

1. Cementum and Root formation

2. **Cementogenesis** It takes place in two phases:

3. • Matrix formation

4. • Mineralization

5. There are 3 cell types responsible for the cementogenesis:

•Cementoblasts

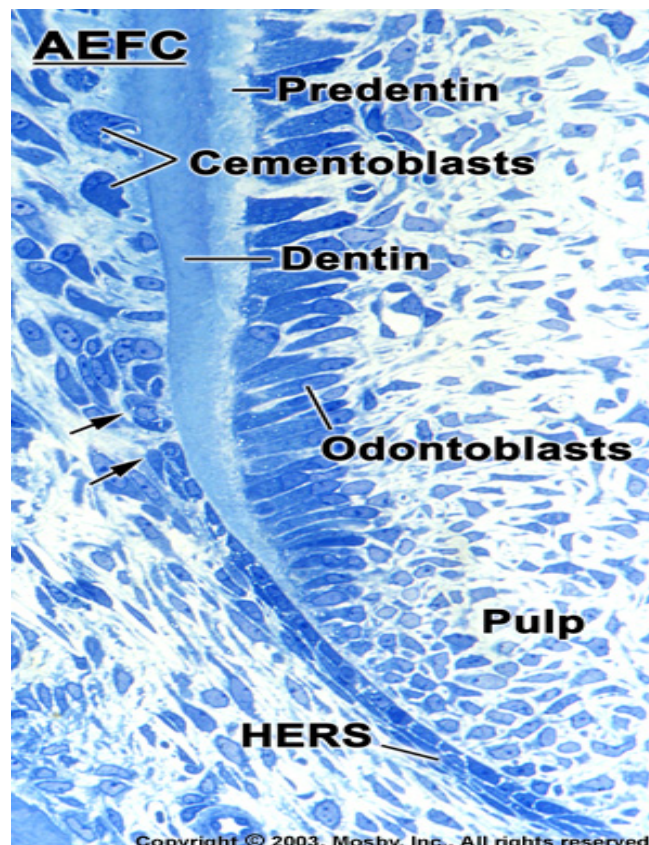
6. • Cementocytes

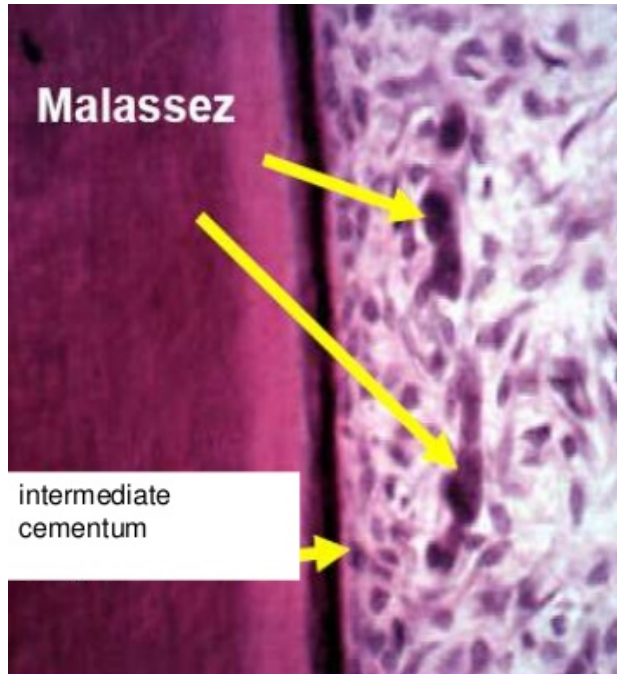
7. • Fibroblasts . All of these cells are derived from the ectomesenchymal cells.

8. Cementogenesis Cementum formation in the developing tooth is preceded by the deposition of dentin along the inner aspect of Hertwig's ep. Root sheath . Once dentin formation is underway breaks occur in the epithelial root sheath allowing the newly formed dentin to come in direct contact with the connective tissue of the dental sac , the undifferentiated mesenchymal cells derived from the dental sac differentiate into cementoblasts . The main product of cementoblasts is collagen and ground substances , both constitute the organic component of cementum .The inorganic material of cementum is calcium phosphateHydroxy apatite .

9. Growth of cementum is a rhythmic process and as a new cementoid is formed, the old one is calcified . A thin layer of cementoid can be observed on cemental surface which is covered by cementoblasts .The mineralization begins after forming the first layer of matrix.The mineral crystals is deposited within and between the collagen fibers, the long axes of the crystals are arranged parallel to the long axis of the collagen fibers .

10. After reaching the full thickness the cementoblasts enter a quiescent stage. Remnants of the Hertwig's root sheath, which disintegrate into the PDL are then called ep. Rest of Malassez cells.
1. While cementum is being deposited, cementoblasts retreat leaving behind the formed cementum matrix. Occasionally, however, cementoblasts become entrapped in the forming matrix and then known cementocytes .
2. Cementocytes are seen located in lacunae in cementum matrix and typically have numerous processes lying in canaliculi . These processes may branch and frequently anastomose with those of the adjacent cementocytes . This indicates that these cells are not functionally separated from each other . Because cementum is avascular tissue, thus the processes of the cementocytes are oriented toward the periodontal ligament for nutrition .As a result of continuous phasic deposition of cementum, resting lines known Salter lines appear in cementum





Remnants of the Hertwig's root sheath, which disintegrate into the PDL are the Malassez cells.