes from oro facial digital syndrome and popliteal syndrome which manifests similar clinical features. Because the symptoms of these children are limited and because the affected individuals have normal intelligence, this disorder should not be confused with non-syndromic cleft lip and palate. The treatment of such cases should be surgical excision of the labial and commissural pits if esthetics is a major concern. The treatment should be carried out in collaboration with plastic surgery, oral maxillofacial surgeons, and orthodontists. Other treatments like cross bite corrections, maxillary expansions, restorations, and extractions should also be carried out. A

multidisciplinary approach is very necessary to carry out the treatment thus improving the self-esteem of the patient at an early age<sup>[6]</sup>.

In a case report by B.T.Ugwu and J.T.Momoh which was published in East African Medical Journal in January 2010, they explained about a four and a half year old boy who had cleft upper lip and palate and an umbilical hernia. The patient was mentally retarded. He was very active, giggling without apparent cause with bilateral cleft lip, left complete cleft palate, a pair of serous discharging, symmetrical sinuses one on either side of the midline of the lower lip and hypodontia of the lateral upper incisors. Despite his physical and mental defects, his serum calcium, proteins and thyroid functions tests were all within normal limits. His cleft upper lip and palate were successfully repaired. This patient, a native African has all the composite features of Vander Woude syndrome: bilateral left upper lip and palate, discharging symmetrical lower lip sinuses and hypodontia. This syndrome is usually familial but could occur spontaneously without obvious family history as is the case in this patient. It is inherited as an autosomal dominant genetic disorder located at various loci on chromosome 1q, especially on loci 1q32.1 a region implicated in Van der Woude syndrome and microcephaly (2-5). Treatment involves staged cleft lip and palate repair as well as wedge excision of the sinuses with wound closed in eversion to prevent unsightly notching. A genetic basis for these associated features can only be determined by detailed karyotype studies<sup>[7]</sup>.

In another case report by Revanasiddappa Bhosgi et al which was published in Indian Journal Of Medical Case Reports in January 2015, he explained about a two hour old baby boy who was delivered through normal vaginal delivery without any perinatal complications and referred to his hospital due to feeding difficulty secondary to congenital anomalies involving face. At presentation baby vitals were stable, head to toe examination revealed bilateral cleft lip and cleft palate with no other associated gross congenital anomalies. Family history of similar complaints was present in father, for which he was treated with serial corrective surgeries according to grandparents. Keeping family history and presenting clinical features in mind, a provisional diagnosis of Van der Woude syndrome was made, feeds with long pallada was started and paediatric surgical consultation was obtained for further management of baby. Clinical diagnosis based on orofacial clefts and lip pits typically occur shortly after birth. Certain defects may be difficult to diagnose, particularly a submucous cleft palate. This form of CP may not be detected except through finger palpation, as the mucosa covering the palate is intact, but the muscles underneath have lost their proper attachments. Feeding problems, impaired speech, and hearing loss are symptoms of a submucous cleft palate. Furthermore, approximately 15% of VWS cases with orofacial clefts, in the absence of prominent lip pits, cannot be easily distinguished from non-syndromic forms of orofacial cleft. Therefore, it is very important to closely examine these patients as well as their relatives for lip pits, especially when there is a family history of mixed clefting, in order to make the VWS

diagnosis. Dentists may also play an important role in diagnosing cases not detected at birth, as they detect hypodontia commonly associated with VWS<sup>[8]</sup>.

Abdulrasheed Ibrahim et al explained about a six-year-old girl who was referred to the plastic surgery clinic at the Ahmadu Bello University Teaching Hospital, Zaria, Nigeria, for repair of a fistula in the hard palate. Their case report was published in the Oman Medical Journal in 2015. She had a repair of bilateral cleft of the primary and secondary palate performed at four and 22 months of age, respectively. The extraoral examination revealed bilateral dome-shaped swellings with pits, located lateral to the midline on the vermilion border of the lower lip. There was no saliva or secretions at the base of the pits. The mother and grandmother were also found to have had repaired bilateral complete cleft of the primary palate. The construction of a pedigree led them to a diagnosis of VWS. The fistula was repaired with mucoperiosteal flaps. In the development of the lip and palate, fusion of the mandibular arch and lateral sulcus of the lower lip occurs at 5.5 weeks, whereas fusion of the maxillary and nasofrontal processes occurs at six weeks. An incomplete reduction of the naturally occurring lateral sulcus, which normally occurs at the same time as fusion of the lip and palate, is thought to be the most plausible cause of lip pits. The identification of familial lip pits is crucial for genetic counseling. Genetic counseling is advised because the probability of a having offspring with cleft lip, with or without cleft palate, is reported to be 10-times greater in a cleft patient who also has lip pits than in those without lip pits. All parents with VWS should be cautioned that there is a 50% risk of having a child with a cleft lip and/or cleft palate due to its autosomal dominant mode of transmission<sup>[9]</sup>.

Merley A. Newman et al described about a sixteen-year-old girl who was referred from the Department of Oral and Maxillofacial Surgery of the University of Ghana Dental School to the Department of Orthodontics, for correction of her anterior cross bite. Extraoral examination revealed mid face retrusion and a repaired bilateral cleft lip of the upper lip. Her lower lip had bilateral lip pits at the base of two nipple-like elevations. These lip pits were about three millimeters in diameter, ten millimeters deep and exuded mucous secretions continuously. Intraoral examination revealed a repaired maxillary cleft palate. Both maxillary lateral incisors and an upper right second bicuspid were congenitally missing. There was marked hypoplasia and labial abrasion facets on the maxillary left central incisor. The lip pits and the associated salivary gland tissues were excised under local anaesthesia (2% lignocaine hydrochloride with 1:50 000 epinephrine). Post-operatively, she was put on prophylactic antibiotics (500mg of amoxicillin capsules, three times a day for a week) and analgesics (200mg of ibuprofen three times a day for three days). Sutures were removed after one week. Healing of the surgical site was satisfactory with no mucous exudation being observed. She was again referred for orthodontic correction of the anterior cross bite. This was achieved with a removable maxillary appliance worn continuously over a six week period. At the completion of the treatment, she had a more normal closure pattern and decreased maxillary

retrusion. The main clinical features of Van derWoude syndrome is well documented in the literature. In addition to the classical clinical presentation, maxillary and mandibular adhesions, “peg-shaped” or missing maxillary lateral incisors may be observed. Two additional clinical features of enamel hypoplasia and multiple congenitally missing teeth observed in this case report indicate the variable clinical presentation of this syndrome. Surgical excision of the labial and commissural pits is indicated if the aesthetics of the individual is appreciably affected and exudation of mucous secretions can not be controlled. Surgical excision should include the total removal of the minor salivary glands that exude secretions at the base of the pits to prevent the formation of mucoceles or cysts. The quality of this patient’s life improved considerably after treatment and earlier management of this case regarding the excision of labial pits, anterior crossbite correction and replacement of her missing teeth could have improved her self-esteem at a much earlier age. This case report was published in the Ghana Medical Journal in June 2005<sup>(10)</sup>.

#### CONCLUSION :

Congenital lip pits constitute a rare developmental malformation by an autosomal dominant mode. Nevertheless, with prompt identification and appropriate understanding of clinical features, oral manifestations, the oral physician plays an important role in diagnosis and management of patients with such rare syndromes. Even though treatment is available for all anomalies in VWS, prevention is always a choice. Genetic counselling plays a very important role in preventing morbidity and financial burden to families as there is 50% chance of penetrance and expression in offspring. Thus this review is made to bring to light the symptoms, signs and treatment of Van der Woude syndrome so that the people are made more aware of it.

#### REFERENCES :

- 1) Achint Garg, Siddarth Gupta\*. Van derWoude Syndrome (VWS) – A Case Report. American Journal of Advances in Medical Science. 2014; 2(2):42-46.
- 2) Malik S, Kakar N, Hasnain S, Ahmad J, Wilcox ER, Naz S. Epidemiology of Van derWoude syndrome from mutational analyses in affected patients from Pakistan. Clin Genet 2010; 78: 247–256. © John Wiley & Sons A/S, 2010.
- 3) Sunil Karande, Shailesh Patil. Van derWoude syndrome. Indian Pediatrics. VOLUME 42\_\_MARCH 17, 2005.
- 4) Pallavi K. Deshmukh, Kiran Deshmukh, Anand Mangalgi, Subhash Patil, Deepa Hugar,5 and Saraswathi FakirappaKodangal. Van derWoude Syndrome with Short Review of the Literature. Hindawi Publishing Corporation. Case Reports in Dentistry. Volume 2014, Article ID 871460, 6 pages.
- 5) Romesh Soni, Rajul Vivek, Adit Srivastava, Ankita Singh, Shalabh Srivastava, and T. P. Chaturvedi. Van derWoude Syndrome Associated with Hypodontia: A Rare Clinical Entity. Hindawi Publishing Corporation. Case Reports in Dentistry. Volume 2012, Article ID 283946, 3 pages doi:10.1155/2012/283946.
- 6) Advani S, Sogi S, Hugar S, Bhatt K. VanderWoude’s syndrome: The rarest of the rare. ContempClin Dent 2012;3:S191- 3.
- 7) B.T. Ugwu and J.T. Momoh. VAN DER WOUDE SYNDROME WITH MENTAL RETARDATION: CASE REPORT. East African Medical Journal Vol. 78 No. 1 January 2001.
- 8) RevanasiddappaBhosgi, Krupa Vijay, Ravi Chander B, Lakshmi Narayana I and SwetaYudhistir. A RARE PRESENTATION OF “VAN DER WOUDE SYNDROME” - A CASE REPORT. Indian Journal of Medical Case Reports ISSN: 2319–3832. 2015 Vol. 4 (1) January-March, pp. 5-7.
- 9) Abdulrasheed Ibrahim and Sunday Ajike. Congenital Symmetrical Lower Lip Pits:Van derWoude Syndrome. Oman Medical Journal [2015], Vol. 30, No. 1.
- 10) Merley A.Newman et al. Van derWoude syndrome: Report of a case. Ghana medical journal. Volume 39 Number 2, June 2005.