Protocol 11

Apexogenesis

- **Definition:**

Vital pulp therapy procedure performed to encourage continued physiological development and formation of the root end. (AAE Glossary of Endodontic Terms, 2003)

- **Indications:**

o Restorable immature permanent tooth.

o Vital radicular pulp tissue.

o Failure of all attempts to save the vitality of the coronal pulp tissue.

- **Contraindications:**

o Irrestorable immature permanent tooth.

o Non vital necrotic radicular pulp tissue.

o Most root fractures

o Restoration which requires a post placed into root canal for retention.

- **Procedure at center based clinic:**

o Use local anesthesia.

o Place rubber dam.

o Remove all carious lesion with:

   ▪ Sharp spoon excavator or large round slow-speed tungsten carbide bur.

   ▪ Coarse high-speed diamond bur with copious irrigation.

o Flush the cavity with sodium hypochlorite (NaOCl)2.5% to decrease the bacterial load.

o Remove entire coronal pulp tissue with sharp spoon excavator or slow speed round bur.

o Achieve homeostasis by either:

   ▪ Irrigate with sodium hypochlorite 2.5 %.

   ▪ Cotton pellet moistened with sodium hypochlorite 2.5 % pressed gently on pulp chamber.

o Re-evaluate exposed pulp tissue and confirm complete homeostasis, then apply either:

- Layer of non setting calcium hydroxide covered with a layer of setting calcium hydroxide.

- Layer of MTA, 1-2 mm in thickness. (it should be placed and mixed according ton the manufacturers recommendations)

o A layer of glass ionomer liner should be placed to ensure good seal.

o Final restoration should be placed according to vital pulp therapy material used:

- If calcium hydroxide was applied, final restoration can be placed immediately.

- If MTA was applied, wet cotton pellet and a temporary filling are recommended for the first 24 hours. Final restoration should be placed as soon as possible.

o Frequent recall appointments are required every 3-6 months for up to 3 years. This is essential to evaluate:

- Pulp vitality

- Extent of apical maturation

o **If the above measures fail then apexification is justified.**