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| **Name:** |
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| 2B-4 |
| **Pathology Question:** |
| What pathologies are involved in tooth buds? |
| **Report:** |
| During tooth development, there are many different pathological findings that can occur in the tooth bud. For example, hypodontia/anodontia is a dental anomaly where there are missing developing tooth buds resulting in fewerer/no teeth. The occurance rate in developing primary teeth is 0.2-0.7% while in developing permanent teeth, the rate is much higher at 2-9%. The most common sites where hypodontia occurs at are the 3rd molars, upper lateral incisors, the second premolars, and the lower central incisors. There is an association with both ectodermal dysplasia and orofacial clefts with hypodontia/anodontia.  Similarily, supernumerary teeth is another pathology that is involved with the tooth buds. While it is not as common in primary teeth (0.3-0.8%), it is somewhat more common in the permanent dentition (1.5-3.5%). When supernumerary does occur, it is almost always associated with the maxilla (98% occurrence). A very common supernumerary tooth is a mesiodens (supernumerary tooth in the midline) that can have a conical/tuberculate shape.  Once the tooth bud has finished developing and erupted, there are other pathologies that can arise in the oral cavity. Both fusion and gemination can cause a “double tooth” but only occurs in 2.5% of primary teeth and 0.2% of permanent teeth. In fusion, two tooth germs with two root canals join together which results in a reduced number of teeth. While in gemination, there are two tooth buds from a single tooth germ resulting in a normal number of teeth with one root canal.  Both macrodontia and microdontia are other pathologies that are associated with tooth buds. It is thought that abnormalities in both tooth size and shape occur because of disturbances in morphodifferentiation during development. In macrodontia, the tooth is larger than normal (1.1% of permanent teeth) but, true macrodontia is associated with pituitary gigantism and normal teeth in small jaws. Conversely, microdontia (2% of permanent teeth) results in a tooth smaller than normal. The most common teeth associated with microdontia are the maxillary laterals, known as “peg laterals”, and the third molars.  On the occlusal/incisal surfaces of the erupted tooth bud, there can a variety of pathologies. Dens in dente is a developmental invagination of the cingulum pit, occurs in 4.0% of permanent teeth, and is most often associated with the maxillary laterals. On the other hand, dens evaginatus is a tubercle that projects from the occlusal surface. While the occurance rate is 4.0%, this is most commonly observed in premolars. Similarily, a talon cusp (1-2% of permanent teeth) is a horn like projection of the cingulum generally found in the maxillary incisors. A cups of carabelli is another pathology where there is an extra cusp on the mesial lingual of the maxillary first molar. |
| **References:** |
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