Histology of cementum

Professor Dr Maha Mounir
Cementum

- Thin acellular cementum
- Thick cellular cementum
Histologic types of root cementum

- **Acellular Afibrilar Cementum** AAC (over enamel) AAC: fine granular substance formed of GAGs + non fibrilar collagen us componet
- **Acellular extrinsic fiber cementum** AEFC
- **Acellular intrinsic fiber cementum** AIFC
- **Cellular intrinsic fiber cementum** CIFC
- **Cellular mixed stratified cementum** CMSC
According to presence of cells

1- Acellular cementum
On cervica l²/₃s. Composed of successive layers (increments) of AEFCementum seperated by increme. ntal lines (Salter). PDL fibers are inserted as Sharpey’s fibers (extrinsic)

2- Cellular cementum
On apical ⅓. Root enters its functional stage. Root is covered by CMSCcellular mixed stra tified C (CIFC/AIFC)cellular intrinsic fiber C/acellular intrinsic fiber cementum.
Gran Layer of Tomes & Salter inc lines

Granular layer of Tomes’ acellular C incremental lines of Salter Cellular C
Acellular & cellular Cementum

Granular layer
of Tomes
D, acellular C
Cellular C
Cementocytes
In lacunae
Incremental lines of Salter

Incremental lines of Salter in cementum
Intrinsic collagen fibers

- Are fine collagen fibers.
  Secreted by cementoblast & cementocyte cells. Closely resembles bone formation.
- Are assembled in bundles that follow a spiral course along & around the root.
Matrix proteins

- Cementum is made up predominantly of type I collagen & glycosaminoglycans (chondroitin sulphate mainly)
- Bone matrix proteins are secreted by cementoblasts & deposited in cellular cementum
- Osteopontin is concentrated in cement lines (resting Salter lines & reversal lines). It mediates cell attachment & cohesion of matrix molecules at incremental lines
- Cementum also contains growth factors.
Construction of the attachment

• Main function of root cementum
• The attachment of the principal fibers of PDL to root surface is mediated by cells (fibroblasts & cementoblasts) through organizing & orienting extra cellular fibers into functional networks.
Cementum Hypertrophy

1- Cemental Hypertrophy:
   Increased cementum formation at apical third (functional adjustment)

2- Cemental Hyperplasia:
   Defective condition resulting in increased cemental formation.
Cementum hyperplasia

- Occur on root surface of patients suffering from an autosomal-recessive trait “Hypophosphatasia”.
  clinically presented in the form of defective cementum (= loss of attachment)