Acute pulpitis

Content:

Introduction:

Extensive acute inflammation of the dental pulp. It is an acute exacerbation of a chronic inflammatory process.

Pain is due to

1. Pressure build-up due to lack of escape of inflammatory exudates.
2. Pain-inducing substances such as substance P, a neurotransmitter are produced.
3. Percussion is not seen until the inflammation/ necrosis extends beyond the root apex.

Etiology :

1. Dental caries
   It is an irreversible microbial disease characterized by demineralization of the inorganic portion and destruction of the organic portion of the tooth. It is a complex and dynamic process. The various factors influence the progression of the disease
2. Anachoretic pulpitis
   Bacteria circulating in bloodstream tend to settle at the sites of pulpal infection.

Anachoresis:

The phenomenon by which blood-borne bacteria, dyes, pigments and metallic substances are attracted to the site of infection due to capillary permeability.

3. Tooth crack
4. Bacteraemia/ Septicaemia
5. Periodontal diseases.
6. Chemical irritation
7. Thermal changes.
    - Metallic restoration
    - Galvanic current (due to dissimilar metals)
    - Heat produced during cavity preparation.

Clinical features:

- Tooth with a carious lesion
- Patient with severe acute pulpitis- extremely uncomfortable.
- Severe pain (Hot/cold)
- Pulpal pain is poorly localized because it is not represented on the sensory cortex.
- Pain is increased when the patient lies down.
- Heat causes acute exacerbation of pain.
- Vitality test- Tooth reacts at a lower level of vitality tester and pain persists even after the stimulus is removed
- Necrosis of pulp- sensitivity lost.

Histopathological features:

- Continuous vascular dilatation.
- Edema fluid around tiny blood vessels.
- The Pavementing of polymorphonuclear leukocytes.
- Increased WBC
- Due to increased pressure due to inflammatory exudate, there is local tissue hypoxia and anoxia leading to abscess.

On further analysis,

- Increased CD44, an adhesion molecule usually seen in leukocytes, epithelial cells, endothelial cells and smooth muscle cells, plays a role in the migration of leukocytes from blood vessels to areas of inflammation.
- TNF-alpha is also increased.

Treatment:

Pulpotomy (Removal of coronal pulp).

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References:

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