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***ORAL MANIFESTATIONS OF VITAMIN DEFICIENCIES***

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**Abstract :** Vitamins play an important and equivocal role in general and oral health, vitamins (both fat soluble and water soluble) are essential for development, maturation and functioning of oral tissues at almost every decade of life.

**Interdiction:**

There are many vitamins which play a major role in normal functioning of the oral cavity and any deficiency of these vitamins from the normal levels will lead to problems in the normal functioning of the human body, there are mainly two types of vitamins fat soluble (which can be stored with other lipids in fatty tissues or in the liver and can build up to toxic levels. Require bile for absorption ex. vitamin A, vitamin D, vitamin E and vitamin K), and Water soluble (absorbed directly in the blood stream, travel freely and are not stored. Excreted in the urine ex. folate (folic acid), biotin, vitamin B-1, vitamin B-2, vitamin B-3, vitamin B-5, vitamin B<sub>6</sub>, vitamin B<sub>12</sub> and vitamin C), Some or most of the vitamins have a direct or indirect role in having a healthy oral cavity.

**Discussion:** To begin, oral manifestations of fat soluble vitamins deficiencies

(1) vitamin A deficiency, There is an increase in keratin formation caused due to keratinising Metaplasia of epithelium, due to increased keratin formation salivary gland ducts can be blocked by keratin and delay in Eruption of teeth.(2) vitamin D deficiency there is delayed eruption of primary and permanent teeth, developmental anomalies of dentin and enamel with the teeth showing wide predentin zone with increased interglobular dentin in it, and the Pulp is also affected pulp horns are elongated and reach the dentinoenamel junction.(3) vitamin K deficiency, vitamin K is also called as coagulation vitamin and its deficiency is uncommon but in case of deficiency we can see the following oral manifestations are Spontaneous gingival hemorrhages is seen when the prothrombin level falls below 20% and gingival bleeding is seen after brushing when the prothrombin level falls below 35%.1

Secondly, oral manifestations of water soluble vitamins deficiencies

(1) vitamin C deficiency, It is also called as ascorbic acid and deficiency leads to Scurvy, the oral manifestations are Gums is Swollen and Spongy the clinical appearance of Scurvy buds is seen which is involvement of interdental papillae and in severe vitamin c deficiency cases there is hemorrhage or bleeding of preiodontal membranes and loosening or mobility of teeth is seen which is due to bone loss. (2) vitamin B<sub>12</sub> deficiency, is also called as anti-pernicious vitamin or extrinsic factor of castle the oral manifestations are following Hunter's glossitis or Moeller's glossitis similar to "bald tongue" which is seen in pellagra and Beefy red tongue with glossopyrosis, glossitis and glossodynia is sometimes seen.(3)Folic Acid deficiency,most common clinical symptom is macrocytic anemia and Glossitis it is the inflammation of the tongue where the filiform papillae become atrophic and the fungiform papillae become engorged and mushroom shaped which gives it the characteristic magenta colored tongue.2

Finally, there are no oral manifestations for Deficiency of vitamins B<sub>1</sub>,B<sub>5</sub>, B<sub>6</sub> and Biotin. vitamins are very important for normal functioning of the human body and vitamins are mostly absorbed into the body through food, some vitamins like vitamin B<sub>2</sub> or Riboflavin is seen in milk and children who do not drink milk can get vitamins B<sub>2</sub> deficiency and in such cases supplements in the form of tablets should be regularly given to compensate.3

**Conclusion:**

By this report we noticed the vitamins play an important role in body and oral cavity and it is important to know the various oral manifestations of vitamin deficiencies which can help in the differential diagnosis of various medical conditions.

**Reference:**

- 1) *Lee Russell McDowell (2000). Vitamins in Animal and Human Nutrition (2 ed.). Wiley-Blackwell. ISBN 0-8138-2630-6*
- 2) *Pettifor JM (2004). "Nutritional rickets: Deficiency of vitamin D, calcium, or both?". The American Journal of Clinical Nutrition. 80 (6 Suppl): 1725S–9S. PMID 15585795.*
- 3) *Borel P, Draï J, Faure H, Fayol V, Galabert C, Laromiguière M, Le Moël G (2005). "Recent knowledge about intestinal absorption and cleavage of carotenoids". Annales de Biologie Clinique (in French). 63 (2): 165–77. PMID 15771974*

