The Cracked Tooth: Histopathologic & Histobacteriologic Aspects

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**Aim**
- To evaluate the effects of cracks on the pulp and surrounding dentin through histopathologically and histobacteriologically analysis.

**Materials & Methods**
- 20 teeth diagnosed with cracks of varying severities or severe attrition were included in this study.
  a) Posterior teeth with cracks (12 teeth)  
  b) Anterior teeth with severe attrition (8 teeth)
- All teeth were extracted and prepared for histological analysis.
- Once the slides with the crack line and the pulp space were identified, they were stained for assessment of inflammation or for the visualization of bacteria.

**Results**
- Cracks were histologically detected in all specimens, including the teeth with severe attrition.
- Bacterial biofilms colonized the cracks in all teeth.
- Bacteria invaded dentinal tubules, especially when the crack extended perpendicularly into the dentin.
- There were accumulations of inflammatory cells in the pulp zone close to tubules involved with the crack.
- Cracks extended to the pulp resulted in pulpal reaction ranging inflammation to total necrosis.
- PNL were seen migrating from the pulp into the crack space and facing the bacterial biofilm.

**Conclusion**
- Cracks are always colonized with bacterial biofilms.
- The surrounding tissues as well as the treatment outcome will depend on the determination of the location, direction, and extent of the crack.

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