

## **Radiographic appearance of dental anatomical variations**

Dental anomalies include variation in normal number, size, eruption or morphology of the teeth. It's may be developmental or acquired.

### **1.Dens invaginatus**

Is a malformation of teeth most likely resulting from an infolding of the dental papilla during tooth development or invagination of all layer of the enamel organ in dental papillae. Also called dens in dent.

Affected teeth show a deep infolding of enamel and dentine starting from the foramen coecum or even the tip of the cusps and which may extend deep into the root. Teeth most affected are maxillary lateral incisors and bilateral occurrence is not uncommon. The malformation shows a broad spectrum of morphologic variations and frequently results in early pulp necrosis. Root canal therapy may present severe problems because of the complex anatomy of the teeth.

### **2.Dilaceration**

is a deviation or bend in the linear relationship of tooth crown to its root; it is an angulation or sharp curve in the root or the crown of a developed tooth of 90° or more.

### **3.Macrodonia**

A condition in which the teeth are abnormally large. Also called megadontism or megalodontia

### **4. Microdonia**

is a condition in which teeth appear smaller than normal. In the generalized form, all teeth are involved. In the localized form, only a few teeth are involved. The most common teeth affected are the upper lateral incisors and third molars. The affected teeth may be of normal or abnormal morphology

There are 3 types of microdonia:

- 1.True generalized microdonia
- 2.Relative generalized microdonia
- 3.Microdonia involving a single tooth

## 5. Twining defect

This is called a "**gemination**", which has a single tooth root with two anatomic crowns. Gemination is a rare anomaly that arises when the tooth bud of a single tooth attempts to divide. The result may be an invagination of the crown, with partial division, or in rare cases complete division throughout the crown and root, producing identical structures. Complete twinning results in a normal tooth plus a supernumerary tooth in the arch.

Clinically: Gemination more frequently affects the primary teeth, but it may occur in both dentitions, usually in the incisor region. It can be detected clinically after the anomalous tooth erupts. The occurrence in males and females is about equal. The enamel or dentin of geminated teeth may be hypoplastic or hypocalcified.

Radiographically: Radiographs reveal the altered shape of the hard tissue and pulp chamber of the geminated tooth. Radiopaque enamel outlines the clefts in the crowns and invaginations and thus accentuates them. The pulp chamber is usually single and enlarged and may be partially divided.

The opposite case does occur, where two teeth fuse into a single anatomic crown "**fusion**". Fusion of teeth results when two tooth germs develop so close together that as they grow, they contact and fuse before calcification. Or results when physical force or pressure generated during development causes contact of adjacent tooth buds.

Clinically: Fusion usually causes a reduced number of teeth in the arch. It occurs in deciduous and permanent dentitions, although it is more common between deciduous teeth. When a deciduous canine and lateral incisor fuse, the corresponding permanent lateral incisor may be absent. Fusion is more common in anterior teeth of both the permanent and deciduous dentition.

Radiographically: Fused teeth may show an unusual configuration of the pulp chamber, root canal, or crown.

Fusion arises through the union of two normally separated tooth germs, whereas gemination arises from an attempt at division of a single tooth germ. The phenomenon of fusion has often been confused with gemination, especially if it involves a supernumerary tooth.

## **6. Hyperdontia**

is the condition of having supernumerary teeth, or teeth which appear in addition to the regular number of teeth. supernumerary tooth classified by position in to mesiodens, a paramolar, or a distomolar.

The most common supernumerary tooth is a mesiodens, which is a malformed, peg-like tooth that occurs between the maxillary central incisors

Fourth and fifth molars that form behind the third molars are another kind of supernumerary teeth.

It could be associated with Cleidocranial Dysplasia, an inherited disorder involving the cranium, face, clavicles and supernumerary teeth

## **7. Hypodontia**

is the condition at which the patient has missing teeth as a result of their failure to develop. Include oligodontia and anodontia ( according to the number of missing teeth)

It could happens in Ectodermal Dysplasia... lack of hair, sweat glands (hypohydrotic) and teeth (partial anodontia)

## **8. Taurodontism**

Is a condition found in the molar teeth of humans whereby the body of the tooth and pulp chamber is enlarged vertically at the expense of the roots. As a result, the floor of the pulp and the furcation of the tooth is moved apically down the root

