Abstract: Introduction and Aim:
Mineral Trioxide Aggregate (MTA) as a bioactive, biocompatible, and radiopaque root-end filling material which is capable of preventing microleakage and also having antibacterial efficiency. One of the important characteristics of MTA is its unique sealing ability which gives it a wide spread popularity. Evaluating how various physiological environments affect the hydration behavior and physical properties of mineral trioxide aggregate (MTA) by utilizing scanning electron microscope, X-ray diffraction (XRD) and microhardness tests.

Materials and Methods:
MTA samples were hydrated in distilled water, and afterwards exposed to calcium hydroxide in a stabilized environment, pH and the presence of ions.

Results:
We found that the microstructure of hydrated MTA consists of cubic and needle-like crystals. The former comprised the principal structure of MTA, whereas the later were less prominent and formed in the inter-grain spaces between the cubic crystals.

Conclusion:
In particular, calcium hydroxide environment adversely affects both the physical properties and the hydration behavior of MTA.

Keywords: MTA, Calcium Hydroxide, Hydration.

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Presentation: Poster