HYPOTHESIS

The three main objectives of obturation are to entomb any bacteria remaining in the root canal system, to stop the influx of periapical tissue gains fluid from reentering the root canal to feed the surviving bacteria & to prevent coronal leakage of bacteria. The seal has to be perfect to protect the treated surface for a successful endodontic treatment. According to Ingle, 60% of failures can be attributed to apical percolation due to inadequate obturation.

A path of treatment is chosen that will result in the best possible way of cleaning and shaping of the root canal system along with non-irritating biomaterials and an obturation technique which provides a three dimensional apically, laterally and coronally seal in the root canal system. If these technical parameters are achieved then there is a high likelihood that the parameters of ultimate periradicular tissue regeneration will be achieved.

Lateral Compaction technique is done using conventional gutta-percha. It is most widely used and still the standard to which all other techniques are compared. However, its ability to conform to the internal surface of the root canal has been questioned.

Vertical compaction Thermafil technique was developed by Dr. W. B. Johnson in 1978, which is a carrier based system. In which preheated gutta-percha is introduced and condensed in root canal system with a plastic carrier of predefined diameter and taper. This technique has been used to improve the homogeneity and surface adaptation of gutta-percha. It involves the obturation with heated α-phase gutta-percha on a carrier. The main advantages of this technique are it gives three dimensional obturation that can fill complex root canal anatomy, irregularities of intracanal anatomy, gives predictable results, requires minimal taper and less diameter is needed for preparing the canal, hence minimal invasive.

The cold, flowable self-curing silicone based root canal filling material, Guttaflow, combines gutta-percha and sealer into one injectable system. It contains very small gutta-percha particles in powder form, with a particle size of less than 30 μm, and a polydimethylsiloxane based sealer in its mass. It has excellent flow properties, good biocompatibility, allows ease of post space preparation, permits easy removal of gutta-percha during retreatment, gives fluid tight seal and as is radiopaque. No shrinkage is evident as heat is not being used while placing the material.
The hypothesis to be tested in this study are:

1. To compare the better sealing ability among Conventional gutta-percha, Thermafil, Guttaflow and Pro-point.

2. Warm gutta-percha technique will show more sealer penetration into dentinal tubules in comparison to cold gutta-percha techniques.