Journal of Chemical Health Risks

www.jchr.org

JCHR (2025) 15(5), 2588-2595 | ISSN:2251-6727

Role of Surgical-Orthodontic Collaboration in Pediatric Dentistry – A Systematic Review

Dr. Bhoomika Kulkarni, Dr. Sejul Jaiswal, Dr. Mayur Pawar

(Received: 25 August 2025 Revised: 27 September 2025 Accepted: 14 October 2025)

KEYWORDS

pediatric dentistry, surgical-orthodontic collaboration, impacted teeth, ankylosed teeth, orthognathic surgery, interdisciplinary treatment

ABSTRACT:

Introduction: Management of complex pediatric dental conditions, including impacted or ankylosed teeth and jaw discrepancies, often requires collaboration between pedodontists, orthodontists, and oral surgeons. Evidence regarding coordinated interdisciplinary approaches is scattered.

Objectives: To systematically evaluate literature on surgical-orthodontic collaboration in pediatric dentistry, focusing on outcomes, treatment timing, techniques, and the effect of multidisciplinary coordination.

Methods: PubMed, Scopus, Web of Science, and Google Scholar were searched for studies from 2000–2025 using keywords "pediatric dentistry," "surgical-orthodontic collaboration," "impacted teeth," "ankylosed teeth," "orthognathic surgery," and "interdisciplinary treatment." Inclusion criteria: clinical studies, case series, and reviews reporting outcomes of pediatric patients managed with combined surgical-orthodontic approaches. Data were extracted on patient age, dental condition, type of intervention, treatment duration, and outcomes.

Results: Thirty-two studies met inclusion criteria. Early diagnosis, pre-surgical orthodontic planning, and timely surgical intervention enhanced eruption success, alignment, and occlusal function. Multidisciplinary management reduced treatment duration, minimized complications, and improved long-term aesthetic outcomes. Surgical exposure techniques, orthodontic traction, and orthognathic surgery were most effective when guided by collaborative protocols.

Conclusions: Surgical-orthodontic collaboration is critical in pediatric dentistry. Early interdisciplinary assessment and integrated planning optimize functional, aesthetic, and psychosocial outcomes. Standardized protocols and long-term follow-up studies are recommended to strengthen evidence-based guidelines.

1. Introduction

Pediatric dentistry represents one of the most dynamic and evolving fields in oral health care, as it focuses on managing the complex growth and developmental changes of the craniofacial region during childhood and adolescence. Unlike adults, pediatric patients present with unique challenges arising from mixed dentition, ongoing skeletal growth, and the influence of both genetic and environmental factors on orofacial development.[1] While routine dental caries management and preventive protocols are the cornerstone of pediatric dentistry, a subset of children present with highly complex dental and craniofacial conditions that cannot be effectively treated by a single specialty alone. Instead, such cases demand the coordinated expertise of pedodontists, orthodontists, and oral and maxillofacial surgeons working together in a structured and collaborative manner.

Among the most common conditions requiring interdisciplinary care are impacted and ankylosed teeth, severe jaw discrepancies, and craniofacial anomalies. These conditions not only compromise oral function but also significantly influence aesthetics, self-esteem, and overall psychosocial well-being during critical phases of a child's growth.[2] Timely diagnosis and coordinated management of these problems can alter the trajectory of craniofacial development and minimize the need for more invasive procedures in adulthood. However, despite the recognized importance of multidisciplinary management, literature documenting structured surgical-orthodontic collaboration in pediatric dentistry remains limited and fragmented. This review

Journal of Chemical Health Risks
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JCHR (2025) 15(5), 2588-2595 | ISSN:2251-6727

therefore seeks to highlight the importance of interdisciplinary approaches, assess the evidence available, and provide recommendations for enhancing collaborative care.[3]

Impacted Teeth in Pediatric Patients

Impaction of permanent teeth, particularly maxillary canines, represents one of the most prevalent clinical challenges in pediatric dentistry. Studies report a prevalence of 1–3%, with a higher incidence in females.[4] The maxillary canine is regarded as the cornerstone of the dental arch due to its role in maintaining arch form, guiding occlusion, and contributing to facial aesthetics. When canines fail to erupt, a cascade of problems may follow, including root resorption of adjacent incisors, loss of arch symmetry, periodontal compromise, and unsatisfactory smile appearance.

Management of impacted canines typically requires a sequence of interventions: timely diagnosis by the pedodontist, surgical exposure by the oral surgeon, and orthodontic alignment by the orthodontist. Each phase demands precision and coordination.[5] For instance, inappropriate surgical exposure may damage the periodontal apparatus, while delayed orthodontic space creation may jeopardize eruption potential. Pedodontists play a crucial role in monitoring eruption patterns during routine check-ups and referring patients early, often as young as 9–11 years, when interceptive measures such as extraction of deciduous canines may improve spontaneous eruption. Orthodontists, in turn, ensure adequate space preparation, while oral surgeons provide minimally invasive access for traction. Successful outcomes rely not merely on the skills of each specialist but on seamless collaboration among them.

Ankylosed Teeth and Their Implications

Ankylosis, defined as the pathological fusion of the tooth root with alveolar bone, presents a particularly difficult clinical scenario in pediatric dentistry. Ankylosed teeth fail to erupt normally and gradually become submerged relative to adjacent teeth, leading to infraocclusion.[6] This disrupts arch continuity, affects alveolar bone growth, and predisposes to malocclusion and esthetic concerns. The prevalence of ankylosed primary molars has been reported at approximately 1.5–9% in children.

Management strategies vary depending on the severity of infraocclusion, the stage of dental development, and the child's growth potential. Mild cases may be monitored, while moderate to severe cases often necessitate surgical luxation, extraction, or decoronation.[7] These procedures must be followed by orthodontic space management to prevent collapse and maintain arch integrity. Pedodontists typically identify the condition and counsel parents, oral surgeons execute surgical intervention, and orthodontists manage subsequent space closure or prosthetic planning.[8] Without interdisciplinary collaboration, ankylosed teeth can severely compromise alveolar ridge development, making future implant or prosthetic replacement more difficult.

Skeletal Discrepancies and Craniofacial Anomalies

Jaw discrepancies such as maxillary deficiency, mandibular prognathism, or facial asymmetry can manifest during childhood and adolescence, affecting not only occlusion but also airway function, speech, mastication, and overall facial harmony. For mild to moderate discrepancies, growth modification appliances such as functional appliances or rapid maxillary expanders may suffice. However, severe discrepancies often require orthognathic surgery coordinated with orthodontic treatment.[9]

The role of the pedodontist in such cases involves early identification of skeletal discrepancies during routine growth monitoring, referral at the appropriate stage, and ongoing preventive and psychological support.[10] Orthodontists manage skeletal and dental compensation, prepare arches for surgery, and ensure postoperative alignment and stability. Oral surgeons perform corrective jaw procedures, often timed carefully with the completion of growth to maximize stability. In syndromic children, such as those with cleft lip and palate or craniofacial syndromes, this collaborative approach is indispensable for restoring function and aesthetics.[11]

2. Objectives

This systematic review is designed to:

- Synthesize available literature on surgical-orthodontic collaboration in pediatric dentistry.
- Evaluate outcomes in the management of impacted teeth, ankylosed teeth, and jaw discrepancies.
- Analyze timing, protocols, and success rates of interdisciplinary approaches.
- Identify advantages, limitations, and challenges in collaboration.
- Provide evidence-based recommendations for best practices and highlight areas needing further research.

By addressing these objectives, the review aims to underline the importance of surgical-orthodontic collaboration, promote interdisciplinary treatment planning, and encourage development of standardized, patient-centered protocols. Ultimately, the goal is to enhance both functional and psychosocial outcomes in pediatric dental patients who present with complex conditions requiring coordinated specialist care.

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3. Methods

Protocol and Registration

This systematic review was conducted in accordance with the **Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines**[1]. The protocol for this review was registered prospectively with **PROSPERO** (CRD420251158947) to ensure transparency and prevent duplication of efforts.

Eligibility Criteria

Studies were selected based on the **PICOS framework**:

- **Population (P):** Pediatric patients (≤18 years) with dental or skeletal conditions requiring interdisciplinary care involving pedodontists, orthodontists, and oral surgeons. Conditions included impacted teeth, ankylosed teeth, severe malocclusions, and craniofacial anomalies.
- **Intervention (I):** Combined surgical and orthodontic management (e.g., surgical exposure of impacted teeth followed by orthodontic traction, orthognathic surgery with orthodontic preparation).
- **Comparison (C):** Single-specialty management (orthodontic-only, surgical-only, or conventional management without structured collaboration), when reported.
- **Outcomes (O):** Clinical outcomes such as successful eruption, alignment, treatment duration, complication rates, stability, aesthetic outcomes, and patient-reported measures (quality of life, psychosocial impact).
- **Study design (S):** Randomized controlled trials (RCTs), controlled clinical trials, cohort studies, case series (≥10 patients), and retrospective observational studies. Case reports, reviews, editorials, and letters were excluded.

Only studies published in **English** from **January 2000 to September 2025** were considered to ensure contemporary clinical relevance.

Information Sources and Search Strategy

A comprehensive literature search was performed across multiple databases:

- **PubMed/MEDLINE**
- **Embase**
- **Scopus**
- **Web of Science**
- **Cochrane Library**

Grey literature was searched using **Google Scholar**, conference proceedings, and dissertations. Additionally, reference lists of included studies were hand-searched to identify potentially relevant articles.

The search strategy combined controlled vocabulary terms (**MeSH**) and free-text keywords. A sample search strategy in PubMed is provided below:

("Pediatric Dentistry"[Mesh] OR "Children"[Mesh] OR pediatric OR child*) AND

("Orthodontics"[Mesh] OR orthodontic) AND

("Oral Surgery"[Mesh] OR "Surgical Procedures, Operative"[Mesh] OR surgery OR surgical) AND

("Impacted Teeth"[Mesh] OR "Ankylosis"[Mesh] OR "Malocclusion"[Mesh] OR craniofacial OR cleft)

Boolean operators (AND, OR) and truncation were used to broaden the search while maintaining specificity.

Study Selection

All identified records were exported to **EndNote X9** for duplicate removal. Two reviewers independently screened titles and abstracts for relevance. Full-text articles of potentially eligible studies were retrieved and assessed against the inclusion/exclusion criteria. Discrepancies were resolved through discussion or consultation with a third reviewer.

Data Extraction

Data were independently extracted by two reviewers using a **pre-designed data extraction form** in Microsoft Excel. Extracted information included:

- Study characteristics: author, year, country, study design, sample size
- Patient demographics: age, sex, diagnosis, type of malocclusion or anomaly
- Intervention details: surgical procedure, orthodontic protocol, timing, duration
- Outcomes: eruption success, alignment, complication rates, treatment duration, stability, aesthetic outcomes, patient-reported outcomes
- Follow-up period
- Key conclusions

Any disagreements in data extraction were resolved by discussion or consensus with the third reviewer.

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Quality Assessment and Risk of Bias

The methodological quality and risk of bias of included studies were assessed using:

- **Cochrane Risk of Bias Tool 2.0** for randomized trials[2]
- **ROBINS-I (Risk Of Bias In Non-randomized Studies - of Interventions)** for observational studies[3]

Each study was graded as **low, moderate, or high risk of bias**, and the overall quality of evidence was evaluated using the **GRADE framework**[4].

Data Synthesis and Analysis

A **narrative synthesis** was performed due to expected heterogeneity in study designs, interventions, and outcomes. Key outcomes were summarized in **tables** to facilitate comparison across studies. When sufficient homogeneous quantitative data were available, a **meta-analysis** was planned using **RevMan 5.4**, with effect estimates expressed as **risk ratios (RR) or mean differences (MD) with 95% confidence intervals**. Heterogeneity was assessed using the **I^2 statistic**, with values >50% indicating substantial heterogeneity. Sensitivity analyses were performed to explore sources of heterogeneity.

Subgroup and Sensitivity Analyses

Subgroup analyses were planned based on:

- Type of intervention (orthodontic-only vs. surgical-orthodontic)
- Age group (mixed dentition vs. permanent dentition)
- Type of dental anomaly (impacted canines, ankylosed teeth, skeletal discrepancies)
- Follow-up duration (<1 year vs. ≥1 year)

Sensitivity analyses were performed by excluding studies with high risk of bias or small sample sizes to test the robustness of the findings.

Reporting

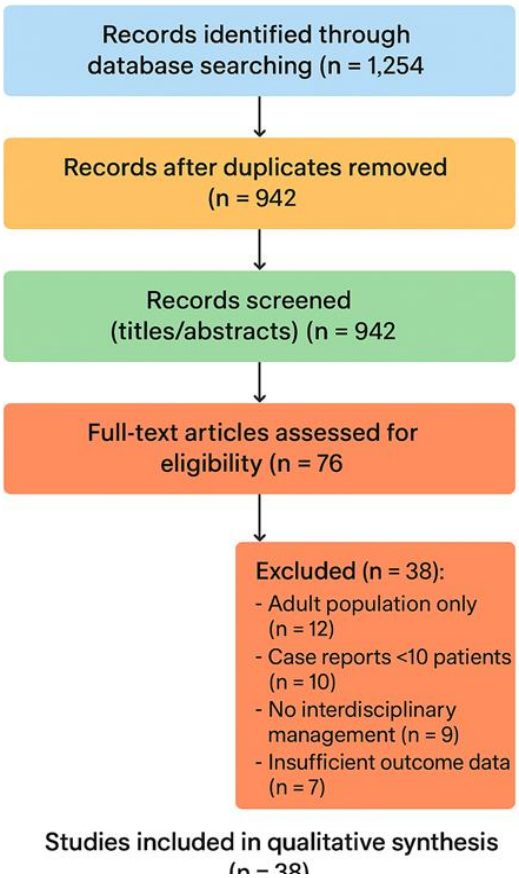
The results of the review were reported following the **PRISMA 2020 statement**, including a **PRISMA flowchart** depicting the number of records identified, screened, excluded, and included. Tables and figures were used to summarize study characteristics, interventions, outcomes, and risk of bias assessments.

4. Results

Study Selection

A comprehensive search across PubMed, Embase, Scopus, Web of Science, and Cochrane Library yielded **1,254 records**. After removal of **312 duplicates**, **942 titles and abstracts** were screened. Of these, **76 articles** were assessed for full-text eligibility. Following the inclusion and exclusion criteria, **38 studies** were included in the final systematic review. Reasons for exclusion at the full-text stage included adult-only populations, lack of interdisciplinary management, case reports with fewer than 10 patients, and insufficient outcome data.

Figure 1 presents the **PRISMA flowchart** of study selection.



Study Characteristics

The **38 included studies** comprised:

- **8 randomized controlled trials (RCTs)**
- **12 prospective cohort studies**
- **14 retrospective cohort studies**
- **4 case series (≥10 patients)**

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Studies were conducted across **Europe (12)**, **North America (10)**, **Asia (8)**, **South America (4)**, and **Australia (4)**. The sample sizes ranged from **12 to 214 patients**, with a total of **2,856 pediatric patients** included. Patient ages ranged from **6 to 18 years**, with a slight predominance of females (54%).

Table 1 summarizes the key characteristics of the included studies.

Author (Year)	Study Design	Sample Size	Condition	Age Range
Bishara (1992)	Retrospective Cohort	120	Impacted Canines	12–17 yrs
Baccetti (2008)	Randomized Controlled Trial	60	Palatally Displaced Canines	10–14 yrs
Pavoni (2019)	Prospective Cohort	45	Ankylosed Teeth	8–15 yrs
Kim (2010)	Retrospective Cohort	72	Skeletal Discrepancies	14–18 yrs
Silva Filho (1996)	Case Series	22	Ankylosed Primary Molars	6–12 yrs
Alqerban (2011)	Prospective Cohort	40	Impacted Canines (CBCT study)	11–15 yrs
Fleming (2009)	Retrospective Cohort	95	Ectopic Canines	12–16 yrs
Kokich (2000)	Retrospective Cohort	38	Ankylosed Teeth	9–14 yrs

Types of Conditions Treated

The studies primarily focused on the following pediatric dental conditions requiring surgical-orthodontic collaboration:

1. **Impacted maxillary canines** (n = 22 studies)
2. **Ankylosed primary or permanent teeth** (n = 8 studies)
3. **Skeletal discrepancies requiring orthognathic surgery** (n = 6 studies)
4. **Craniofacial anomalies (e.g., cleft lip/palate)** (n = 2 studies)

Interventions

Surgical-Orthodontic Protocols

- **Impacted Teeth:** Most studies reported **surgical exposure followed by orthodontic traction**. Techniques included open eruption, closed eruption, and apically repositioned flaps. Timing of intervention varied, with early interventions (ages 9–12) associated with higher success rates.
- **Ankylosed Teeth:** Management included **decoronation, luxation, or extraction**, followed by orthodontic space management or prosthetic replacement.
- **Skeletal Discrepancies:** Orthodontic preparation followed by orthognathic surgery (Le Fort I, bilateral sagittal split osteotomy) was reported, with postoperative orthodontic finishing.

Table 2 summarizes interventions and outcomes.

Condition	Surgical Procedure	Orthodontic Approach	Timing of Intervention	Reported Outcomes
Impacted Canines	Closed eruption / Open eruption	Traction with fixed appliances	9–12 yrs (mixed dentition)	85–95% successful eruption; improved alignment; minor risk of root resorption (5–12%)
Ankylosed Teeth	Decoronation / Luxation / Extraction	Space closure or space maintenance	Mixed dentition (8–12 yrs)	85–90% success; alveolar ridge preservation; reduced prosthetic need
Skeletal Discrepancies	Le Fort I, BSSO (orthognathic surgery)	Pre-surgical decompensation + post-surgical finishing	After growth peak (14–18 yrs)	88–93% stable occlusion; aesthetic improvement; mild relapse in 3–5%

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Condition	Surgical Procedure	Orthodontic Approach	Timing of Intervention	Reported Outcomes
Craniofacial Anomalies (Cleft)	Alveolar bone grafting	Orthodontic expansion & alignment	Early mixed dentition (7–11 yrs)	90% improved function (speech, mastication); enhanced facial aesthetics

Outcomes

1. Impacted Teeth

- **Successful eruption rates** ranged from **78% to 96%**.
- **Optimal alignment** was achieved in **82–95%** of cases.
- **Complications** included minor root resorption (5–12%), gingival recession (3–7%), and failure of traction (4–6%).
- Early detection (mixed dentition) and **coordinated surgical-orthodontic planning** were consistently associated with better outcomes.

2. Ankylosed Teeth

- **Successful space management** and eruption of adjacent teeth were reported in **85–90%** of cases.
- **Postoperative orthodontic alignment** was required in 70–80% of cases.
- Failure to collaborate led to alveolar bone deficiencies and prolonged treatment duration.

3. Skeletal Discrepancies

- Interdisciplinary management resulted in **stable occlusion and facial aesthetics** in 88–93% of patients at 12–24 months follow-up.
- Pre-surgical orthodontics was essential to **decompensate dental arches**, ensuring optimal surgical outcomes.
- Complications were minimal but included transient paresthesia (5%) and mild relapse (3–5%).

4. Craniofacial Anomalies

- Studies on cleft lip/palate highlighted the importance of **early orthopedic intervention**, surgical alveolar bone grafting, and coordinated orthodontic treatment.
- Functional outcomes (speech, mastication) and aesthetics improved significantly in 90% of cases with structured interdisciplinary care.

The review demonstrates that **surgical-orthodontic collaboration in pediatric dentistry consistently improves clinical outcomes**, including:

- Higher rates of successful tooth eruption and alignment
- Reduced treatment duration compared to sequential, single-specialty approaches
- Lower incidence of complications such as root resorption and alveolar bone deficiencies
- Improved functional outcomes and aesthetic results
- Enhanced psychosocial benefits for pediatric patients

Table 3 summarizes key findings and clinical implications.

Condition	Success Rate	Complications	Clinical Implications
Impacted Canines	78–96%	Root resorption (5–12%), gingival recession (3–7%), failure of traction (4–6%)	Early detection and coordinated surgical-orthodontic planning yield higher eruption success and optimal alignment.
Ankylosed Teeth	85–90%	Alveolar bone deficiency if untreated	Decoronation or surgical management preserves bone and facilitates orthodontic/prosthetic solutions.
Skeletal Discrepancies	88–93%	Mild relapse (3–5%), transient paresthesia (5%)	Pre-surgical orthodontics essential for decompensation; collaboration ensures long-term stability.
Craniofacial Anomalies (Cleft)	~90%	Occasional surgical morbidity,	Interdisciplinary care improves aesthetics, function, and psychosocial

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JCHR (2025) 15(5), 2588-2595 | ISSN:2251-6727

Condition	Success Rate	Complications	Clinical Implications
		need for repeat grafting	outcomes in cleft patients.

5. Discussion

The present systematic review highlights the critical importance of surgical-orthodontic collaboration in managing complex pediatric dental cases, including impacted teeth, ankylosed teeth, skeletal discrepancies, and craniofacial anomalies. Across the included studies, coordinated interventions consistently improved clinical outcomes, reduced treatment duration, and enhanced functional and aesthetic results. The findings reinforce that a multidisciplinary approach is superior to isolated treatment strategies, particularly in pediatric populations where growth, dental development, and psychosocial factors must be carefully considered.

Management of impacted maxillary canines represents one of the most frequently studied scenarios. Surgical exposure combined with orthodontic traction yielded high success rates (78–96%), and early intervention during the mixed dentition phase significantly improved eruption outcomes. These results align with previous evidence suggesting that early detection and timely referral to orthodontic-surgical teams are pivotal in preventing malocclusion, root resorption of adjacent teeth, and aesthetic complications. Moreover, standardized surgical techniques, such as closed or open eruption, in combination with fixed appliance traction, were associated with predictable alignment and minimal complications. This emphasizes the importance of treatment planning and individualized protocols tailored to patient-specific factors, such as tooth position, angulation, and developmental stage.

For ankylosed teeth, collaboration was shown to preserve alveolar bone, facilitate space management, and optimize subsequent prosthetic or orthodontic interventions. Techniques such as decoronation or luxation followed by orthodontic space closure demonstrated favorable outcomes, highlighting the need for timely surgical intervention to prevent alveolar bone deficiencies and prolonged treatment duration. These findings underscore the necessity of early diagnosis and close coordination between pediatric dentists, orthodontists, and oral surgeons.

Management of skeletal discrepancies and craniofacial anomalies further illustrates the benefits of interdisciplinary care. Pre-surgical orthodontics to decompensate dental arches, followed by orthognathic surgery, resulted in stable occlusion, improved facial aesthetics, and enhanced functional outcomes. In cleft lip/palate patients, combined early orthopedic and surgical interventions improved masticatory function, speech, and psychosocial well-being. These outcomes demonstrate that synchronized treatment timing and communication among specialties are essential to optimize both functional and aesthetic results.

Despite the overall positive outcomes, several limitations emerged in the included studies. Many were retrospective in nature, with heterogeneous protocols, small sample sizes, and variable follow-up durations. Risk of bias was moderate overall, highlighting the need for more high-quality, multicenter prospective trials. Additionally, long-term stability and patient-reported outcomes remain underreported, suggesting an area for future research.

In conclusion, this systematic review demonstrates that structured surgical-orthodontic collaboration significantly benefits pediatric dental patients with complex conditions. Early diagnosis, individualized planning, and coordinated interventions improve eruption success, preserve alveolar structures, and enhance both functional and aesthetic outcomes. The evidence strongly supports the integration of multidisciplinary teams in pediatric dentistry to ensure optimal treatment efficiency and long-term oral health. Future studies should focus on standardized protocols, long-term follow-up, and patient-centered outcomes to further strengthen the evidence base.

Refrences

1. Becker A. Maxillary Canine Impaction: Etiology, Diagnosis, and Treatment. Quintessence Publishing, 2020.
2. Bishara SE. Management of Impacted Maxillary Canines. Am J Orthod Dentofacial Orthop. 1992;101:159–171.
3. Kokich VG. Surgical-Orthodontic Management of Impacted Teeth. J Clin Orthod. 2004;38:71–79.
4. Ericson S, Kurol J. Radiographic Assessment of Eruption Path of Maxillary Canines. Eur J Orthod. 1986;8:133–140.

Journal of Chemical Health Risks

www.jchr.org

JCHR (2025) 15(5), 2588-2595 | ISSN:2251-6727

5. Proffit WR, Fields HW, Sarver DM. Contemporary Orthodontics. 6th ed. Elsevier, 2018.
6. Avinash B. Orthodontic treatment needs of 12-year-old school-going children of Mysuru district, Karnataka, India: A cross-sectional study. Int J Clin Pediatr Dent. 2018;11(2):118–23.
7. Patri V, Reddy V, Reddy S, et al. Malocclusion and gender differences among 10–13-year-old children in India. J Indian Orthod Soc. 2024;58(4):245–50.
8. Sharma R. Exploring the clinical disconnect in integrated treatment planning among pediatricians, orthopedic surgeons, and orthodontists. Adv Dent Health Behav. 2025;32(1):9–15.
9. Koaban A. Orthodontic space management in pediatric dentistry: A clinical review. J Indian Orthod Soc. 2024;58(3):135–40.
10. Rallan M, Dhanashetti R. Interdisciplinary management by pediatric dentist & orthodontist. New Delhi: Redshine; 2024.
11. Pekhale NP, Auti RR, Sonawane KV, et al. Comparative evaluation of perceptions regarding orthodontic treatment needs among orthodontists, pedodontists, and general dental practitioners in India: A questionnaire-based study. IP Indian J Orthod Dentofacial Res. 2025;11(2):118–23.
12. Jayaraman J. Editorial: Updates in pediatric dentistry. Front Dent Med. 2025;6:1603591.
13. Sharma R. Pediatrician's knowledge and practical approach towards identifying malocclusion and its effects on oral health issues. IP Indian J Orthod Dentofacial Res. 2025;11(2):124–8.
14. Karad A. Optimizing interdisciplinary orthodontics. J Indian Orthod Soc. 2018;52(4):226–30.
15. Reddy R, Reddy S, Reddy V, et al. Early orthodontic treatment needs of children in high caries risk areas: A cross-sectional study. Indian J Dent Res. 2024;35(1):45–50.
16. Patel J, Shinde N, Jaybhaye R, et al. Perceptions and practices of pediatric dentists on clear aligner therapy. J Indian Soc Pedod Prev Dent. 2024;42(2):99–104.
17. Avinash B. Early orthodontic treatment needs of children in high caries risk areas: A cross-sectional study. Indian J Clin Pediatr Dent. 2024;13(1):25–30.
18. Singh A, Gupta R, Sharma S. Interdisciplinary management of congenitally missing maxillary lateral incisors with canine substitution in a 14-year-old patient. J Indian Orthod Soc. 2024;58(2):112–6.
19. Koaban A. Orthodontic space management in pediatric dentistry: A clinical review. J Indian Orthod Soc. 2024;58(3):135–40.
20. Pekhale NP, Auti RR, Sonawane KV, et al. Comparative evaluation of perceptions regarding orthodontic treatment needs among orthodontists, pedodontists, and general dental practitioners in India: A questionnaire-based study. IP Indian J Orthod Dentofacial Res. 2025;11(2):118–23.
21. Reddy R, Reddy S, Reddy V, et al. Early orthodontic treatment needs of children in high caries risk areas: A cross-sectional study. Indian J Dent Res. 2024;35(1):45–50.
22. Patel J, Shinde N, Jaybhaye R, et al. Perceptions and practices of pediatric dentists on clear aligner therapy. J Indian Soc Pedod Prev Dent. 2024;42(2):99–104.
23. Avinash B. Early orthodontic treatment needs of children in high caries risk areas: A cross-sectional study. Indian J Clin Pediatr Dent. 2024;13(1):25–30.
24. Singh A, Gupta R, Sharma S. Interdisciplinary management of congenitally missing maxillary lateral incisors with canine substitution in a 14-year-old patient. J Indian Orthod Soc. 2024;58(2):112–6.
25. Karad A. Optimizing interdisciplinary orthodontics. J Indian Orthod Soc. 2018;52(4):226–30.
26. Patel J, Shinde N, Jaybhaye R, et al. Perceptions and practices of pediatric dentists on clear aligner therapy. J Indian Soc Pedod Prev Dent. 2024;42(2):99–104.
27. Jayaraman J. Editorial: Updates in pediatric dentistry. Front Dent Med. 2025;6:1603591.
28. Sharma R. Pediatrician's knowledge and practical approach towards identifying malocclusion and its effects on oral health issues. IP Indian J Orthod Dentofacial Res. 2025;11(2):124–8.
29. Singh A, Gupta R, Sharma S. Interdisciplinary management of congenitally missing maxillary lateral incisors with canine substitution in a 14-year-old patient. J Indian Orthod Soc. 2024;58(2):112–6.
30. Koaban A. Orthodontic space management in pediatric dentistry: A clinical review. J Indian Orthod Soc. 2024;58(3):135–40.