

Delta Dental of Michigan Clinical Criteria for Utilization Management Decisions				
Reference Number: 282.35 v2		Title: Clinical Criteria for Surgical Endodontics		
Issue Date (Effective Date): 11/18/2025	Next Review Date: 8/1/2026	Last Review Date: N/A (Initial Version)	Last Revised Date: 2/18/2026	UM Committee Approval Date: 11/18/2025

Introduction

This Delta Dental of Michigan (Delta Dental) clinical criteria document addresses surgical endodontic services. The purpose of this document is to provide written clinical criteria to ensure that Delta Dental consistently applies sound and objective clinical evidence when determining the medical necessity and clinical appropriateness of surgical endodontic treatment, as well as taking individual patient circumstances and the local delivery system into account.

Surgical endodontics includes surgical procedures involved in treating injury or disease within the endodontic system. The term encompasses surgical procedures indicated for the treatment of periradicular conditions including apicoectomy with retrograde filling, repair of root resorption, application of bone grafts, guided tissue regeneration and biologic materials, surgical exposure of root surface, root amputation and intentional tooth re-implantation. The most common application of endodontic surgery is for the management of refractory periapical pathology that does not respond to non-surgical treatment.

Surgical endodontic treatment is primarily performed by endodontists in a variety of healthcare facilities, but may be performed by other dental practitioners.

Applicable Dental Procedure Codes

The following dental procedure codes defined in the current version of the American Dental Association’s Code on Dental Procedures and Nomenclature (the CDT® Code) are applicable to this document and are the appropriate codes to use when documenting surgical endodontic treatment. Inclusion of these codes here is for informational purposes only and does not imply benefit coverage or noncoverage of a procedure by a member’s dental plan. A determination that a dental procedure is medically necessary and clinically appropriate does not guarantee that the procedure is a covered benefit of a member's dental plan. To determine if any of the endodontic procedures listed below or any associated diagnostic or restorative procedure is a covered benefit of an individual member’s dental plan, please refer to the plan documents in effect on the date of service.

CDT® Procedure Code	Procedure Code Nomenclature
D3410	apicoectomy - anterior
D3421	apicoectomy - premolar (first root)
D3425	apicoectomy - molar (first root)
D3426	apicoectomy (each additional root)
D3428	bone graft in conjunction with periradicular surgery – per tooth, single site
D3429	bone graft in conjunction with periradicular surgery – each additional contiguous tooth in the same surgical site
D3430	retrograde filling - per root

This document contains proprietary information of Delta Dental of Michigan and may not be copied, distributed, republished, licensed, uploaded, posted, or transmitted in any way, without our prior written consent.

CDT® Procedure Code	Procedure Code Nomenclature
D3431	biologic materials to aid in soft and osseous tissue regeneration in conjunction with periradicular surgery
D3432	guided tissue regeneration, resorbable barrier, per site, in conjunction with periradicular surgery
D3450	root amputation - per root
D3460	endodontic endosseous implant
D3470	intentional re-implantation (including necessary splinting)
D3471	surgical repair of root resorption - anterior
D3472	surgical repair of root resorption – premolar
D3473	surgical repair of root resorption – molar
D3501	surgical exposure of root surface without apicoectomy or repair of root resorption – anterior
D3502	surgical exposure of root surface without apicoectomy or repair of root resorption – premolar
D3503	surgical exposure of root surface without apicoectomy or repair of root resorption – molar

CDT® is a registered trademark of the American Dental Association. The Association is the exclusive copyright owner of CDT, the Code on Dental Procedures and Nomenclature and the ADA Dental Claim Form.

Clinical Criteria

When approval of benefit payment for a surgical endodontic procedure by a member’s dental plan requires a determination by Delta Dental that the procedure is medically necessary and clinically appropriate, the patient's dental record must document a generally accepted indication for providing the treatment.

For patients who do not meet the published qualifying criteria for a surgical endodontic procedure, Delta Dental will consider documentation from relevant clinicians that explains the necessity of covering treatment for conditions not included in the criteria.

Depending on the clinical circumstances, benefits may be disapproved if a professional determination finds that a surgical endodontic procedure was utilized under a contraindication condition where the treatment is generally considered to be not medically necessary, inadvisable/contraindicated or deficient in clinical quality.

Government regulations or the provisions of a member's dental plan that define when a dental procedure may be considered medically necessary and clinically appropriate with respect to benefit coverage may take precedence over these clinical criteria.

Apicoectomy (D3410-D3426)

Apicoectomy (root-end resection) is a surgical procedure in which a portion of the apex of the root of a tooth is removed along with any attached soft tissues to treat refractory periradicular pathology, usually following non-surgical endodontic therapy. The procedure generally involves elevation of a mucoperiosteal flap, bone removal to access and visualize the involved periapical tissues, excision of the root apex, curettage of the apical area as necessary, placement of a root end filling to achieve an apical seal and closure of the flap. Depending on the condition of the surgical site, bone grafting and/or guided tissue regeneration procedures may be utilized during the procedure.

- *Indications for performing apicoectomy may include:*

- A patient's signs and symptoms are consistent with post-treatment endodontic disease caused by extraradicular infection, foreign body reaction or a periapical true cyst
- Non-surgical endodontic treatment cannot provide proper cleaning, shaping and obturation of the root canal system due to complex root canal anatomy, persistent exudate, a calcified root canal, an irretrievable fractured endodontic instrument or iatrogenic changes to the root canal system preventing canal negotiation
- Periradicular pathology has persisted or enlarged after non-surgical endodontic treatment has been performed
- Non-surgical retreatment is not clinically feasible (e.g., due to a long post, hard obturation material or inadvisability of sacrificing an existing restoration)
- Overextension of obturating material prevents healing of periradicular pathology
- Repair of a root perforation, transported root canal or root resorption requires a surgical approach
- Surgical access is required for periradicular curettage or biopsy of periradicular tissues

- *Contraindications to performing apicoectomy may include:*

- Anatomical anomaly prevents access for surgery
- Surgery presents a risk of damage to adjacent tissues
- A tooth with anatomy and/or a periodontal condition where root-end resection is expected to leave the tooth with an unfavorable crown-to-root ratio resulting in an unacceptable reduction of the tooth's stability
- A tooth with insufficient sound tooth structure for successful restoration
- A tooth with an untreatable periodontal condition that precludes maintaining the tooth in function
- Performing endodontic treatment to maintain a tooth has no benefit to planned prosthetic treatment
- An alternative treatment is more appropriate for a patient's condition or circumstance based on accepted standards of care

Bone Graft in Conjunction with Periradicular Surgery (D3428-D3429)

Periradicular surgery sites are generally expected to heal successfully without bone grafting. However, in specific clinical situations, grafting may improve outcomes with certain types of lesions. In some cases, bone grafting may be combined with application of guided tissue regeneration techniques.

- *Indications for performing a bone graft in conjunction with periradicular surgery may include:*

- Through and through defects
- Apico-marginal defects

- *Contraindications to performing a bone graft in conjunction with periradicular surgery may include:*

- A periradicular surgery site is expected to heal without bone grafting

- A tooth has insufficient sound tooth structure for successful restoration
- A tooth has a terminal periodontal condition that precludes maintaining the tooth in function
- An alternative treatment is more appropriate for a patient's condition or circumstance based on accepted standards of care

Retrograde Filling (D3430)

Retrograde filling refers to the process steps during periradicular surgery after root-end resection where a preparation is made in the root end and a biologically compatible filling material is placed in the preparation. The primary objective of placing a retrograde filling is to create a seal between the root canal system and the periodontal tissues to allow periradicular pathology to heal and to prevent future disease.

- *Indications for performing a retrograde filling may include:*
 - As required during periradicular surgery to fill/repair root-end resection, root perforation and/or a resorptive defect
- *Contraindications to performing a retrograde filling may include:*
 - Inability to obtain an adequate depth of filling material
 - A tooth with insufficient sound tooth structure for successful restoration
 - A tooth with an untreatable periodontal condition that precludes maintaining the tooth in function
 - An alternative treatment is more appropriate for a patient's condition or circumstance based on accepted standards of care

Biologic Materials in Conjunction with Periradicular Surgery (D3431)

Biologic materials have demonstrated efficacy in certain clinical circumstances in aiding periodontal tissue regeneration. These materials may be used alone or in combination with bone grafting and/or guided tissue regeneration. When added to a periodontal defect site, these biologics may stimulate periodontal regeneration and facilitate more predictable regenerative outcomes through the provision of growth factors, scaffolding for the cells for bone growth and/or other augmentation to a site. Based on current evidence, the efficacy of utilizing currently available biologic materials in conjunction with endodontic periradicular surgery has not been clearly demonstrated, whether used alone or in combination with bone grafting and/or guided tissue regeneration. Delta Dental will consider documentation from relevant clinicians that explains the clinical necessity of utilizing biologic materials with endodontic surgery, including a description of the type of defect and the nature of the biologic material used.

Guided Tissue Regeneration in Conjunction with Periradicular Surgery (D3432)

Periradicular surgery sites are generally expected to heal successfully without the application of guided tissue techniques. However, in specific clinical situations, utilization of guided tissue regeneration may improve outcomes with certain types of lesions. In some cases, the application of guided tissue regeneration techniques may be combined with bone grafting.

- *Indications for performing guided tissue regeneration in conjunction with periradicular surgery may include:*
 - Through and through defects
 - Apico-marginal defects
- *Contraindications to performing guided tissue regeneration in conjunction with periradicular surgery may include:*
 - A periradicular surgery site is expected to heal without application of guided tissue regeneration
 - A tooth with insufficient sound tooth structure for successful restoration
 - A tooth with an untreatable periodontal condition that precludes maintaining the tooth in function

This document contains proprietary information of Delta Dental of Michigan and may not be copied, distributed, republished, licensed, uploaded, posted, or transmitted in any way, without our prior written consent.

- An alternative treatment is more appropriate for a patient's condition or circumstance based on accepted standards of care

Root Amputation (D3450)

Root amputation (root resection) generally involves removing a root of a multi-rooted tooth while leaving the involved tooth's crown intact and supported by one or more remaining roots. The associated pulp chamber is generally sealed with a biologically compatible material. If a hemisection is performed involving separation of both the root and crown portions of a multi-rooted tooth into separate sections, the D3920 procedure code should be utilized.

- *Indications for performing a root amputation may include (if the remaining root structure is in a satisfactory condition):*
 - Periradicular pathology, fracture, injury, resorption or other defect where non-surgical or surgical treatment is not possible
- *Contraindications to performing a root amputation may include:*
 - The remaining root structure is in an unsatisfactory condition
 - A tooth with insufficient sound tooth structure for successful restoration
 - A tooth with an untreatable periodontal condition that precludes maintaining the tooth in function
 - An alternative treatment is more appropriate for a patient's condition or circumstance based on accepted standards of care

Endodontic Endosseous Implant (D3460)

Endodontic endosseous implants extend from the pulpal space of a tooth through the root apex into the bone beyond the end of the root. The main use of the endodontic implant has been to stabilize a tooth with an unfavorable crown-to-root ratio. The procedure is generally considered to be outmoded compared with advancements in modern implantology and prosthetics. If received, requests for endodontic endosseous implant benefits will be reviewed for dental plan coverage, utilization of the appropriate procedure code nomenclature and descriptor and clinical appropriateness for the patient's condition.

Intentional Re-implantation (D3470)

Intentional reimplantation generally involves the intentional atraumatic removal of a tooth from its alveolus. After removal, the root is inspected with the objective of performing treatment such as root-end filling or repair of a root perforation, followed by repositioning the tooth back into its alveolus. Depending on its condition, the reimplanted tooth may be splinted to adjacent teeth.

- *Indications for performing intentional re-implantation may include:*
 - Non-surgical endodontic retreatment or periradicular surgery is necessary but is not possible, e.g., due to a lack of access or an unacceptable risk of damage to adjacent structures
- *Contraindications to performing intentional re-implantation may include:*
 - Tooth removal presents an unacceptable risk of fracture
 - A tooth with insufficient sound tooth structure for successful restoration
 - A tooth with an untreatable periodontal condition that precludes maintaining the tooth in function
 - An alternative treatment is more appropriate for a patient's condition or circumstance based on accepted standards of care

Surgical Repair of Root Resorption (D3471-D3473)

Surgical repair of root resorption generally involves creating surgical access to a resorptive defect, removal of the resorbed part of the root, debridement of the area and placement of a biocompatible material, followed by closure of the surgical entry. The objective of the treatment is to inactivate the resorption process so that the tooth can be maintained in function. The surgery may be combined with root canal therapy if the pulp is involved.

- *Indications for performing surgical repair of root resorption may include:*
 - When root resorption cannot be treated non-surgically
- *Contraindications to performing surgical repair of root resorption may include:*
 - Resorption can be treated non-surgically
 - Lack of surgical access, e.g., surgery presents a risk of damage to adjacent tissues
 - A tooth with insufficient sound tooth structure for successful restoration
 - A tooth with an untreatable periodontal condition that precludes maintaining the tooth in function
 - An alternative treatment is more appropriate for a patient's condition or circumstance based on accepted standards of care

Surgical Exposure of Root Surface without Apicoectomy or Repair of Root Resorption (D3501-D3503)

Surgical exposure of root surface generally involves creating surgical access to expose the root surface of a tooth for observation, followed by closure of the surgical entry.

- *Indications for performing surgical exposure of root surface without apicoectomy or root resorption repair may include:*
 - A root fracture, perforation or other pathology is suspected and cannot be diagnosed through other means
- *Contraindications to performing surgical exposure of root surface without apicoectomy or root resorption repair may include:*
 - When other non-surgical diagnostic methods are effective
 - Lack of surgical access, e.g., surgery presents a risk of damage to adjacent tissues
 - A tooth with insufficient sound tooth structure for successful restoration
 - A tooth with an untreatable periodontal condition that precludes maintaining the tooth in function
 - An alternative treatment is more appropriate for a patient's condition or circumstance based on accepted standards of care

Other Criteria

Depending on an individual patient's condition and circumstances, the following additional criteria for surgical endodontic treatment may be applied for coverage determinations:

- A biopsy is advised as part of periradicular surgery if an adequate sample can be obtained from the surgical site, particularly in the case of a persistent periapical lesion, a periapical lesion that has an atypical appearance or progression or when the patient has a medical history where a biopsy to rule out a lesion of non-endodontic origin is warranted.
- Non-surgical retreatment of previous root canal therapy should be considered over surgical endodontic treatment if technical failings in the original treatment are evident and there is access to the root canals with potential for improvement in cleaning, shaping, obturation and sealing of the root canals.

- Extraction and replacement of the tooth (e.g., restoration of function with an implant) should be considered as an alternative to surgical endodontic treatment when a tooth has insufficient sound tooth structure for it to be successfully restored, untreatable periodontal disease that precludes maintaining the tooth in function, a complication where surgical endodontic treatment is likely to have a poor outcome or other condition where the prognosis for maintaining the tooth is poor.
- Coverage of surgical endodontic treatment and associated diagnostic and restorative procedures depends on whether an individual's dental benefit program allows, limits or excludes benefits for a particular service. A dental benefit program may allow coverage only for specific patient conditions and/or procedures, or may exclude coverage in all circumstances. Delta Dental must determine the eligibility of surgical endodontic treatment for benefit payment based on the provisions of an individual's specific dental benefit program.
- When dental benefit programs have established program-specific criteria that define when surgical endodontic treatment is considered medically necessary and eligible for benefit coverage, or that place other limitations on coverage, Delta Dental will apply that criteria when there is a need to evaluate surgical endodontic treatment for medical necessity.

Other Considerations

When the payment of benefits for a dental procedure by a member's dental plan depends on the application of clinical criteria to determine whether the procedure is medically necessary or clinically appropriate, the following additional information will be taken into consideration, if applicable:

- Individual patient characteristics including age, comorbidities, complications, progress of treatment, psychosocial situation and home environment
- Available services in the local dental delivery system and their ability to meet the member's specific dental care needs when clinical criteria are applied

Required Documentation

The decision to perform surgical endodontic treatment on a patient should be based on a thorough clinical and radiographic examination that facilitates the formulation of an appropriate treatment plan. When the payment of benefits for surgical endodontic treatment by a member's dental plan depends on a review of the procedure's medical necessity and clinical appropriateness, the treating practitioner should submit with the claim the following information as applicable from the patient's dental record. If the practitioner is unable to provide this information, benefit payment may be disapproved.

- Imaging appropriate to the affected area and surgical procedure showing apical anatomy adequate to support lesion evaluation, treatment planning and surgery.
- Explanation of the diagnostic rationale for providing surgical endodontic treatment specific to the particular patient and treatment episode where the treatment was deemed to be required.
- Relevant information from the patient's record that substantiates the need for surgical endodontic treatment, such as continuing pain, swelling and/or drainage after non-surgical endodontic therapy, refractory periapical radiolucency, inaccessible root canal anatomy, cystic lesion, separated root canal file and/or root canal obturation with gross overfilling.

When determining coverage based on medical necessity or clinical appropriateness, Delta Dental may request other clinical information relevant to a patient's care if needed to make coverage decisions.

Additional Information

The provision of dental advice and clinical treatment of patients is the sole responsibility of treating dentists, and these clinical criteria are not intended to restrict dentists from carrying out that responsibility or recommend treatment to their patients.

Delta Dental's clinical criteria are developed and annually updated by a panel of licensed dental general practitioners and specialists serving on Delta Dental's Utilization Management (UM) Committee, including the Dental Director and Utilization Management Director. The criteria are developed in alignment with evidence-based clinical recommendations, guidelines and parameters of care of leading nationally recognized dental public health organizations, health research agencies and professional organizations, credible scientific evidence published in peer-reviewed medical and dental literature, the curriculum of accredited dental schools, the regulatory status of relevant dental technologies, the rules and requirements of the Centers for Medicare and Medicaid Services, Delta Dental national processing policies and input from practicing dentists. New and revised clinical criteria must be approved by the Dental Director and adopted by the UM Committee prior to release.

Federal or state statutes or regulations, dental plan contract provisions, local or national claim processing policies or other mandated requirements may take precedence over these clinical criteria.

Delta Dental reserves the right to modify or replace this document at any time as appropriate to ensure the soundness, accuracy and objectivity of Delta Dental's clinical criteria.

References

- American Association of Endodontists. A Concise Guide to Pathology within Endodontics. (2021). <https://www.aae.org/specialty/a-concise-guide-to-pathology-within-endodontics/>
- American Association of Endodontists. Glossary of Endodontic Terms. (2020). <https://www.aae.org/specialty/clinical-resources/glossary-endodontic-terms/>
- American Association of Endodontists. Guide to Clinical Endodontics, 6th edition. (2013). <https://www.aae.org/specialty/clinical-resources/guide-clinical-endodontics/>
- American Association of Endodontists. Periapical Microsurgery: Embracing the Renaissance. (2021). <https://www.aae.org/specialty/periapical-microsurgery-embracing-the-renaissance/>
- American Association of Endodontists. Periapical Microsurgery: To Graft or Not To Graft. (2024). <https://www.aae.org/specialty/periapical-microsurgery-to-graft-or-not-to-graft/>
- American Association of Endodontists; American Academy of Oral and Maxillofacial Radiology. AAE and AAOMR Joint Position Statement: Use of Cone Beam Computed Tomography in Endodontics 2015 Update. *Oral Surg Oral Med Oral Pathol Oral Radiol.* 2015 Oct;120(4):508-12.
- American Dental Association, CDT 2026: Current Dental Terminology. American Dental Association, Chicago, IL, 2025.
- Baruwa AO, et al. Management of Apico-marginal Defects With Endodontic Microsurgery and Guided Tissue Regeneration: A Report of Thirteen Cases. *J Endod.* 2023 Sep;49(9):1207-1215.
- Becker BD. Intentional Replantation Techniques: A Critical Review. *J Endod.* 2018 Jan;44(1):14-21.
- Berman LH, Hargreaves KM. *Cohen's Pathways of the Pulp.* 12th ed. Elsevier; 2021.
- Chen Y et al. A Review of External Cervical Resorption. *J Endod.* 2021 Jun;47(6):883-894.

This document contains proprietary information of Delta Dental of Michigan and may not be copied, distributed, republished, licensed, uploaded, posted, or transmitted in any way, without our prior written consent.

Deng Y, et al. The Effect of Regeneration Techniques on Periapical Surgery With Different Protocols for Different Lesion Types: A Meta-Analysis. *J Oral Maxillofac Surg.* 2016 Feb;74(2):239-46.

Kohli MR, et al. Outcome of Endodontic Surgery: A Meta-analysis of the Literature-Part 3: Comparison of Endodontic Microsurgical Techniques with 2 Different Root-end Filling Materials. *J Endod.* 2018 Jun;44(6):923-931.

Larsen RM, et al. Endodontic endosseous implants: case reports and update of material. *J Endod.* 1989 Oct;15(10):496-500.

Patel S, et al. European Society of Endodontology position statement: External Cervical Resorption. *Int Endod J.* 2018 Dec;51(12):1323-1326.

Patel S, et al. European Society of Endodontology position statement: use of cone beam computed tomography in endodontics: European Society of Endodontology (ESE) developed by. *Int Endod J.* 2019 Dec;52(12):1675-1678.

Plotino G, et al. European Society of Endodontology position statement: Surgical extrusion, intentional replantation and tooth autotransplantation: European Society of Endodontology developed by. *Int Endod J.* 2021 May;54(5):655-659.

Ricucci D, et al. Extraradicular infection as the cause of persistent symptoms: a case series. *J Endod.* 2015 Feb;41(2):265-73.

The Royal College of Surgeons of England, Faculty of Dental Surgery. (2020). Guidelines for Surgical Endodontics. https://www.rcseng.ac.uk/-/media/Files/RCS/FDS/Publications/Periradicular_Surgery_Guidelines_2020.pdf

Sabeti M, et al. Optimizing Endodontic Surgery: A Systematic Review of Guided Tissue Regeneration, Grafting, and Platelet Concentrates vs. No Intervention. *Dent J (Basel).* 2025 Feb 20;13(3):91.

Safi C, et al. Outcome of Endodontic Microsurgery Using Mineral Trioxide Aggregate or Root Repair Material as Root-end Filling Material: A Randomized Controlled Trial with Cone-beam Computed Tomographic Evaluation. *J Endod.* 2019 Jul;45(7):831-839.

Setzer FC, et al. Outcome of endodontic surgery: a meta-analysis of the literature--part 1: Comparison of traditional root-end surgery and endodontic microsurgery. *J Endod* 2010 Nov;36(11):1757-65.

Setzer FC, et al. Outcome of endodontic surgery: a meta-analysis of the literature--Part 2: Comparison of endodontic microsurgical techniques with and without the use of higher magnification. *J Endod.* 2012 Jan;38(1):1-10.

Setzer FC, Kratchman SI. Present status and future directions: Surgical endodontics. *Int Endod J.* 2022 Oct;55 Suppl 4:1020-1058.

Sperou C, et al. Evaluating Outcomes and Prognostic Factors in Endodontic Microsurgery: A Retrospective Cohort Study. *J Endod.* 2025 Sep;51(9):1187-1198.

Torabinejad M, White SN. Endodontic treatment options after unsuccessful initial root canal treatment: Alternatives to single-tooth implants. *J Am Dent Assoc.* 2016 Mar;147(3):214-20.

Tsesis I, et al. Effect of guided tissue regeneration on the outcome of surgical endodontic treatment: a systematic review and meta-analysis. *J Endod.* 2011 Aug;37(8):1039-45.

Weine FS, Frank AL. Survival of the endodontic endosseous implant. *J Endod.* 1993 Oct;19(10):524-8.