Radiographic Diagnosis of Systemic Diseases in Dentistry

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Symptoms of systemic diseases, regardless of whether the soft tissue or the skeletal system is affected, develop in the oral and maxillary regions. It is believed that the number of diseases affecting the oral and maxillary regions exceeds 350. Because the incidence of systemic diseases is relatively low and their symptom constellations are complex, it is not easy to understand, memorize, and diagnose these diseases. Therefore, I organized the radiographic findings of systemic disease according to the 5 oral and maxillofacial sites (teeth, jaws, palate, salivary glands and malar bone) and attempted to classify the radiographic findings of systemic diseases that become manifest in the dental, oral and maxillary regions.

Introduction

It is known that symptoms of systemic diseases, regardless of whether the soft tissue or the skeletal system is affected, develop in the oral and maxillary regions. Due to the complexity of the human body, it is only natural that the dental, oral, or maxillary regions exhibit anomalies which arise systemically.

Radiography of the oral and maxillary regions, which is mainly concerned with the teeth and bones, plays a crucial role in diagnosis. The clinical images (including the latest imaging modalities) often provide significant information for the identification and diagnosis of systemic diseases. Needless to add, biochemical and histological examinations are also necessary, but radiographic diagnosis often plays a decisive role.

The number of conditions that fall into the category of systemic diseases which affect the oral and maxillary regions is believed exceed 350, and new systemic diseases are being identified with time. In view of their characteristics, magnitude, extentiveness, onset, and complexity of the sensitivity of the tissue originally involved, systemic diseases develop diverse features in various regions, and there is usually wide variation in the response of individuals to a given disease. Due to the intertwining of etiological factors, classification is difficult. Furthermore, the
nomenclature of these diseases lack uniformity and a single disease entity can have several names\(^4\).

Thus, it is not easy to understand, memorize, and diagnose these diseases. It is necessary to organize the concept and findings of a disease as you proceed with the diagnostic procedure and have a basic understanding of the correlation between the disease and its features. According to this basic concept, we organized the radiographic findings of systemic disease at the five oral and maxillofacial sites (teeth, jaws, palate, salivary glands and malar bone) and attempted a radiographic diagnosis of systemic diseases that manifest in the dental field by systemic interpretation of the radiographic features of the dental, oral, and maxillary regions.

**Classification of systemic diseases**

The mechanism by which systemic diseases develop is complex and its cause-effect relationship is intricate. The concept of systemic diseases exists but their category is ambiguous, there are no generally accepted systems of classifying them.

In 1978, Nishioka\(^1\) proposed the following classification of systemic diseases, composed of four categories of congenital conditions and nine categories of acquired diseases:

1. **Congenital disease**
   
   1. Genetic diseases
   2. Gametepathy (chromosomal abnormalities)
   3. Embryopathy
   4. Fetal diseases

2. **Acquired diseases**
   
   1. Systemic diseases of bone
   2. Systemic tumors
   3. Metabolic diseases
   4. Reticuloendotheliosis
   5. Endocrine diseases
   6. Autoimmune diseases
   7. Blood diseases
   8. Infective diseases
   9. Miscellaneous diseases

It is difficult to distinguish congenital from acquired diseases, although diligent research has shown some of those which had been believed to be acquired to be congenital. Remarkable progress in biochemistry and biotechnology has resulted in the discovery of new diseases and changes in classifications.


Jones and Mason\(^29\) classified systemic diseases related to the oral region into the following 15 groups:

1. Single gene disorders
2. Systemic infections
3. Disorders of immunity
4. Internal malignancy
5. Connective tissue disorders and granulomatous disease of doubtful origin
6. Nutritional disorders