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Endodontic treatment in the conditions of type I dentinal dysplasia: features and applicability of practical approaches

Izzet Yavuz^{A, C, E, F}

PhD, Full Professor, Department of Pedodontics, Dicle University, Diyarbakir, Turkey
ORCID ID: 0000-0001-6953-747X

Özkan Adıgüzel^{A, C, E, F}

PhD, MD, Professor, Department of Endodontics, Faculty of Dentistry, University of Dicle, Diyarbakir, Turkey
ORCID ID: 0000-0001-6089-3013

Myroslav Goncharuk-Khomyn^{A, B, C, D, E, F}

PhD, DDS, Associate Professor, Department of Restorative Dentistry, Uzhhorod National University, Uzhhorod, Ukraine
ORCID ID: 0000-0002-7482-3881

Anastasiia Bilej^{A, B, C, D, F}

PhD-student, DMD, Department of Surgical Dentistry and Clinical Disciplines, Uzhhorod National University, Uzhhorod, Ukraine
ORCID ID: 0009-0002-7673-6930

Maryana Baleha^{B, E, F}

Candidate of Medical Sciences, Associate Professor, Department of Restorative Dentistry, Uzhhorod National University, Uzhhorod, Ukraine
ORCID ID: 0000-0001-8440-1298

Vladyslav Baranets^{B, E, F}

PhD-student, DMD, Department of Restorative Dentistry, Uzhhorod National University, Uzhhorod, Ukraine
ORCID ID: 0009-0006-8863-7605

Corresponding author. Myroslav Goncharuk-Khomyn, Department of Restorative Dentistry, Uzhhorod National University, University Str., 16a, Transcarpathian region, Uzhhorod, 88000 Ukraine
E-mail: myroslav.goncharuk-khomyn@uzhnu.edu.ua

A – research concept and design; B – collection and/or assembly of data; C – data analysis and interpretation; D – writing the article; E – critical revision of the article; F – final approval of article

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Abstract

Background. Endodontic therapy within dentinal dysplasia conditions represents an overly complex clinical domain that integrates both diagnostic challenges and technical limitations. Understanding these challenges is essential for optimizing treatment strategies, preventing iatrogenic complications, and improving long-term outcomes in affected patients.

Objective. To assess and systematize practical diagnostic, technical and treatment considerations that potentially may optimize endodontic procedures provided within the conditions of dentinal dysplasia, and stratify evidence-based impact of such considerations taking into account their origin within the pool of available literature data.

Materials and Methods. Comprehensive literature review was based upon broad search strategy, which was adopted to maximize sensitivity and inclusiveness. The primary database used for the search was PubMed with the use of Medical Subject Headings (MeSH), while to enhance coverage and minimize the risk of missing pertinent articles not yet indexed or published in lower-impact outlets, supplementary searches were also performed via the Google Scholar platform.

Results. Following the exclusion of non-relevant records, duplicates, and articles that, upon content analysis, were determined to be unrelated to the defined research aim, final study cohort was refined to 10 publications, all of which consisted exclusively of case reports. Analysis of available evidence demonstrated substantial heterogeneity in the reported outcomes of endodontic treatment among patients affected by dentinal dysplasia. Overall, the evidence demonstrates temporal transition from consistently poor outcomes with conventional methods, through a period dominated by extractions and restorative strategies, to the emergence of guided endodontics as the potential reliably successful modality for the management of dentinal dysplasia. Nevertheless, the majority of published cases reported high rates of treatment failure.

Conclusion. Provided analysis revealed that endodontic treatment of teeth with signs of dentinal dysplasia represents significant clinical challenges related with difficulties to identify root canal orifices, obtain apical patency, retain anatomically-driven trajectory of instrumentation and prevent complications linked with unreasonable loss of dentine structure, perforations, ledges and instruments fracture. Conventional instrumentation approaches, which previously have been applied for the teeth with obliterations and curvatures, while also for management of ledges, may serve as first line treatment options, considering their conservative nature.

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Introduction

Dental dysplasia is a rare hereditary disturbance of dentin formation with prevalence rate of nearby 1:100000 characterized by abnormal root development, pulp space obliteration, and progressive calcification of endodontic system [1, 2, 3].

Three theories of dental dysplasia development are relevant nowadays: presence of several degenerative foci in dental papilla, too soon invagination of the root sheath with the defect within epithelial component causing attempts of self correction which ends up in non-physiological dentine deposition pattern, and displacement of developing dental organ's inner cells with further proliferation at their non-usual position as prerequisite for ectopic dentine formation [1, 4, 5, 6, 7, 8].

In the context of endodontics type I of dental dysplasia represents more clinical relevance, since this type is linked with root dentine changes, while type II linked with crown dentine disturbances, and usually endodontic treatment of such do not present too much challenges, even though sometime clinician should deal with denticles and pulp chamber obliterations of significant matter [3, 4, 8, 9, 10]. Luder et al. proposed to consider dental dysplasia type I as disorder of root development associated with general tooth dysplasia [1].

Although dental dysplasia prevalence in the general population is relatively low, the condition presents considerable clinical challenges, particularly when endodontic intervention is required [1, 3, 5]. Affected teeth frequently exhibit normal coronal morphology but demonstrate extremely short, malformed, or dilacerated roots (or even complete deficiency of root formation in general), often accompanied by obliterated or crescent-shaped pulp chambers, and typical organization of root dentine is generally typically lost [5]. These structural anomalies substantially compromise both diagnosis and treatment, positioning dental dysplasia as one of the most complex clinical entities in contemporary endodontics [1, 3, 5]. Even though there are several approaches available to classify cases with dental dysplasia, it should be kept in mind that different subtypes of such anomaly may be registered among different teeth simultaneously at the same patient [5, 6, 9].

Survey provided among 64 dentists revealed that even though most of them have heard about dental dysplasia before, if cases of such will be linked with multiple radiolucency and necrotic teeth 90.6% of clinicians would rather monitor the condition, than provide any intervention [12].

Despite technological advances, treatment outcomes remain uncertain, as high-level evidence regarding endodontic prognosis in dental dysplasia cases is scarce [3, 5]. Teeth affected by dental dysplasia possess inherently fragile roots due to shortened length, thin dentinal walls, and abnormal histological composition. Any attempt at aggressive canal negotiation or dentin removal heightens the probability of weakening the root, potentially predisposing it to vertical root fracture or catastrophic structural failure under functional load in future [3, 8]. This problem is further exacerbated by the presence of multiple curvatures and constrictions within the root, which concentrate mechanical stress during instrumentation.

Thus, endodontic therapy within dental dysplasia conditions represents an overly complex clinical domain that integrates both diagnostic challenges and technical limitations. Understanding these challenges is essential for optimizing treatment strategies, preventing iatrogenic complications, and improving long-term outcomes in affected patients.

Objective

To assess and systematize practical diagnostic, technical and treatment considerations that potentially may optimize endodontic procedures provided within the conditions of dental dysplasia, and stratify evidence-based impact of such considerations taking into account their origin within the pool of available literature data.

Materials and Methods

Literature Search and Data Collection

Comprehensive bibliographic search was undertaken to identify publications relevant to the objectives of the present investigation, which was primarily focused on the diagnostic and therapeutic considerations associated with endodontic treatment in teeth affected by dental dysplasia type I. Recognizing the rarity of this condition and the consequent scarcity of high-quality evidence, broad search strategy was adopted to maximize sensitivity and inclusiveness. Primary database used for the search was PubMed (<https://pubmed.ncbi.nlm.nih.gov/>), which remains the most authoritative repository for biomedical literature indexed with Medical Subject Headings (MeSH). To enhance coverage and minimize the risk of missing pertinent articles not yet indexed or published in lower-impact outlets, supplementary searches were also performed via the Google Scholar platform (<https://scholar.google.com/>).

For PubMed, the search algorithm employed a combination of MeSH terms and free-text keywords designed to capture the full spectrum of relevant literature. The Boolean query was constructed as follows: ("dentin dysplasia"[MeSH Terms] OR ("dentin"[All Fields] AND "dysplasia"[All Fields]) OR "dentin dysplasia"[All Fields]) AND ("endodontics"[MeSH Terms] OR "endodontic treatment"[All Fields] OR "root canal therapy"[All Fields]). Such strategy allowed for inclusion of both classical and contemporary terminology while accommodating the variability in indexing across different time periods and journals. No temporal restrictions were applied to ensure that historical as well as recent reports were captured, reflecting the evolution of diagnostic and therapeutic paradigms. Only publications written in English, or those providing at minimum an English-language abstract, were considered for inclusion to facilitate reliable data extraction and interpretation.

Given the extremely limited body of evidence in this niche field, exclusion of studies based on strict methodological quality criteria (e.g., randomized controlled trial design, sample size thresholds) was deliberately avoided. Instead, all accessible reports, including clinical case reports, case series, observational studies, and review articles, were considered eligible. Heterogeneity of the literature was acknowledged, and the subsequent synthesis was therefore structured around thematic and descriptive content analysis rather than meta-analysis.

Data extraction was oriented toward several predefined domains:

1. Technical challenges, such as difficulties in orifice localization, apical patency acquisition, and maintenance of canal trajectory in the presence of obliteration or abnormal curvatures.
2. Treatment approaches, with special focus on the comparative application of conventional manual and rotary instrumentation, adjunctive use of ultrasonic tips, guided endodontics, and periapical microsurgery as alternative or salvage procedures.
3. Treatment outcomes, including rates of procedural complications, success rates of conservative orthograde treatment, and indications for surgical or extraction-based management.

All numerical values, categorical data, and descriptive observations were systematically tabulated and organized using Microsoft Excel (Microsoft Corporation, Redmond, WA, USA). The extracted data were grouped according to study design, type of intervention, and clinical outcome, which enabled comparative appraisal and facilitated structured synthesis. Functions within the spreadsheet software were employed to categorize cluster, and cross-reference variables, allowing for the identification of trends, recurring patterns, and knowledge gaps. This structured approach was intended not only to summarize the available evidence but also to highlight methodological deficiencies in the literature and to outline directions for future research.

Results

Primary pool of publications identified using pre-formed Mesh-terms algorithm within PubMed database included 26 items, distribution of which by the year of publication presented on Figure 1.

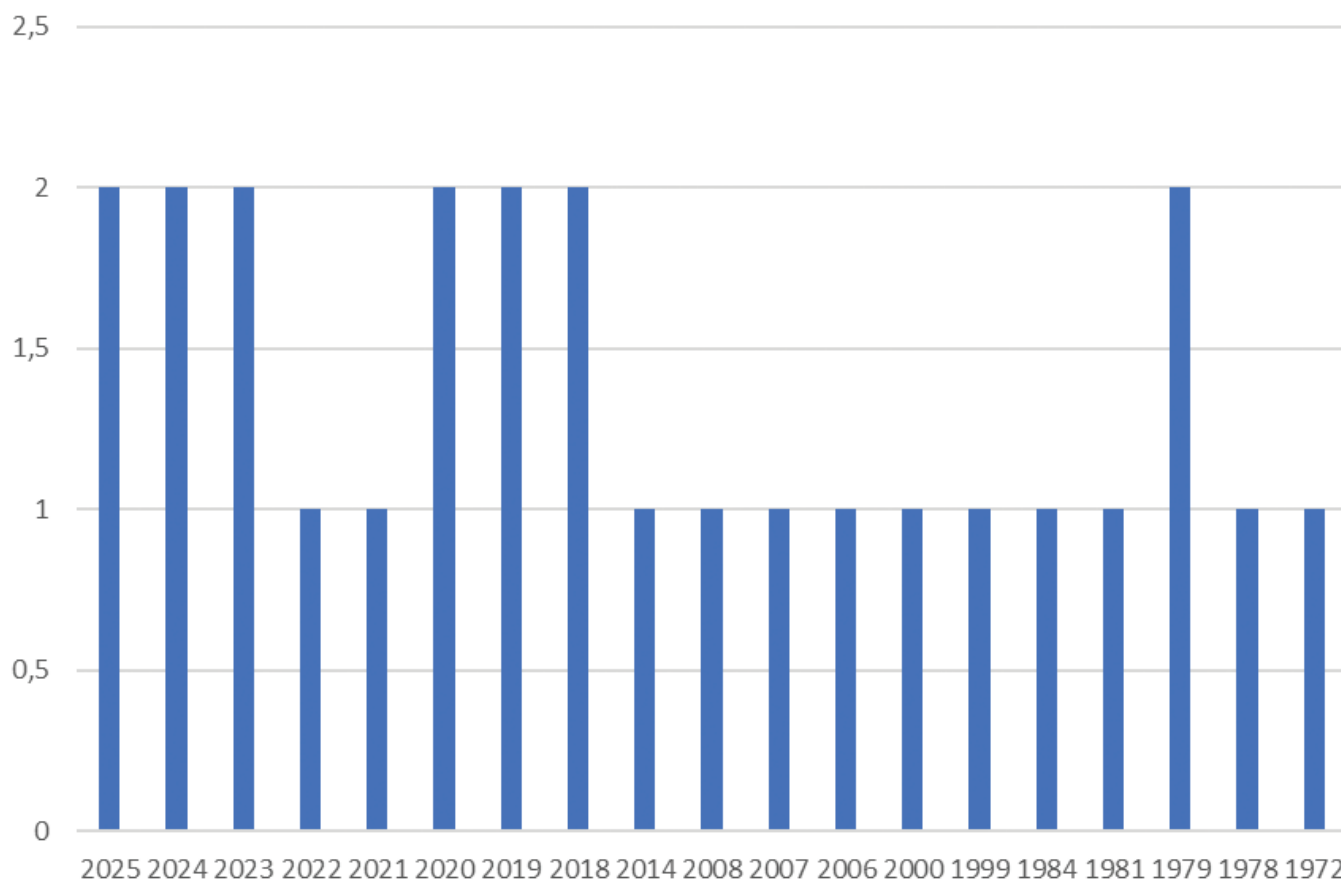


Figure 1. Distribution of relevant publications found within PubMed database by the year of publication

Additional search conducted through the Google Scholar database yielded 16 further publications relevant to the research objective, which had not been identified during the initial PubMed screening. Following the exclusion of non-relevant records, duplicates, and articles that, upon content analysis, were determined to be unrelated to the defined research aim, the final study cohort was refined to 10 publications, all of which consisted exclusively of case reports.

Analysis of available evidence demonstrated substantial heterogeneity in the reported outcomes of endodontic treatment among patients affected by dentinal dysplasia. In several case reports, conventional endodontic access was either unachievable, unsuccessful or resulted in iatrogenic complications such as perforations, highlighting the technical limitations of traditional approaches [13, 14, 15]. In cases where root canals were accessible, the outcomes varied widely, ranging from successful obturation and preservation of teeth to the necessity for extraction due to progressive pulp necrosis, periapical pathology, or excessive root canal obliteration [13, 14, 15, 16].

Advanced techniques, including guided endodontics supported by CBCT-based planning and intraoral surface scans, provided improved precision in canal localization and instrumentation, and were associated with more favorable treatment outcomes compared to conventional methods [3]. Nevertheless, the majority of published cases reported high rates of treatment failure. In several reports, extraction with subsequent prosthetic rehabilitation remained the only viable option [16, 17].

Also analysis of the included case reports revealed clear time-dependent changes in the management of dentinal dysplasia. Between 1979 and 1984, treatment strategies relied predominantly on conventional endodontic access, straight-line preparations, and surgical interventions with retrograde amalgam fillings [8, 13, 14, 15]. These approaches were largely unsuccessful, with incomplete canal

obturation, perforations, and progression to extraction being the most frequent outcomes. During the 1990s and early 2000s, clinical practice shifted toward extraction and prosthetic replacement in cases where endodontic access was not feasible. Although isolated attempts at conventional endodontics (e.g., step-back preparation and warm lateral obturation) achieved partial success, the overall prognosis remained unfavorable, and extractions were common [17, 18, 5]. From 2020 onward, a significant improvement in outcomes was observed with the introduction of digitally guided endodontics [3]. Integration of cone-beam computed tomography (CBCT), intraoral scanning (IOS), and customized drill paths facilitated precise canal localization and predictable instrumentation [3]. These innovations enabled successful obturation and reduced the risk of iatrogenic complications, representing a major advancement compared with all previously reported approaches.

Overall, the evidence demonstrated temporal transition from consistently poor outcomes with conventional methods, through a period dominated by extractions and restorative strategies, to the emergence of guided endodontics as the relatively reliable successful modality for the management of dentinal dysplasia.

Detailed information regarding endodontic treatment approaches realized for the cases with diagnosed dentinal dysplasia type 1, which were described in previous publications presented in Table 1.

Discussion

Endodontic management of dentinal dysplasia cases hindered by several interrelated factors [12, 13, 14, 15]. Obliteration of the pulp chamber and root canals frequently impedes canal orifice localization, while the absence of a continuous and predictable canal trajectory complicates instrumentation and compromises apical patency [7, 18]. Additionally, aberrant root morphology with

Table 1. Detailed information on endodontic treatment approaches provided for the cases of dentinal dysplasia

Authorship (Year)	Study design	Patient characteristics	Endodontic treatment approach	Outcome/Remarks
Tidwell et al. (1979) [8]	Case report	23-year-old male, signs of both Type I and Type II dysplasia; abnormal root morphology, chevron-shaped pulp chambers, obliterated canals, apical radiolucencies	Conventional access + straight-through preparation of root with #2 carbide bur to the estimated canal length (estimated by X-ray), NaOCl (2.75%), GP vertical compaction + Grossman's sealer; apical curettage + amalgam retrofill	Only coronal chamber obturated in some cases, while straight-through preparation of root does not always coincide with canal trajectory; poor overall prognosis
Coke et al. (1979) [13]	Case report	24-year-old female; mandibular central incisors with periapical radiolucencies	Attempted orthograde via lingual access; unsuccessful → periapical surgery with amalgam retrofill	Orthograde attempt failed; surgical approach necessary
Steidler et al. (1984) [14]	Case report	3 patients (13–15 yrs); several teeth affected	Temporary dressings, retrograde obturation, periapical curettage	Unsuccessful; necrosis progression, extractions required
Rankow et al. (1984) [15]	Case report	2 males (15–17 yrs); mandibular premolar and lateral incisor	Attempted conventional access (#6 round bur, canals accessible only on limited depth); flap reflection, curettage, amalgam retrofill	Endodontic access impossible; surgical retrofill with limited success
Shankly et al. (1999) [16]	Case report	7-year-old male; maxillary incisor, complete chamber obliteration, periapical swelling	Extraction; immediate partial denture	Extraction inevitable
Ozer et al. (2004) [17]	Case report	2 patients (10 and 16 yrs); several teeth affected	Teeth extracted due to mobility/caries; no detailed endodontics	Endodontic therapy not attempted
Ravanshad et al. (2006) [18]	Case report	22-year-old female; multiple periapical lesions (11, 12, 14–17, 22, 25–27, 31, 34–35, 37, 45, 47)	Step-back preparation, NaOCl (2.5%), warm lateral condensation GP + Roth's 801 sealer; if the root canals were non-accessible, penetration attempt was made and then root canal was obturated to established depth of penetration	Mixed: some teeth successfully treated; some teeth required extraction
Alhilou et al. (2018) [19]	Case report	23-year-old female; multiple teeth affected	Restorative approach, extractions of teeth with pulpal involvement; no endodontic therapy	Restorative focus; no conventional endodontics provided
Buchanan et al. (2020) [5]	Case report	20-year-old female; mandibular canine & lateral incisor; generalized pulp stones; "stream around boulders" X-ray pattern of representation	DOM, long-shank burs, ultrasonic tips, C+ files, WaveOne Gold, ProTaper Gold, NaOCl (3.5%), EDTA (17%), GP + GuttaFlow Bioseal	Endodontic access extremely challenging; prognosis limited
Krug et al. (2020) [3]	Case report	12-year-old female; multiple teeth with apical radiolucencies	Guided endodontics: CBCT + IOS planning, customized drill, NiTi files, sonic irrigation, NaOCl (3%), warm vertical GP + AH Plus	Successful outcome; guided approach enabled precise access, minimized perforation risk

severe curvatures and constrictions elevates the risk of procedural complications such as perforations, ledge formation, and instrument separation. Ranjitkar S. et al. using 3D micro-computed tomography revealed that tooth affected by dentinal dysplasia characterized with complex root canal system with fine portals interconnecting vertical, oblique and horizontal canals, which limits possibilities for its 3D instrumentation and obturation [7]. Also because of deficiency of regular tubular morphology dysplastic dentine is softer, and thus more prone to the perforation even during the usage of endodontic instrument conventional for root canal scouting [3]. Preservation of the already fragile dentin structure is another critical consideration, as excessive dentin removal in an attempt to negotiate obliterated canals may precipitate structural failure or vertical root fracture [1, 2, 3].

Characteristics of different subtypes of dentinal dysplasia type I presented in Table 2 [1, 2, 3].

Mechanism of pulp involvement in cases of dentinal dysplasia may be linked with classical pathways of pulpal bacterial penetration,

however in case report of Buchanan et al. it was highlighted that periapical lesions in the projection of teeth affected by dentinal dysplasia sometime found accidentally on the X-rays, even though crown part of tooth does not demonstrate any signs of deep restoration or advanced caries [5]. "Stream flowing around boulders" X-ray representation pattern may be noted among teeth with dentinal dysplasia accompanied with severe calcification present in some teeth [1, 2]. Present dentinal islands, or "floating" pulp stones, which may compromise perfusion of pulp tissue of teeth affected by dentinal dysplasia also may be interpreted as cause of non-bacterial pulp necrosis in cases of dental dysplasia [1, 2]. Disturbance in pulpal blood circulation and inadequate nutritional support of the dental pulp, on the other hand predisposing it to bacterial invasion and subsequent bacteremia in cases of dentinal dysplasia [18]. So, it may be resumed, that dentinal dysplasia itself creates a structural environment that is particularly favorable to microbial penetration. Moreover, pulp chamber is often distorted by abnormal dentin apposition, while the absence of intratubular fluid weakens the

Table 2. Classification and radiographic feature of dentinal dysplasia type I

Subtype	Radiographic characteristics	Periapical radiolucencies
DD-Ia	Complete absence of root formation; pulp chambers not visible	Frequent
DuDD-Ib	Severely shortened roots; one crescent-shaped pulp chamber	Frequent
DD-Ic	Shortened roots; two crescent-shaped pulp chambers surrounding a central dentinal island	Variable occurrence
DD-Id	Normal root length; generalized pulp stones with characteristic “stream flowing around boulders” appearance; possible localized root bulging around enlarged stones	Variable occurrence

enamel, increasing its susceptibility to fracture [7]. Microstructural defects, such as enamel microcracks and irregular dentin morphology, may provide direct pathways for bacterial infiltration and further compromise the enamel-dentin interface [7]. In the case report of Buchanan et al. authors presented an interesting finding regarding several teeth have been affected by pulp pathoses one by one (pulpitis in one tooth was occurring sometime after finishing endodontic treatment in previous tooth) without any clinically relevant causes of such [5].

Several previous cases mostly published within the period of 1970-1990's contained assumption that teeth with dentinal dysplasia which characterized with full absence of visualized root canal on the X-ray image and presence of and/or periapical lesions should be extracted, because attempts to provide endodontic treatment may cause significant complications [16, 20]. Modern imaging modalities, particularly cone-beam computed tomography, have become indispensable in the diagnostic phase, allowing clinicians to visualize root architecture in three dimensions and anticipate the presence of curvatures, dilacerations, or canal obliteration [3]. However, the translation of radiographic information into predictable treatment remains problematic. Conventional approaches relying on tactile sensation and radiographic guidance often prove insufficient.

In previously presented case report by Tidwell et al. kind of aggressive approach was used for the endodontic treatment: authors have provided canal preparation on the full length with # 2 carbide bur and irrigate such with 2.75% sodium hypochlorite solution [8]. Obtained results were variable: some teeth demonstrated apical healing, while another – not. Nowadays this kind of procedure may be provided with much higher precision due to the guided endodontic approach. Guided endodontic technique represents an advanced modality for the management of teeth affected by dentinal dysplasia, in which conventional access is complicated by pulpal obliteration and aberrant dentin morphology [3]. By integrating cone-beam computed tomography with intraoral scanning, virtual treatment plan can be generated to design three-dimensional printed templates that accurately direct bur orientation and penetration depth [3]. This workflow enables highly conservative dentin removal, minimizes the risk of iatrogenic complications, and facilitates the localization of calcified canals [21]. Consequently, guided endodontics improves treatment predictability and structural preservation in cases where conventional methods frequently prove unsuccessful [22]. Nevertheless, even though usage of navigation guide may facilitate access to the apical portion of root, final stage of treatment apically should be held with conventional endodontic instruments, which was described in the case report of Krug et al. [3].

The identification and negotiation of root canals in teeth affected by dentinal dysplasia present significantly greater clinical challenge compared to cases of canal obliteration secondary to trauma, caries, vital pulp therapy or age-related changes [1, 2, 23, 24]. In all of mentioned scenarios obliteration of pulp canal have some specific trajectory and progressing from coronal to apical part [23, 24], while in dentinal dysplasia case obliteration of pulp spaces coincides with tooth eruption, so it is not following typical coronal-to-apical progression, but rather demonstrates highly variable expression, ranging from complete obliteration of the endodontic space to

localized calcifications potentially occurring at any region of root portion with different level of manifestation and progression [2, 3, 5, 8]. Thus paradigm of “always present” of at least histologically minimal residual narrow canal, at least at apical portion of root, frequently described in teeth with classical pulp canal calcifications, may not be applicable to teeth affected by dentinal dysplasia [1, 2, 3].

Guideline on dental management of heritable dental developmental anomalies presumed that targeted endodontic negotiating besides present pulp stones and through whorls of tubular dentin may be interpreted as treatment modality for the cases of dentinal dysplasia [25]. But such statement is applicable for the teeth without extra short roots. Endo-targeted treatment options for the short roots of teeth affected by dentinal dysplasia includes periapical curettage and retrograde filling, but such options could not be effectively implemented for the too short roots [26]. Intentional replantation option in cases of dentinal dysplasia may be limited due to the deficient bone support, shortened root length and risk of tooth fracture while providing surgical extraction phase of replantation [8].

It should be highlighted that even with obtainment of good quality obturation supported by effective instrumentation and meticulous irrigation final prognosis of endodontically treated teeth affected by dentinal dysplasia in long term perspective remains unpredictable [3]. Such unpredictable outcome related with the fact that teeth affected by dentinal dysplasia characterized with increased permeability and structural irregularities of hard dental tissues, which in turn makes them more prone for bacterial invasion, ingress and colonization, so even well treated root canal may become recontaminated in the future by the mechanism of secondary infection [3]. Some perspective relies on using highly permeable adhesive-like materials for the obturation of root canals, so such can seal dentine structure in sufficiently deep manner and fill dentinal defects with polymeric matrix.

Another limitation of providing conventional endodontic treatment for the teeth affected by dentinal dysplasia is the length of the roots from biomechanical point of view: if roots are too small, or the case may be interpreted as rootless tooth, endodontic treatment is prohibited due to the critically increased pathological mobility, and any kind of forceful intervention in this scenario may cause iatrogenic avulsion [8, 26]. On the other hand, shorter roots limits possibility to obtain high quality instrumentation and obturation due to the higher chance of abnormal ramifications of the vascular pulpal channels being present, so in this case another than conventional endodontic approach should be considered [14].

Present review is limited primarily by the nature and quality of the available evidence, which consists exclusively of case reports and small case series. Such publications are inherently subject to selection bias, incomplete reporting, and lack of standardized outcome measures, making comparison across studies difficult. The heterogeneity of patient presentations (age, subtype of dentinal dysplasia, number and type of teeth involved) further restricts generalizability. In addition, variability in treatment protocols, ranging from conventional instrumentation to guided endodontics, precludes meta-analytical synthesis and limits conclusions to descriptive trends. Finally, the absence of long-term follow-up data in most reports prevents reliable assessment of treatment durability and prognosis.

Consequently, clinicians often face uncertainty regarding prognosis, complication rates, and long-term survival of endodontically treated teeth affected by dentinal dysplasia. Considering that periapical lesions may develop silently within the teeth with dentinal dysplasia, while also in cases of compromised tooth structure's organization on the background of different anomalies, it may be recommended that person with any kind of hereditary developmental pathologies which potentially may be related with dentinal dysplasia should undergo preventive X-ray diagnostics periodically for the early verification of potential periapical radiolucencies [27, 28].

Conclusion

Endodontic treatment of teeth exhibiting dentinal dysplasia is inherently complex, owing to the difficulty of identifying canal orifices, attaining apical patency, preserving an anatomically appropriate trajectory of instrumentation, and mitigating iatrogenic risks such as excessive dentin sacrifice, perforations, ledge formation, or instrument separation. Dentinal dysplasia is characterized by profound canal obliteration, accentuated curvatures, and root dilacerations, all of which compromise the efficacy of conventional approaches. Cone-beam computed tomography remains an indispensable modality for delineating root architecture and tracing canal pathways within dysplastic dentin. Digitally-enhanced approaches, such as guided endodontics, which require the use of either static or dynamic navigation, seem to be a reliable option for the endodontic treatment of teeth with dentinal dysplasia. Nonetheless, conservative conventional strategies, long applied in the management of canal obliterations, curvatures and ledges, continue to represent viable first-line modalities, considering their conservative nature. In cases where orthograde therapy proves inadequate, periapical microsurgery offers an alternative, whereas extraction should be regarded as the terminal therapeutic recourse.

Conflict of Interest

Authors do not have any potential conflict of interests that may influence the decision to publish this article.

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Ендодонтичне лікування при дисплазії дентину I типу: особливості та практична застосовність клінічних підходів

Іззет Явуз^{A, C, E, F}

PhD, професор, кафедра дитячої стоматології, Університет Діджле, Діярбакир, Туреччина
ORCID ID: 0000-0001-6953-747X

Озкан Адігюзель^{A, C, E, F}

PhD, MD, професор, кафедра ендодонтії, стоматологічний факультет, Університет Діджле, Діярбакир, Туреччина
ORCID ID: 0000-0001-6089-3013

Мирослав Гончарук-Хомин^{A, B, C, D, E, F}

PhD, DDS, доцент, кафедра реставраційної стоматології, Ужгородський національний університет, Ужгород, Україна
ORCID ID: 0000-0002-7482-3881

Анастасія Білей^{A, B, C, D, F}

DMD, аспірант, кафедра хірургічної стоматології та клінічних дисциплін, Ужгородський національний університет, Ужгород, Україна
ORCID ID: 0009-0002-7673-6930

Мар'яна Балеха^{B, E, F}

к.мед.н., доцент, кафедра реставраційної стоматології, Ужгородський національний університет, Ужгород, Україна
ORCID ID: 0000-0001-8440-1298

Владислав Баранець^{B, E, F}

DMD, аспірант, кафедра реставраційної стоматології, Ужгородський національний університет, Ужгород, Україна
ORCID ID: 0009-0006-8863-7605

Відповідальний автор для листування: Мирослав Гончарук-Хомин, кафедра реставраційної стоматології, Ужгородський національний університет, вул. Університетська, 16а, Закарпатська область, Ужгород, 88000, Україна
E-mail address: myroslav.goncharuk-khomyn@uzhnu.edu.ua

A – розробка концепції та дизайну дослідження, B – збір та або систематизація даних дослідження, C – аналіз та тлумачення даних дослідження, D – написання публікації, E – критичне доопрацювання тексту публікації, F – остаточне затвердження.

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дентинна дисплазія,
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ендодонтичне лікування, лікування
кореневих каналів, інструментальна
обробка

Вступ. Ендодонтичне лікування в умовах дентинної дисплазії являє собою надто складну клінічну сферу, яка об'єднує як діагностичні проблеми, так і технічні обмеження. Розуміння цих проблем має важливе значення для оптимізації стратегій лікування, запобігання ятрогеним ускладненням і покращення віддалених результатів у таких пацієнтів.

Мета. Оцінити та систематизувати практичні діагностичні, технічні та лікувальні міркування, які потенційно можуть оптимізувати ендодонтичні процедури, що проводяться в умовах дентинної дисплазії, і стратифікувати доказовий вплив таких міркувань, враховуючи їхнє походження в сукупності наявних літературних даних.

Матеріали та методи. Комплексний огляд літератури ґрунтувався на стратегії широкого пошуку, яка була прийнята для максимізації чутливості та всеосяжності. Основною базою даних, що використовувалася для пошуку, була PubMed з використанням медичних предметних рубрик (MeSH), тоді як для покращення охоплення та мінімізації ризику пропуску відповідних статей, які ще не проіндексовані або опубліковані у виданнях з меншим імпакт-фактором, здійснювався додатковий пошук через платформу Google Scholar.

Результати. Після виключення нерелевантних статей, дублікатів і статей, які за результатами аналізу контенту були визначені як такі, що не пов'язані з визначеною метою дослідження, остаточну когорту досліджень було скорочено до 10 публікацій, усі з яких склалися виключно з описів клінічних випадків. Аналіз наявних даних продемонстрував суттєву неоднорідність у повідомлених результатах ендодонтичного лікування пацієнтів з дентинною дисплазією. Загалом докази демонструють перехід від незмінно поганих результатів звичайних методів, коли домінували видалення зубів та реставраційні стратегії до появи спрямованої ендодонтії, як потенційно надійно успішного методу лікування дисплазії дентина. Тим не менш, більшість опублікованих випадків повідомляли про високий рівень неефективного або невдалого лікування.

Висновки. Проведений аналіз показав, що ендодонтичне лікування зубів з ознаками

дентинної дисплазії становить значні клінічні проблеми, пов'язані з труднощами ідентифікації отворів корневих каналів, досягнення апікальної прохідності, збереження анатомічно орієнтованої траєкторії інструментів та запобігання ускладнень, пов'язаних із необґрунтованою втратою структури дентину, перфораціями, уступами та переломом інструментів. Традиційні інструментальні підходи, які раніше застосовувалися для зубів з облітераціями та викривленнями, а також для лікування уступів, можуть служити варіантами лікування першої лінії, враховуючи їх консервативний характер.

Заява про конфлікт інтересів

Цим автор підтверджує відсутність зв'язку з будь-якою організацією чи компанією, яка може мати будь-який фінансовий або нефінансовий інтерес до матеріалів дослідження, розглянутих в цій статті.

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Заява про фінансування

Не було отримано жодного фінансування для допомоги в підготовці та проведенні цього дослідження, а також для написання цієї статті.