Particular physical characteristics – a clinical case of Van der Woude Syndrome

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Introduction

Each person is unique. Certain specific physical characteristics like labial dimples or dental abnormalities can help establish a positive identification, especially in cases of familial transmission. Van der Woude (VdW) Syndrome has been recognized for more than a century (Murray 1860) and was assigned its eponym following Anne Van der Woude's description of the disorder in 1954. VdW Syndrome, the most frequent form of syndromic clefting (accounting for 2 per cent of all cleft lip - CL and palate - CP cases), is a rare congenital malformation with autosomal dominant inheritance, high penetrance and variable expressivity. Its prevalence varies from 1:100 000 to 1:40 000 stillborn or live births. In VdW Syndrome, congenital labial dimples occur in concurrence with cleft lip and/or cleft palate and represent the most common clinical problem occurring in 80% of the patients. Lower labial dimples, CL with or without CP, and isolated CP are its cardinal signs.

Case Report

Female 32 years old, during a routine dental appointment, two dimples were observed on the lower lip with salivary drainage as well as the absence of tooth 22 and the existence of a conoid tooth 12 (figures nº 1, 2, 3). The clinical history revealed a family history of cleft palate on her father. The patient's daughter shows no phenotypic changes consistent with the syndrome. The event was photographed and a panoramic radiograph confirmed the tooth 22 agenesis. The patient refused any surgical treatment. The documented case was presented at the Consultation of Genetics at Children's Hospital of Coimbra, which confirmed the diagnosis of Van der Woude syndrome. Genetic counseling was ensued.

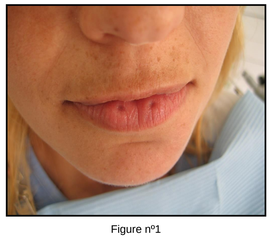

Figure nº1

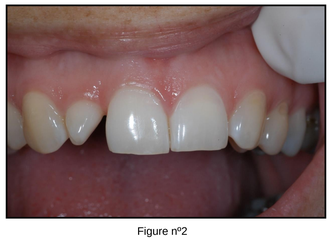

Figure nº2

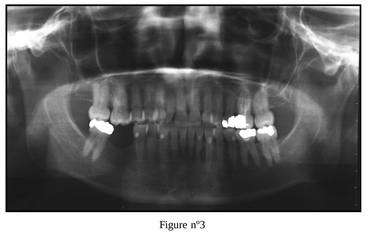

Figure nº3

Discussion

VdW Syndrome´s expressivity is variable (all of the signs can be present, either alone or in combination, or no abnormalities can be detected clinically), and its penetrance has been estimated to be 90% with both sexes equally affected. Labial dimples are present in 80%, clefts in 50% and hypodontia in 25% of the gene carriers. The first report on lower labial dimples, made by Demarquay attributed their formation to the impressions made on the lower lip by the upper central incisors. Most patients tend to adopt this hypothesis even now. These labial dimples mainly occur on paramedian portion of the vermillion border of the lip placed symmetrically on either side of the midline, at a distance of about 5–25 mm from each other. They can, also, be unilaterally, medially, or bilaterally asymmetrical. The labial dimples are usually circular or oval. The orifice may be flush with the lower lip, form a depression, be located at the apex of a nipple-like elevation, or two nipple-like protrusions may be found with no sinus openings at their apices. Fistulography has shown that the fistula is long with bifurcated tracts, of 5–6 cm in length, ending blindly under the skin, beyond the orbicularis oris muscle. The canals always end as blind sacs surrounded by mucous glands. Most of the times the labial dimples are asymptomatic; the only symptom might be the continuous or intermittent drainage of watery or salivary secretion. According to Kitamura, in a 32 day embryo, the lower lip consists of four growth centres, divided by one median and two lateral grooves. In the 38 day embryo, the lateral grooves disappear, except in the case of impeded mandibular process growth that results in the formation of a labial dimple. CL or CP results from failure of fusion of the maxillary processes or palatal shelves, which occur between the 4th and 12th weeks of embryogenesis. Phenotypic expression of clefts ranges from incomplete unilateral CL, submucous CP, bifid uvula, to complete bilateral CLP. Locus heterogeneity contributes to the genetic architecture of VdW Syndrome. Apart from the major signs, there are other features that are often associated. Among them, hypodontia is the one which is considered as a cardinal associated feature. It is observed in 10–20% of cases and occasionally represents the only expression of the gene. The lateral incisor and second molar are the most commonly affected teeth. The major syndromes considered in differential diagnosis are: Popliteal pterygium syndrome, Hirschsprung's disease and Orofacial digital syndrome type 1. Mutations in IRF6 have been identified in 70% of families with VdW Syndrome, but when mutated, GRHL3 can also be responsible, however, individuals with a GRHL3 mutation are more likely to have CP and less likely to have CL or labial dimples than individuals with an IRF6 mutation. Approximately 30–50 percent of all cases arise as de novo mutations. Familial occurrence has been verified in 61 per cent of patients, 47 per cent of whom present bilateral labial dimples. Genetic counselling, a procedure highly recommended for this abnormality, includes information on the likelihood of gene transmission, and possible ways of expression and penetrance. For a VdW Syndrome patient, the relative risk of transmitting a cleft is between 11.0 and 22.43 per cent; the relative risk of transmitting lower labial dimples only, or being non-penetrant, is from 24.7 to 42.7 per cent. Relative to the phenotype of the patient, the risk of a cleft in a child (with 95 per cent confidence limits) having a parent with labial dimples only, is 22 per cent. If the parent has labial dimples and cleft, the risk is 39 per cent. If the parent has cleft only, but his/her parent or sibling has labial dimples, the risk is 30 per cent. The primary indication for excision of congenital dimple sinus is treatment of the associated cosmetic deformity, although it is acknowledged in the literature that many patients neither require nor request surgery.

Conclusion

Full forensic examination of a person should include the oral cavity. Oral tissues and teeth may have an important role on the assessment of body injury and it's extremely important to know the pre-morbid condition, in order to evaluate permanent consequences related to the trauma. Dental or soft tissues abnormalities, like labial dimples, clefts or hypodontia, may allow the identification of unidentified corps or living undocumented individuals. Once the forensic examiner becomes aware of a possible genetic syndrome, such as VdW syndrome, previously unknown to the person, is the physician's role to inform the patient of such and clarify the need for genetic confirmation and also eventual genetic counseling of family members.

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