

Endodontic failures and Retreatment I



أ.د. بلند محمد سليم شكري

Introduction:

The definition of success is ambiguous; it has different meaning when referring to different criteria; For example success of endodontic therapy is ambiguous with requirements ranging from stringent (Radiographic and Clinical normalcy) to lenient (only clinical normalcy). Obviously the more lenient definition increase the success rate when compare with stringent one.

Success is defined by goals established to be achieved .The usual goal of endodontic therapy is to prevent or heal the disease. Accordingly, endodontic treatment outcomes should be defined in reference to healing and disease. A clear definition of what constitute a failure following endodontic therapy is not yet clear. Failure cannot be subscribe to any particular criteria of evaluation; instead success or failures following endodontic therapy could be evaluated from combination of various criteria like clinical, histopathological, and radiographical criteria.

Evaluation of success of endodontic treatment

1-Clinical evaluation

Presence of symptoms though indicates the presence of pathology, but absence of a pain or any other symptoms does not confirm the absence of a disease. A little correlation exists between the presence of symptoms and the periapical disease.

2-Radiographic Evaluation

The radiographic criteria for failure are development of radiographic periapical areas of rarefaction after the endodontic treatment, in case where they were not present before the treatment or persistence or increase in size of the radiolucency after the treatment. To predict the success or failure, one should be able to accurately the radiographs that are taken at different times. Prognosis is prediction of whether an endodontic treatment will be successful or a failure and if successful to what degree it will be. Normally, the development of apical periodontitis is indication of endodontic failures, is frequently asymptomatic clinically, and the radiograph is the way to determine the success here.

Clinical criteria for success

- . No tenderness to percussion or palpation
- . Normal tooth mobility
- . No evidence of subjective discomfort
- . Tooth having normal form, function and aesthetics
- . No sign of infection or swelling
- . No sinus tract or integrated periodontal disease
- . Minimal to no scarring or discoloration

Radiographic Criteria for Success of Endodontic Treatment

- . Normal or slightly thickened periodontal ligament space
- . Reduction or elimination of previous rarefaction
- . No evidence of resorptions
- . Normal lamina Dura
- . A dense three dimensional obturation of canal space

3-Histological Evaluation

Histological criteria for success of endodontic therapy may include absence of inflammation and regeneration of periodontal ligament, bone and cementum following endodontic therapy. Histologically, the success of endodontically treated tooth is reduced because chronic inflammation may persist for long even without any symptoms.

Histological Criteria for Success

- . Absence of inflammation
- . Regeneration of periodontal ligament fibers
- . Presence of osseous repair
- . Repair of cementum
- . Absence of resorption
- . Repair of previously resorbed areas.

Causes of the Endodontic Failures

Most commonly the causes of root canal failures are directly or indirectly related to bacteria somewhere in the root canal system. The treatment failures can occur despite of the strict adherence to the basic treatment principles. Multitude of factors affect the success or failure of the endodontic treatment but there are a certain factors which are common in all the cases for their success or failure and in some cases, success or failure is particularly related to that individual case.

Factors Affecting Success or Failure of Endodontic Therapy in Every Case:

- . Diagnosis and the treatment planning
- . Radiographic interpretation
- . Anatomy of the tooth and root canal system
- . Debridement of the root canal space
- . Asepsis of treatment regimen
- . Quality and extend of apical seal
- . Quality of post endodontic restoration
- . Systemic health of the patient
- . Skill of the operator

Factors Affecting success or Failure of a Particular case

- . pulp status
- . Periodontal status
- . Size of periapical radiolucency
- . Canal anatomy like degree of canal calcification, presence of accessory or lateral canals, resorption, degree of curvature of canal etc.
- . Iatrogenic errors
- . Crown and root fracture
- . Extend and quality of the obturation
- . Quality of the post endodontic restoration
- . Time of post treatment evaluation.

Case Selection for Endodontic Retreatment

Retreatment is usually indicated in symptomatic endodontically treated tooth or in asymptomatic teeth with improper done, initial endodontic therapy to prevent future emergence of the disease.

1. Careful history of patient should be taken to know the nature of case, pathogenesis and urgency of the treatment etc.
2. Evaluate the anatomy of root canal in relation to canal curvature, calcifications, un usual configurations etc.
3. Evaluate the quality of obturation of primary endodontic treatment.
4. Check for iatrogenic complications like separated instruments, ledge, perforations, zipping, canal blockages etc.
5. Consider the cooperation of the patient which is mandatory for retreatment procedure.

Factors Affecting Prognosis of Endodontic Treatment

- . Presence of any periapical radiolucency
- . Quality of obturation
- . Apical extension of the obturation material
- . Bacterial status of the canal
- . Observation period
- . Iatrogenic complication

Contraindication of Endodontic Retreatment

- . Unfavorable root anatomy (shape, taper, remaining dentine thickness).
- . Presence of untreatable root resorptions or perforations
- . Presence of root or bifurcation caries
- . Insufficient crown/root ratio

Problems commonly Encountered during Retreatment

- . Unpredictable result
- . Frustration
- . Cost factor
- . Time consuming

STEPS OF RETREATMENT

- 1- Coronal disassembly
- 2- Establish access to root canal system
- 3- Remove canal obstruction
- 4- Establish patency
- 5- Thorough cleaning, shaping, and obturation of the canal

