

Abstracts of the Third Conference of the Foundation of Oral Myology: Functional Dentistry III (Scientific Partner—IJCPD)

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The third conference of the Foundation of Orofacial Myotherapy (FOM) was held in Goa from 10th to 12th March 2023. It was attended by 140+ delegates, including members, students, faculty, and clinicians. The preconference workshops were organized on 10 and 11 March, and the main conference was on 12th March. Scientific Oral Presentations were held on 11th March. Ida de Noronha de Ataide, Dean, Goa Dental College, Member, DCI, presided as the Chief Guest. Shashikiran ND, Principal, School of Dental Sciences, Krishna Vishwa Vidyapeeth, Karad was the Guest of Honor.

Myofunctional Appliances: An Overview

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A functional appliance harnesses natural forces, which it transmits to the teeth and alveolar bone in a predetermined direction. Myofunctional appliances are a variety of intraoral appliances that depend upon the natural forces of orofacial musculature for their action. They are generally removable and passive in nature. Instead of applying active forces, either transmit, eliminate, or guide the natural forces of the orofacial musculature for correction of aberrant growth and function of the dentofacial structures. They either transmit favorable muscular forces to the teeth and alveolar bone through the medium of the appliance or eliminate the abnormal forces of orofacial musculature. They are considered primarily for growth modification in skeletal class II division 1 and class III skeletal conditions. This paper gives an overall view of myofunctional appliances.

Surface Modified Techniques and Emerging Functional Coating of Dental Implants

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Dental implants are widely used in the field of oral restoration, but there are still problems leading to implant failures in clinical application, such as failed osseointegration, marginal bone resorption, and peri-implantitis, which restrict the success rate of dental implants and patient satisfaction. Poor osseointegration and bacterial infection are the most essential reasons resulting in implant failure. To improve the clinical outcomes of implants, many scholars are devoted to modifying the surface of implants, especially to preparing different physical and chemical modifications to

improve the osseointegration between the alveolar bone and implant surface. Besides, the bioactive coatings promote the adhesion and colonization of osseointegration-related proteins, and cells also aim to improve osseointegration. Meanwhile, improving the antibacterial performance of the implant surface can obstruct the adhesion and activity of bacteria, avoiding the occurrence of inflammation related to implants. Therefore, this review comprehensively investigates and summarizes the modifying or coating methods of implant surfaces and analyzes the osseointegration ability and antibacterial characteristics of emerging functional coatings in published references.

Evolution of Clear Aligners

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Although clear aligners may seem like a relatively new modality of treatment in orthodontics, the initial concept dates as far back as the early 20th century. With the rise of the digital age of the 21st century, we have since been able to integrate modern technology with these earlier fundamental principles to create a variety of contemporary clear aligner systems that allow for a more comprehensive approach to orthodontic treatment. What are clear aligners? Clear aligners are orthodontic devices that are a transparent, plastic form of dental braces used to adjust teeth. Clear aligner therapy has evolved immensely since its initial conception in the early 1900s. Many of its fundamental concepts, such as attachments, auxiliaries, and the progressive use of aligners, were derived from the ideas of Kesling, Nahoum, Sheridan, and others. The arrival of the digital age has facilitated the mass production of aligners and improved its availability to the general public.

Fixed Partial Dentures

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Free-end saddles are liable to be displaced under occlusal pressure. This is as a result of the displaceability of the mucosa. The altered cast technique is employed to try and prevent this by making an impression of the mucosa under controlled pressure. The metal framework was constructed on a cast produced by a mucostatic impression material. Base plates were then constructed in self-cured acrylics on the framework in the saddle areas, and these were close-fitting. Border molding was carried out; the impression was

made with zinc oxide eugenol impression paste. In the laboratory, the free-end saddle areas on the master cast are sectioned off. The denture is then positioned on the model, and the new saddle areas are poured. The resulting model represents the free-end saddle areas under conditions that mimic functional load. Denture construction then continues as normal. The distribution of loading of the free-end saddles is improved, and the denture is more stable.

Frenectomy: A Review

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Frenectomy is an oral surgery procedure that treats lip tie or tongue tie. Surgeons cut or modify the frenum (a band of connective tissue that joints two areas). Tongue-tie causes oral health problems such as speech impairment. In infants, it especially causes difficulties in breastfeeding and swallowing.

Correction of Anterior Crowding Using Oral Screen

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The oral screen is a functional appliance suitable for the treatment of developing malocclusion associated with aberrant muscular patterns. A better muscle balance between the tongue and buccinator mechanism can be established, and the reestablishment of normal growth and development can be achieved. It is a thin sheet of acrylic base material that fits into the buccal/lingual vestibule of the mouth, which acts as a screen between the teeth and surrounding musculature. The oral screen can be used for the correction of the following conditions: (1) thumb sucking, tongue thrusting, and lip biting; (2) mouth breathing; (3) mild disocclusion; (4) open bites; and (5) incompetent lips. The patient should wear an oral screen every night and also during the day whenever possible. The effect of oral screening can be elevated through lip seal exercises: the lip should be kept in contact all the time to improve the lip seal.

Agreement between Parental Perception and Operator's Assessment of Masticatory Efficiency in 6–12-year-old Children

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Biting and chewing food is a multisensory task that requires a high level of coordination of all structures of the mouth. The assessment of masticatory function in children allows health professionals to act on the prevention and treatment of craniofacial functional disorders. However, the perception of the parents on the masticatory efficiency of children has not been assessed, hence this study. The aim was to assess the agreement between parental perception and the operator's assessment of masticatory efficiency in 6–12-year-old children. Children aged 6–12 years participated in this study. Children were given a piece of carrot measuring 1 inch by 0.5 inch to chew, and the ability to cut the food in smaller pieces, chew bilaterally, make a bolus of food, and the use of perioral

musculature was assessed by the operator as binary categorical variables. Parent perception of the same four factors was recorded through a questionnaire as a Likert rating. Agreement between the assessment and perception was assessed using Cronbach's α .

Association of Mouth Breathing and Probable Bruxism in 3–13-year-old Children: A Pilot Study

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The prevalence of childhood bruxism is on the rise. Though the exact cause of bruxism is unknown, multiple factors have been identified to be associated. Maxillary constriction has been postulated to be a likely factor, as well as mouth breathing and other functional disorders. However, there is a paucity of knowledge in this area, hence this pilot study. The aim was to assess the association of mouth breathing and bruxism in 3–13-year-old children. Children aged 3–12 participated in the study. Assessment of bruxism was based on a single-item parent-reported questionnaire and clinical examination of attrition of teeth. Mouth breathing was assessed using the "Offtrack" app and clinical examination. Both were assessed as binary categorical variables, and the association between them was assessed using the Chi-squared test.

Feeding Practices and Associated Perioral Muscular Activity—Its Impact on Developing Occlusion: A Narrative Review

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Breastfeeding is a quintessential way of providing nutrients for the physiologic growth and development of infants. According to the World Health Organization, exclusive breastfeeding between 0 and 6 months reduces the risk of aerodigestive infections. Moreover, it also has an impact on the orofacial musculature and, in turn, influences the maxillofacial development and the position of the teeth in the child's arch. There seems to be a relationship between the duration of breastfeeding, maintaining appropriate posture, artificial feeding, and the development of nonnutritive sucking habits, which lead to deviated perioral muscular function. The synergic action of the tongue and facial muscles enables the child to actively squeeze milk out of the mother's breast, the lack of which understimulates the functional matrix, which, in turn, impacts the craniomandibular development. The aim of this narrative review is to review the available scientific literature on the relationship between feeding practices and developing occlusion in children. Resources linked to the topic were searched in the following electronic databases—PubMed, Embase, Cochrane Library, Web of Science, Medline, Google Scholar, and the World Health Organization website. Effective feeding practices should be encouraged to prevent or reduce the risk of developing malocclusions.

Evaluation of Tongue Training Methods in Children: A Review

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Orofacial myofunctional therapy is a treatment modality that includes stretching exercises and extrabuccal and intrabuccal massages. It provides a dramatic and positive influence on patients treated for tongue thrust and also after lingual frenectomy in children with mixed dentition. They can be performed under the supervision of parents at home. The individual can regain the joy of eating, speaking, and correct breathing along with confidence, self-esteem, and improved quality of life. But these techniques have their own advantages and disadvantages. In this review, we aim to evaluate the effectiveness of various tongue training exercises advised in children after lingual frenectomy or in cases of tongue thrusting for improvement of tongue posture and swallowing. A detailed search is done on various search engines like PubMed, Cochrane Library, Google Scholar, and Semantic Scholar. Articles including details of tongue training exercises are included. A few techniques that use materials or devices for correction of tongue posture, as well as a few techniques that are independent of any material or devices and some combination of both, are reviewed in detail with respect to possible advantages, disadvantages, or limitations. A comparison of the same is made for making recommendations for day-to-day use by the patients.

Is Serial Extraction an Archaic Practice?

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Serial extraction is a substantial part of interceptive orthodontics. It has brought out satisfactory changes in malocclusion and esthetics, which eventually improved the patient's self-esteem in cases where this corrective therapy was followed rightly from the beginning of the mixed dentition period. The practice of serial extraction depends on two basic principles: arch length tooth material discrepancy and physiological tooth movement. This protocol is usually indicated for class 1 malocclusion with space deficit and overcrowding, where the need for dental arch expansion falls behind or, in some cases, is relevant later. Despite being a low-cost therapy with appreciable esthetic and functional changes, it cannot be universally applied to all patients. Patient selection, strategic planning, and follow-up are integral parts of this protocol. Nonetheless, these are followed, and deep bite and relapse can turn out to be complications. Hence, this presentation aims to construe the pros and cons of serial extraction protocol.

Unilateral Posterior Crossbite: A Review

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Unilateral posterior crossbite is a discrepancy in the buccolingual relationship of the upper and lower teeth, which is usually encountered at an early age of 6–12 years, that is, deciduous and early mixed dentition. It can be clinically identified when the lower teeth are in buccal or labial position regarding the upper teeth in a unilateral, bilateral, anterior, or posterior manner. It could be due to many underlying reasons like hereditary influence, inadequate dental arch length, over-retained deciduous teeth, supernumerary teeth, atypical swallowing patterns, digit or pacifier sucking habits, impaired nasal breathing, low tongue position, etc. If unilateral posterior crossbite is left untreated, it may cause

a lateral mandibular shift, asymmetric mandibular and condylar movement, temporomandibular joint disorders, etc. Interception of the developing unilateral posterior crossbite is usually advised to be done at deciduous and or early mixed dentition. Different treatment modalities to correct unilateral posterior crossbite are like coffin spring, W arch, Quad helix, etc., which are used for slow maxillary expansion, while Hyrax screws are used for rapid maxillary expansion; these are capable of splitting mid-palatal suture and bring about skeletal changes in short interval. Similarly, fixed appliances like heavy labial expansion arch, an expansion lingual arch like transpalatal arch, and crossbite elastics (cross elastics) can also be used to treat unilateral posterior crossbites. In this paper, we will discuss the expansion of mandibular dentition with the use of a Bihelix appliance.

"Prevent it, When You See It" an Early Intervention in Primary Dentition

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Functional dentistry encompasses a holistic approach to oral health; the goal of functional dentistry is to look beyond the mouth: How does the patient eat? Drink? Sleep? If there is a change in these patterns of eating, drinking, or sleeping, it can lead to malocclusion due to a shift of balance between muscles and teeth. Anterior crossbite is a major esthetic and functional concern to the parents during the developmental stage of a child. It is one of the major responsibilities of a pedodontist to guide the developing dentition to a state of normalcy in line with the stage of oral-facial growth and development. Anterior crossbite correction in primary dentition is recommended, as this kind of malocclusion does not diminish with age. Uncorrected anterior crossbite may lead to abnormal wear of the lower incisors, dental compensation of mandibular incisors leading to thinning of the labial alveolar plate, and/or gingival recession. There are several methods for solving this problem. Catalan's appliance is one of the methods to correct this malocclusion; it works on the principle of Newton's third law of motion. The resin slope of the Catalan's appliance functions to tip an anterior tooth labially while the mandibular tooth is tipped slightly in the lingual direction. This method is a safe, cost-effective, rapid, and easy alternative for the treatment of crossbite. The results are obtained in <6 weeks; if kept for more time, it may cause a risk of anterior open bite.

Radicular Cyst: Don't Let It Persist

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Radicular cysts associated with deciduous teeth occur rarely. In deciduous dentition, they constitute 0.5–3.3% of the total number of cysts. Radicular cysts affecting deciduous teeth are more common in males and occur mostly in children aged 3–19 years old. For large radicular cysts, enucleation is the preferred method of treatment with extensive removal of bone and vital teeth, and marsupialization can be chosen as a more conservative method to lower morbidity. This paper presents a case report of a radicular cyst associated with a mandibular right deciduous first and second

molar of an 8-year-old male child. The first and second premolars were displaced, and the path of eruption was disturbed, horizontally placed below the first and second primary molar. The management comprised enucleation of the cystic sac and extraction of the involved permanent and primary teeth under general anesthesia, followed by full mouth rehabilitation of the patient with the help of a removable partial denture.

Correction of Anterior Crossbite

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Anterior crossbite is the occlusal problem involving palatal positioning of the maxillary anterior teeth relative to the mandibular anterior teeth. The main goal in treating anterior dental crossbite is to tip the affected maxillary tooth or teeth labially to a point where a stable overbite relationship prevents relapse. Treatment may involve lingual movement of a mandibular tooth, labial movement of a maxillary tooth, or both. Various techniques have been used to achieve this goal, such as tongue blades, composite inclined planes, reversed stainless steel crowns, removable acrylic appliances with lingual springs, and fixed appliances. The frenum is a mucous membrane fold that attaches the lip and the cheek to the alveolar mucosa, the gingiva, and the underlying periosteum. The frenum may hamper the gingival health if it is attached too closely to the gingival margin, which can be a result of interference in plaque control or due to a muscle pull. The management of such an aberrant frenum is treated by performing a frenectomy. A 12-year-old male patient reported to the Department of Pediatric and Preventive Dentistry with the chief complaint of lisping. On clinical examination, high frenum attachment was seen, and crossbite with 11. The removable appliance Z-spring was delivered to the patient, and a frenectomy was performed.

Association between Bruxism and Cervical Spine Position in Human Subjects: A Systematic Review and Meta-analysis of Observational Studies

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Bruxism is a parafunctional habit affecting the stomatognathic system with possible detrimental effects on the cervical spine position and, consequently, the head posture. The present study aimed at assessing the association between bruxism and cervical spine position in human subjects. Two researchers, LNM and SHS, independently searched articles using appropriate keyword combinations in four search engines: PubMed, Cochrane Library, Semantic Scholar, and Google Scholar. Conflicts, if any, were resolved by AMJ. Studies either reported in English or complete translations available in English were selected. Selection criteria: Observational studies reporting bruxism and cervical position from cephalometric to photographic parameters were considered. Interventional studies were included only to collect the baseline (observational) data. From 22 studies, a total of nine studies could be included in the systematic review and five in the meta-analysis (three with cephalometric and two with photographic parameters). CVT-HOR, CVT-VV, OPT-HOR, OPT-VV (cephalometric), and craniocervical angle

(photographic) were used as dependent variables for the analyses. Three studies (69 subjects) showed changes in the cephalometric parameters, and two studies (45 subjects) showed changes in the photographic parameters. The risk of bias across studies was assessed using the AXIS tool. These parameters show a statistically significant difference in head posture between individuals with bruxism and control patients relating to anterior positioning of the cervical spine in bruxism patients using random effects model and fixed effects model analyses. Studies show the association between bruxism and cervical spine position in human subjects; however, very few studies could be included in the meta-analysis. More research is needed to substantiate the claims.

"Aim to Regain"

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Early shedding of primary teeth leads to a loss in space, arch length, arch perimeter, and arch circumference. The normal occlusal relationship and normal permanent teeth alignment are difficult to develop, and permanent teeth remain impacted or erupt out of the arch. If there is not enough space for the eruption of permanent teeth, therapy should be considered to regain the space so that additional disharmonies do not develop. Space regainers are the appliances used to restore considerable space and occlusal harmony, further, minimize the complex orthodontic treatments, and facilitate permanent tooth eruption. Premature loss of deciduous teeth due to caries or any other iatrogenic factors prevents the development of normal occlusal relationships. In interceptive orthodontics, the severity of developing malocclusion and complex orthodontic treatments are minimized or reduced, which may help in reducing the overall treatment time. In the recent era, for successful resolution of space discrepancies, various interceptive measures involving nonextraction approaches were satisfactory.

Lost and Missing, Use Removable Partial Denture and Clip-in: Bilaterally Congenital Missing Permanent Mandibular Incisors: A Rare Case Report

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Prosthetic management of a pediatric patient is often a challenge because the affected individuals are quite young. The main objective of the prosthetic treatment is to restore the arch, the appearance of the child, speech, and peace of mind of the patient and, at the same time, to educate the parents and child regarding regular dental care. Congenital missing mandibular teeth may jeopardize a child physically and emotionally by affecting their esthetic appearance along with the psychological development of children, especially during the years of transition into adolescence. In such situations, an interim restoration may be provided before any definitive treatment is given to provide solace to the young patient during this transition period, as well as to deter the development of tongue thrusting habits and any speech difficulty. Interim restorations may include resin-modified additions to the existing teeth as well as more sophisticated restorations such as resin-

retained bridges and removable partial dentures. However, this restoration differs for different clinical situations based on various factors such as age and patient compliance, and consideration has to be given to the growth changes of the child. Removable partial dentures remain a mainstay of prosthodontic care for partially dentate patients. When appropriately designed, they can restore masticatory efficiency, improve esthetics and speech, and help secure overall oral health. However, challenges remain in providing such treatments, including maintaining adequate plaque control, achieving adequate retention, and facilitating patient tolerance.

Lip Dysfunction

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The lip profile has a whip hand on facial esthetics. Irrespective of heredity, the teeth lie in a zone of balance between the soft tissues like the lips, cheeks, and tongue, which mold and guide the development of the dentoalveolar structures, thereby influencing facial esthetics, function, and stability of orthodontic treatment. Lips can be classified based on phenotype and functional adequacy (competent, potentially competent, incompetent, or everted) and on muscle tonicity (normal/hypotonic/hypertonic) and expressive behavior (normal, overactive, or underactive). Ideally, at rest, the tongue is positioned along the roof of the mouth with the teeth approximating or slightly apart, lips approaching unrestrained, and the upper lip covers the labial surface of the upper anterior teeth, exposing the incisal third. Any deviation such as lip strain with flattening or wrinkling of the chin when in contact, flaccid, rolled-out upper lip, crusty lips, or accentuated "cupid's bow" appearance of the upper lip can be indicative of dysfunction. Dysfunction can be due to abnormal morphology of the lips, abnormal oral habits, or malocclusion. In a growing child, when this facial balance is disturbed, it can result in impaired functioning and compromised esthetics. Early detection and intervention using lip strengthening exercises and correction of the malfunction can enhance the profile and improve functional stability.

Dealing with Obstructive Sleep Apnea: An Evolution in Treatment

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Obstructive sleep apnea, first described in 1965 as "Pickwickian Syndrome," is a known respiratory disorder characterized by repeated collapse of the upper airway and cessation of breathing during sleep. The main etiology behind this concern is the partial or complete collapse of the pharyngeal airway due to a reduction in muscle tone and structural factors such as retrognathia, tonsillar hypertrophy, and macroglossia. These factors are commonly faced by a pediatric dentist while treating a growing age population. In recent years, a significant increase in sleep apnea has been noted from 9 to 28% in the pediatric population; with that, oral appliances have achieved considerable success in the treatment of obstructive sleep apnea (OSA). The popularly used oral appliances are mandibular repositioning device (MRD); acts by retaining the advancing mandible, tongue-retaining device (TRD); anteriorly displaces the tongue, tongue stabilizing device and combination

of MRD and TRD have been helpful in treating OSA. Previously practiced surgical options like uvuloplasty, palatoplasty, and tonsillectomy are certainly effective, yet appliance therapy remains the treatment of choice in the management of OSA. In this review, we have highlighted the transition of treatment while dealing with obstructive sleep apnea, which will act as a guide for clinicians in the successful management of OSA.

Evolution in the Treatment of Bruxism

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Evolution in the treatment of bruxism, first described in 1907 by Maria Pietkiewicz, is a condition characterized by grinding and involuntary clenching of teeth and is a major risk factor for the development of masticatory dysfunction. Etiology associated with sleep bruxism (SB) concerns with sleep disturbances and social factors like anxiety, stress, and genetic factors have been added recently. Insufficient knowledge about the etiology often leads to pathophysiological wear of teeth, failure of dental procedures, pain in temporomandibular joint craniofacial muscles, hypertrophy of the masseter, headaches, etc. Recent studies have shown a significant increase in prevalence rate from 13 to 49% among children with these oral appliances, which have achieved considerable success in the treatment of SB. Popularly used options are hard and soft occlusal splints and silicon occlusal plates. The use of newer electromyographic devices like brux-off bite strips have proven evolutionary yet act as adjunctive to conventional approaches. Previously practiced options like occlusal adjustment, pharmacotherapy, and relaxation training are certainly effective, yet appliance therapy has proven promising results in the management of SB. In this review, we have highlighted the transition of treatment while dealing with bruxism, which will act as a guide for clinicians in the successful management of SB.

Myobrace: "A Correcting Tool for Malocclusion"

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Oral habits are the habits that children frequently acquire that may either temporarily or permanently be harmful to dental occlusion and to the supporting structures. Several habits like tongue thrusting, lip biting, thumb sucking, nail biting, and mouth breathing can result in malocclusion. Oral myofunctional therapy is one of the treatments for malocclusion in pediatric dentistry. It can be defined as the treatment of facial and oral muscle dysfunction with the goal of improving orofacial functions such as chewing, swallowing, and nasal breathing. Myofunctional therapy aids in strengthening the muscles required for normal breathing, chewing, and breathing, as well as swallowing, with an emphasis on increasing the tone and mobility of the oral and cervical structures. The Myobrace Appliance is a myofunctional tool that can be used to correct malocclusion as well as bad habits in children. Myobrace is a three-stage device system as an intraoral appliance system used in interceptive orthodontics, designed for the treatment of malocclusion in patients with mixed dentition (ages 8–12 years). This appliance works to improve the balance of

facial muscles and chewing and restore tongue posture. The goals of Myobrace are as follows: (1) to achieve a myofunctional effect; (2) to restore mandibular position; (3) to stimulate the muscles of the face, masseter, and tongue; (4) to move the mandible forward; and (5) to promote horizontal growth.

Skeletal Class II Correction with M-splint Supported Forsus Fatigue Resistant Device

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The mandibular deficiency was reported as the most dominant component of skeletal class II malocclusion. This emphasized the importance of class II correctors that can achieve the desired mandibular growth enhancement in growing subjects. Fixed functional appliances (FFAs) have been recommended over removable ones because they provide full-time forces and overcome the compliance problem. The Forsus Fatigue Resistant Device (FFRD) is an example of a hybrid FFA. that has been proven to be well accepted by patients. However, it has many disadvantages, such as it requires complete leveling and alignment of both arches prior to its insertion, which results in the waste of valuable time, especially in patients with a minimal amount of growth remaining. Therefore, in our patient, we have given a modification of FFRD, in which we supported the anterior teeth labially and lingually with a splint so that initial leveling and alignment are not required. In this paper, I will discuss a 14-year and 6-month-old postpubertal female patient with class II skeletal bases having a retrognathic mandible. According to computer vision in medical imaging, 10% of the skeletal growth was remaining in this patient. So, to utilize that growth, the treatment plan decided to give fixed therapy using a splint-supported Forsus fatigue-resistant device without initial leveling and alignment.

An Ingenious Appliance that Creates Big Waves

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Posterior crossbites are clinically identified as transverse malocclusions where the buccal cusps of mandibular teeth are placed in such a relation to the maxillary posterior teeth that they surpass the buccal cusp of upper teeth when in occlusion. To the untrained eye, this malocclusion may seem innocent in nature until it turns insidious. Literature has reported an association between posterior crossbite and deviated mandible along with symptoms of temporomandibular disorders and a speech impediment. Presently, the art of orthodontics presents us with a myriad of options that can effectively treat posterior crossbites. Various modalities for correction of this malocclusion include expansion of the maxillary arch, elimination of occlusal interferences, and functional shift. Maxillary expansion can be achieved *via* coffin springs, quad helix, Niti expanders, hyrax screws, and others. Quad helix appliance is a humble yet efficient appliance in the therapeutic arsenal of managing dentoalveolar posterior crossbite *via* slow maxillary expansion. The appliance can result in unilateral or bilateral expansion while also being well tolerated by patients. This paper presents a case report of a 14-year-old male patient

who clinically presented with a bilateral posterior crossbite and a narrow mandibular arch with lingually placed 32 and 42. The management comprised achieving bilateral expansion with the quad helix appliance that not only corrected the malocclusion but also resulted in achieving a functional occlusion.

Correction of Class II Subdivision Malocclusion and Deep-bite with Twin Block Appliance

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Orthodontic management of a pediatric patient is mostly concerned with the growth and disharmony of the jaws, face, and the malocclusion of the teeth. In young individuals, compliance of the patients toward the treatment is a major challenge. The main objective of orthodontic treatment in pediatric patients is to restore the maxilla-mandibular relationship arch forms, along with the proper establishment of orofacial musculature, which will eventually lead to better airway space and a healthy lifestyle. Class II malocclusion is the most common type of malocclusion present in India, with a prevalence of about 20–43%. Class II subdivision type of malocclusion is mainly concerned with asymmetric molar relationships that will lead to dental as well as skeletal discrepancy. Class II subdivision malocclusion is heterogeneous and cannot be treated with predefined specific strategies. While treating such cases, the selection of suitable appliances is the key to success. William J Clark, in 1977, developed a Twin Block appliance for correction of class II malocclusion with the retrognathic mandible. Studies say that Twin Block, when fabricated in accordance with the patient treatment objectives, provides an excellent result. Along with the correction of jaw discrepancy, the appliance also has the ability to correct midline diastema and to match the upper and lower arch midline with the facial midline. This paper presents a case report of a 14-year-old male patient with class II subdivision malocclusion along with deep bite and midline diastema. Extraoral examination shows a convex profile deep mento labial sulcus. Intraoral examination shows class II molar and canine relation was present on the left side, whereas class I molar and canine relation on the right side, and a slight mandibular shift was present toward the left, with spacing in maxillary dentition along with the deep bite. In consideration of all the above treatment objectives, the management was done with Twin Block appliance along with modification during the bite registration technique and retention phase of treatment to provide a stable result with no chance of relapse.

Midline Diastema Management with Simple yet Effective Mechanics

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The midline diastema, described as a space between the central incisors, is a frequently occurring malocclusion. It may also be a part of normal dental development in the mixed dentition during the eruption of permanent anterior and self-corrected after the eruption of maxillary canines. Maxillary midline diastema is, indisputably, one of the dentoalveolar disorders that cause

special concern to both parents and patients, specifically given its position. Midline diastemas observed in permanent dentition may be attributed to a variety of etiological factors. They can be physiological, dentoalveolar, oral habits, muscular imbalances, various dental anomalies, proclination of the upper labial segment, prominent frenum, or due to a self-inflicted pathology caused by tongue piercing. Effective diastema treatment requires the correct diagnosis of its etiology and intervention relevant to the specific etiology. Correct diagnosis includes medical and dental histories, radiographic and clinical examinations, and possibly tooth-size evaluations. Various approaches are recommended for midline space closure, but this paper will focus on the simple yet effective methods using the M bend and bend principles.

Growth Modulation with Oral Gymnastics: A Case Report

Afreen Wahab, Chanamallappa Ganiger, Pratap Mane

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The most commonly observed skeletal discrepancy is skeletal class II cases with mandibular retrognathism. The most appropriate approach for patients before peak pubertal growth is to treat with a myofunctional appliance. Myofunctional appliances are removable functional appliances that harness forces of orofacial musculature as well as masticatory muscles and transmit force to the dentition and basal bone. One of the examples of a functional appliance is the Frankel functional regulator. Frankel functional regulator developed by Rofl Frankel, also known as an oral gymnastic appliance. Frankel appliance is a loose-fitting appliance with the larger part confined to the oral vestibule, buccal shields, and lip pad that holds the buccal and labial musculature away from teeth to investing tissues, eliminating restrictive influences from the functional matrix. This paper presents a case report of a 12-year-old growing male patient having skeletal class II bases with a retrognathic mandible. Based on cephalometric analysis, it was confirmed that there is a skeletal discrepancy with the retrognathic mandible. Therefore, treating such cases with growth modulation will give results that are lifelong and also enhance facial esthetics.

Mini-screw Assisted Rapid Palatal Expander: A Pursuit of Pure Orthopedic Treatment

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Orthopedic treatment options are a challenge among adolescent patients to correct the skeletal discrepancies. Transverse maxillary deficiency is highly prevalent among adolescents. It may lead to various serious disorders like posterior crossbite, anterior open bite, and reduced nasal volume associated with obstructive sleep apnoea. Correction of this transverse deficiency can be done with various appliances like coffin springs, quad-helix, and rapid palatal expanders. Mini implant-assisted rapid palatal expander (MARPE) is a versatile appliance utilized for the expansion of the mid-face. It aids in transverse palatal expansion in augmentation with nasal and oral cavity dimensions. This paper presents a case report of a 17-year-old female patient having transverse maxillary deficiency associated with a bilateral posterior crossbite, an anterior open bite

of 3 mm with reduced nasal volume, and incompetent lips. The cephalometric analysis and model analysis showed a discrepancy in the maxillary arch, indicating that she required transverse palatal expansion. MARPE was adapted in the patient by placing four palatal implants in combination with orthodontic bands on premolars and molars. The patient was instructed to activate the expander 0.5–1 mm daily until midline diastema appeared. MARPE is characterized by decreasing the excessive load performed by conventional appliances onto the buccal periodontal ligament of teeth to which they are anchored, thus resulting in flat, multiple resorption on their roots. There is also a considerable decrease in the accidental movement of anchoring teeth, given that, with the use of MARPE, the support for the palatal expansion is no longer dental but osseous.

Complete Rehabilitation of Skeletal Class II Malocclusion: An Exceptional Approach (Esthetic + Functional)

Pradip Dhamal, Sandesh Phaphe, Seema Patil

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Functional orthopedic treatment seeks to correct malocclusions and harmonize the shape of the dental arch and orofacial functions. Removable functional appliances are normally very large in size, have an unstable fixation, cause discomfort, lack tactile sensibility, exert pressure on the mucous (encouraging gingivitis), reduce space for the tongue, cause difficulties in deglutition and speech, and very often affect esthetic appearance. The alteration in the mandibular posture creates added difficulties. These adverse effects make the adaptation and acceptance of these appliances more difficult (Oliver and Knappman; Ngan et al.). Fixed functional appliances first appeared in 1900 when Emil Herbst (Herbst) presented his system at the Berlin International Dental Congress. A number of fixed appliances have gained popularity in recent years to help achieve better results in noncompliant patients. In reality, when we compare them to removable appliances, we can clearly recognize fixed appliances as noncompliance devices. However, for treatment to be successful, good cooperation is always necessary, especially if skeletal modifications instead of dentoalveolar compensation are desired. This paper presents a case report of a 17-year-old growing female patient having skeletal class II bases with a retrognathic mandible. Based on cephalometric analysis, it was confirmed that there is a skeletal discrepancy with the retrognathic mandible. Therefore, treating such cases with growth modulation will give results that are lifelong, stable, and also enhance facial esthetics.

Retain It to Preserve It

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After orthodontic treatment, teeth have a tendency to return to their initial positions due to tension in periodontal fibers, particularly in the interdental area and dentogingival fibers. Orthodontic retention is the final stage of orthodontic treatment and aims to maintain the teeth in their corrected positions after the completion of orthodontic tooth movement. Retention is the holding of teeth in optimal esthetic and functional positions. The

retention of a rectified occlusion is the most important step after orthodontic treatment. The reasons for retention are to allow for the reorganization of periodontal fibers and instability due to the position of the teeth outside of the neutral zone. A retention appliance must include components that avoid rotation tipping and help in the maintenance of bite depth. The Hawley's retainer and its modification help in fulfilling these criteria. The modifications incorporate components that carry out specific functions: (1) Hawley with anterior bite plane to control bite depth, in corrected deep bite cases; (2) Hawley with bow soldered to Adams clasp in tight contacts, there can be a wedging effect due to cross-over wire, this appliance overcomes this; (3) Hawley with C-clasp on second molars distally indicated when there is a chance of occlusal interference over posterior occlusion; (4) Hawley with a fitted labial bow, used for better incisors control; (5) the esthetic variant of Hawley retainer was presented by Needham et al.; and (6) incorporation of a helix into a U loop, helix provides a strong purchase.

Association between NNS, Developing Malocclusions and Feeding Practices in 3–6-year-old Children

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Nutritive sucking and nonnutritive sucking may affect craniofacial development differently. The aim was to investigate the associations between NNS habits, developing malocclusion, and various feeding practices in 3–6-year-old Indian urban children. A sample of 350 children of 3–6-year-old from various preschools were included in the case-control study (94 with NNSH and 256 without NNSH). NNSH (outcome) feeding practices and developing malocclusions (exposures) were assessed using a structured study tool. The prevalence of NNSH in 3–6-year-old children was 26.8%. The odds [95% [confidence interval (CI)]] of boys compared to girls having NNSH were 0.66 (0.4121–1.706) ($p = 0.0290$). The overall prevalence of developing malocclusion in 3–6-year-old children was 34.01%, out of which open bite was most commonly reported with 12.57%, followed by spacing at 8.5%, increased overjet 6.8%, crowding at 2.2%, posterior crossbite and rotation at 1.4%, and overbite 1.14%. Breastfeeding was found to be the most commonly used mode of feeding, reported by 53.42% of mothers. It was found that the odds [95% (CI)] of subjects having NNSH were 0.66 (0.4694–0.9460) (p and $it; 0.0001$) who were not breastfed as compared to those who were breastfed. Among developing malocclusions, increased overjet with $p = 0.0019$, open bite with $p = 0.0416$, and spacing with $p = 0.0243$ were found to be associated with feeding practices. To conclude, the prevalence of NNSH and developing malocclusions (increased overjet, open bite, and spacing) were 26.8 and 34.01%, respectively. Breastfeeding played a protective role against developing NNSH.

The Tongue Function Frames the Tongue Box!

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The tongue and perioral musculature play an important role in the establishment of alveolar arch form and precise positioning of teeth. When tongue mobility is impaired, there are developmental consequences for the maxillofacial skeleton. The most common

congenital disorder affecting tongue mobility is lingual frenulum restriction, resulting in ankyloglossia. The upward pressure of the dorsum of the tongue against the palate during swallowing helps form the width and shape of the hard palate. A short-lingual frenulum limits upward movement and causes maxillary constriction and narrowing of the nasal cavity, resulting in nasal obstruction, mouth breathing, and sleep-disordered breathing. The association of lingual frenulum and tongue posture with the development of the maxilla is crucial. The aim was to assess the correlation of tongue mobility with maxillofacial development. A sample size of 20 was collected from the Department of Pediatric Dentistry and school dental camps. Assessment of the lingual frenulum and tongue mobility was performed by Tongue Range of Motion Ratio (TRMR). TRMR is calculated as the mouth opening with tongue tip to maxillary incisive papillae divided by maximal interincisal mouth opening. Intraoral scans were obtained for the maxillary and mandibular arch, and the dimensions of intercanine width, intermolar width, and arch length were calculated. The association of tongue mobility and arch dimensions was calculated statistically. Restriction in tongue mobility causes narrowing of the maxillary arch. Early diagnosis and treatment to correct tongue function thereby eliminate the detrimental influences on developing dentition.

Development and Testing of a Novel Approach of Comprehensive Space Analysis in Mixed Dentition Using Orthopantomogram

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Mixed dentition arch analysis is an important criterion in determining space problems and for orthodontic treatment planning. Analyses such as Tanaka Jhonston's (1974) and Moyers' prediction (1973, 1998) were developed for the Northern European population and were subsequently adopted worldwide. These and other model analyses require calculations to be made on study models and/or intraoral radiographs. Dental radiography has been greatly aided with the introduction of orthopantomogram (OPG) and, more so, with its digital version. A major disadvantage of the traditional analysis is that it does not assess the status of developing permanent teeth, sequence of eruption, any developmental anomaly associated with permanent teeth, etc., comprehensively. The use of the digital OPG can be employed for space analysis with such additional considerations. We have developed a novel method of space analysis using the digital OPG. In this presentation, this novel method is compared with traditional model analyses using Moyers' and Tanaka Jhonston's methods in 15 mixed dentition cases, and the results of the comparison are reported with inferential statistics.

Interrelation between Temporomandibular Disorder (TMD) and Role of an Orthodontist

Madhavi Bhardwaj

All orthodontists in their daily practice will have to deal with temporomandibular patients in one way or another. TMDs are considered the main source of pain in the head and neck region, which is of nondental origin. The relationship between orthodontic

treatment and TMDs has long been of interest to practicing orthodontists, but only during the past decade have a significant number of clinical studies been conducted that have investigated this association. Its etiology is multifactorial, and its pathogenesis has not been completely understood. It is generally accepted that the etiology is multifactorial, involving a large number of direct and indirect causal factors. Among such factors, occlusion is frequently cited as one of the major etiological factors causing TMD. TMD problems can be easily resolved by simple techniques that any dentist can perform. The aim of this presentation is to discuss the precise diagnosis of functional TMD and current therapeutic methods for the management of TMD patients.

Evaluation of Maxillomandibular Base Lengths, Overjet, Overbite, and Incisor Position in Class II Subjects with Variable Curves of Spee

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The curve of Spee is a concomitant phenomenon that is observed in human dentition and is defined as the anatomic curve that is established by the alignment of teeth when in occlusion. An efficient masticatory system is supported by the presence of occlusal curvature. However, in certain malocclusions, such as deep bite, an exaggerated curve of Spee can be observed. Correcting the curve of Spee in virtually every patient constitutes a traditional yet vital treatment objective for an orthodontist. Recently, literature has suggested that the curve of spee also serves as a biomechanical function during food processing. It increases the impact of occlusal forces during the process of mastication and also affects the crush/shear ratio of the posterior teeth. Leveling of the curve of Spee serves as an effective overbite correction method. Currently, there are several modalities to correct an exaggerated curve of Spee, including extrusion of molars, intrusion of incisors, or a combination of both these methods. Moreover, the importance of a leveled curve of Spee is reflected by the fact that leveling of this curve has been associated with lower arch circumference, incisor overbite, craniofacial morphology, and lower incisor proclination. This study presents differences in the positions of the upper and lower incisors, overjet and overbite, and maxillary and mandibular base lengths in class II subjects with different depths of curve of Spee.

Catch them Young, Unlock their Growth!

Veerale Baadkar, Meenakshi Kher

Private Practitioner

Anterior crossbites can lead to muscular imbalance in the temporomandibular joints and restrictive growth of the maxilla. Anterior crossbites in the primary dentition should be treated as early as possible to avoid skeletal class III malocclusion in the growing jaws. According to Planas, "crossbites are very easy to correct whenever diagnosed early. If not treated, they can produce severe difficulties in the future due to skeletal modifications that could occur and may be irreversible." Planas Direct Tracks involve the correction of the anterior crossbite using prism-shaped blocks with inclines. These tracks can be built directly or indirectly on the tooth surface to reposition the mandible into a more favorable position. This technique involves raising the bite to reposition the condyle

at the posterior-most position. The present case series highlights the effectiveness of Planas Tracks in the management of anterior crossbites in very young children where correction using fixed appliances would be challenging. The present case series involves the use of direct and indirect tracks in the management of anterior crossbite. The present case series highlights the clinical outcomes of anterior crossbite correction. In addition, a cephalometric analysis studying the dental, skeletal, and soft tissue components gives a detailed description of the growth modification technique used. The present case series highlights the clinical outcomes and cephalometric changes after the correction of anterior crossbite.

Anterior Crossbite Management Approach in Pediatric Age: Case Reports

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Anterior crossbite refers to an abnormal labiolingual relationship between one or more maxillary incisors, which may be lingually positioned. The esthetics of an anterior crossbite are poor, but more importantly, if the condition is left untreated, it has been suggested that it may lead to damage to the teeth, gingival recession and loss of alveolar bone, temporomandibular dysfunction, and deteriorating effects on muscles. The treatments included many methods with different advantages and disadvantages. The different treatment methods have been discussed in literature and studies, which included tongue blades, crowns, removable acrylic appliances with or without bite planes, composite inclined planes, fixed orthodontic brackets, and reversed stainless steel. Treatment options depend on many factors, which include the child's age, number of teeth required to be treated, status of occlusion, child's cooperation and the parent's acceptance, and the dentist's qualification and experience. In the first case report, the erupting maxillary anterior tooth was guided to its normal position by using tongue blade therapy. In the second case report, the erupted maxillary anterior tooth was positioned to an ideal location by using the removable acrylic appliance incorporated Z spring with a modified bite plan, which was preferred to the other methods to maintain good oral hygiene, to allow physiologic shedding and eruption, to reach the treatment goal with high patient and parents' motivation, and to enhance the child's dental experience by avoiding any time-consuming or complicated methods.

Early Intervention in Developing Class III Using Maxillary Expansion and Petit Facemask

Ankit Pitale, Bhushan Pustake

Mahatma Gandhi Vidyamandir's Karmaveer Bhausaheb Hiray Dental College & Hospital, Nashik, Maharashtra, India

We often face class III malocclusions in permanent dentition, and, as a rule, we assume the role of preparing teeth for orthognathic surgery after the active stage of facial growth has finished. However, a more pertinent question is with the child: when should one treat class III malocclusion? The answer to this question has been the center of a controversy that sets on one side the benefits of a treatment without orthognathic surgery, despite a possible dental compensation, and, on the other side, the disadvantages of a treatment that sometimes may be long and with unexpected

results for facial esthetics. Early applied orthodontic therapy has been effective from a skeletal point of view, as the discrepancy to be corrected is essentially basal. Among the variety of treatments proposed, we have adopted a protocol of correction of the class III malocclusion for the maxilla using maxillary expansion and petit facemask, and the results have been satisfactory.

Artificial Functional Matrix: Functional Regulator

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Functional matrix in a growing individual plays an important role in the growth and development of the jaws, oronasal and orofacial musculature of the face. To achieve a consonant facial profile, balance between the development of jaw bones, alveolus, and facial musculature is most important. Thus, an imbalance in any of the structures will eventually affect the normal growth of other related structures, leading to a major growth-related abnormality. Teeth act as a functional matrix of normal growth and development of the alveolus and, thus, the jaws. If teeth are congenitally missing, it will directly lead to disturbance in a normal growing matrix. We are here to present the case of how to manage a young patient with congenitally missing teeth, which disturbs the normal growth and development of the alveolus and jaws. A 13-year and 3-month-old male patient came to our dental hospital with the chief complaint of forwardly placed teeth. On examination, it was observed that there were congenitally missing maxillary and mandibular lateral incisors. Maxillary arch shapes appear to be asymmetric with over-retained deciduous teeth, and bilateral palatal bulging is seen in the anterior palatal region of the maxilla. After this, we evaluated orthopantomogram, lateral cephalogram, and model analysis to provide us with a final diagnosis of the case. As the patient is a growing individual and the case seems to have an imbalance in facial development, we narrowed down the management with the Frankel 4 regulator appliance. Frankel 4 Regulator Appliance will act as an artificial matrix by providing an equilibrium between the intraoral muscles and jaw bones, which eventually results in normal growth and development of facial tissues.

Arthrocentesis along with Injection Platelet-rich Plasma (PRP) in a 14-year-old Female with Bilateral Anterior Disk Displacement with Reduction and Erosion of Both Condylar Heads: A Case Report

Amrita Gogia, Ankur Rustagi, Tapasya Kapoor

Private Practitioner

A 14-year-old girl reported to the Department of Dental Sciences in 2020 with chief complaints of: (1) a clicking noise in the left temporomandibular joint (TMJ) and unable to close her mouth smoothly for 2 years; (2) Pain in the right preauricular area on chewing and neck pain for 2 years. The patient had a history of trauma on the chin 3 years back. After 1 year, suddenly, while yawning, her jaw got locked in the closed position. Soon after that, she developed pain in her right jaw and difficulty chewing food. She consulted various dentists with little relief of her symptoms. Forward head posture, concave profile, retrognathic mandible, short upper lip, and active trigger points in most of the masticatory and neck muscles were seen on examination. Class I malocclusion

with crowding of lower anterior teeth and deep bite. Cone-beam computed tomography of TMJ revealed: (1) anterior disk displacement with reduction; (2) erosion of the articulating surface of both condylar heads; and (3) bilateral anterior disk displacement with reduction. The treatment suggested was (1) arthrocentesis of TMJ and PRP injection; (2) myotherapy; (3) physiotherapy and posture correction; and (4) orthodontic treatment. It is important for a dentist to recognize early signs and symptoms of TMJ Disorders, mouth breathing, wrong posture, etc., especially in children, to prevent long-term deleterious effects on TMJ and craniofacial growth.

An Advance in Mandibular Advancement for Sleep Apnea? A Literature-based Review

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Sleep apnea is a sleep disorder, of which the most common type is obstructive sleep apnea (OSA), brought about by the collapse of the upper airway. Current standards of care for OSA include continuous positive airway pressure (CPAP) therapy. mandibular advancement devices (MADs) are oral appliances that aid in repositioning the lower jaw and tongue to prevent airway collapse. The treatment modalities include oral appliance therapy and upper airway stimulation devices. Surgical options involve uvulopalatopharyngoplasty and genioglossus advancement. In recent times, MADs have become an increasingly popular treatment option for children with sleep apnea as they are comfortable and easier to use than CPAP devices. The ideal treatment option depends on the individual child and lifestyle, and to achieve the best outcome, a multidisciplinary approach involving a sleep specialist, a dentist, and a physician is recommended.

Resolving the Dilemma of Anterior Crossbite

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Anterior crossbite is a malocclusion where the maxillary anterior teeth are linguallly malposed in relation to the mandibular anterior teeth. Dental anterior crossbites occur as a result of localized tipping of anterior teeth and do not involve a discrepancy of the basal bone. Anterior dental crossbite becomes conspicuous during the early mixed dentition phase and can be caused by various etiologies at play. These include crowding in the incisor region, inadequate arch length, trauma to the primary incisor, or a deleterious habit such as nail biting. The correction of anterior crossbite takes precedence due to the detrimental effects it has on the growth pattern that can lead to the development of skeletal problems. This malocclusion restricts the growth of the maxilla while favoring mandibular growth. Moreover, patients with a genetic history of class III malocclusion face a predisposition toward this kind of malocclusion. It is important to interrupt this malocclusion at the right time and maintain the correct occlusal relation. Currently, there are various treatment methods that can efficiently resolve the presence of anterior crossbite. These treatment modalities include removable acrylic appliances with finger springs, reversed stainless steel crowns, tongue blades, fixed acrylic planes, and bonded resin-composite slopes. The main objective of the treatment of anterior crossbite is to tip the maxillary tooth into a stable overbite

relationship. This paper presents a case of correction of anterior crossbite, resulting in a favorable overjet and overbite relation along with the achievement of functional occlusion. The relationship between malocclusion and head posture is a well-studied area in the field of dentistry and orthodontics. Malocclusion, a term used to describe a misaligned bite, can have a significant impact on the development of head posture. Poor head posture, in turn, can lead to further issues such as neck pain and headaches. This review aims to summarize the current knowledge on the relationship between malocclusion and head posture and to highlight the importance of proper diagnosis and treatment of both conditions. The review also discusses various treatment options, including orthodontic treatment, physical therapy, and the use of orthotic devices, and highlights the need for interdisciplinary collaboration between dentists and physical therapists to achieve optimal outcomes for patients.

Deep Bite: Orthodontist's Challenge

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The occurrence of malocclusion can be seen in three planes of space: sagittal, transverse, and vertical plane. The dental vertical relationships can be divided into four major categories: anterior open bite, anterior deep bite, posterior open bite, and posterior collapsed bite with overclosure. Overbite is defined as the amount of vertical overlap between the maxillary and mandibular central incisors. A vertical discrepancy where there is an excessive vertical overlapping of the mandibular anterior by the maxillary anterior is termed a deep bite. It is the most common presenting malocclusion, which can be caused due to two factors: inherent factors and Acquired factors. Inherent factors include tooth morphology, skeletal pattern, and condylar growth, whereas acquired factors comprise muscular habits, changes in tooth position, the loss of posterior supporting teeth, and lateral tongue thrusting habit are optimal correction of deep bite requires proper diagnosis, individualized treatment planning, and efficient execution of treatment mechanics. The correction of deep bites is one of the primary objectives of orthodontic treatment. Various modalities exist for the treatment of deep bites, like utility arches, implants, etc. This paper discusses micro implants as a means of treatment of deepbite.

Resolving the Dilemma of Anterior Crossbite

Pratap Mane, Seema Patil, Chanamallappa Ganiger

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Anterior crossbite is a malocclusion where the maxillary anterior teeth are lingually malposed in relation to the mandibular anterior teeth. Dental anterior crossbites occur as a result of localized tipping of anterior teeth and do not involve a discrepancy of the basal bone. Anterior dental crossbite becomes conspicuous during the early mixed dentition phase and can be caused by various etiologies at play. These include crowding in the incisor region, inadequate arch length, trauma to the primary incisor, or a deleterious habit such as nail biting. The correction of anterior crossbite takes precedence due to the detrimental effects it has on the growth

pattern that can lead to the development of skeletal problems. This malocclusion restricts the growth of the maxilla while favoring mandibular growth. Moreover, patients with a genetic history of class III malocclusion face a predisposition toward this kind of malocclusion. It is important to interrupt this malocclusion at the right time and maintain the correct occlusal relation. Currently, there are various treatment methods that can efficiently resolve the presence of anterior crossbite. These treatment modalities include removable acrylic appliances with finger springs, reversed stainless steel crowns, tongue blades, fixed acrylic planes, and bonded resin-composite slopes. The main objective of the treatment of anterior crossbite is to tip the maxillary tooth into a stable overbite relationship. This paper presents a case of correction of anterior crossbite, resulting in a favorable overjet and overbite relation along with the achievement of functional occlusion.

Management of Impacted Maxillary Canine Using Ballista Spring

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In orthodontic practice, impaction of maxillary permanent canines is a frequently encountered clinical problem. After the third molar, the canine is the most frequently impacted tooth. Maxillary canines are the cornerstone of the dental arch, play a very important role in smile esthetics, and are essential for maintaining functional occlusion. Therefore, bringing the impacted canine into occlusion is important in orthodontic practice. According to Bishara, the most common causes for canine impactions are usually localized and are the result of any one or a combination of the following factors: (1) tooth size—arch length discrepancies; (2) prolonged retention or early loss of the deciduous canine; (3) abnormal position of the tooth bud; (4) the presence of an alveolar cleft; (5) ankylosis, etc. The two most commonly used methods for exposing impacted canines are: (1) surgical exposure, allowing natural eruption; (2) surgical exposure with placement of an auxiliary attachment. In this paper, we are discussing the efficiency of Ballista spring in erupting the impacted maxillary canine and getting it into normal occlusion.

Mouth Breathing: A Threat to the Developing Face

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Dental health impacts almost every other system of the body, which is why we cannot attain great health without it. Functional dentistry aims to look beyond the mouth. The habit of mouth breathing not only affects the development and growth of the children's craniofacial and dentofacial structures but also adversely affects the cognitive function of the brain. The development of dentition is influenced by the balance of orofacial musculature and its function. The equilibrium of opposing forces from buccal soft tissues and the tongue maintains the dentition in a pleasing form and function. Disruption of this balance affects developing dentition and sets in malocclusion of varying degrees. The following case report discusses the effective correction of developing malocclusion and orthopedic effects achieved with the use of the oral screen. The use of an oral screen appliance has been proven to be able to help

eliminate habitual mouth breathing. Also, the oral screen produces lingual pressure on the maxillary teeth and the teeth' inclination. Substantial occlusal relationship changes may occur, which can reduce the overbite and overjet. The effect of using an oral screen on the incisors is often associated with changes in muscle activity. **Conclusion:** The oral screen was found effective for improving the orofacial structures caused by mouth breathing.

An Innovative Orthodontic Approach in the Management of Obstructive Sleep Apnea

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Obstructive sleep apnea (OSA) is a serious sleep-associated breathing disorder due to upper airway obstruction with profound effects on the health and quality of life of individuals suffering from it. For this reason, OSA has been increasingly recognized as a major public health issue, imposing a great economic burden, and physical and mental trauma to patients. This case report shall showcase a simple approach to managing a 35-year-old adult male with severe OSA [apnea-hypopnea index (AHI) score 43.5] undergoing continuous positive airway pressure therapy for the past 2 years. An acrylic-made monoblock appliance was fabricated at a horizontal mandibular advancement of 7 mm, and a vertical opening of 4 mm was inserted intraorally. There was a reduction in the AHI score and an increase in total airway volume from 22.6 and 13487 mm³ to 7.2 and 19656 mm³, respectively, after mandibular advancement. There was marked improvement in breathing and quality of life of the patient, as is evident from lack of symptoms, Polysomnography readings, increase in airway volume on cone-beam computed tomography, and AHI index. The early recognition of the problem and prompt treatment help to improve the quality of an individual's life.

Canine Substitution: A Smart Option for Missing or Impacted Teeth

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The canine is one of the commonly missing teeth in the dentition. It is probably the last tooth to erupt in the oral cavity. Impacted or missing canine is the biggest challenge since it is a major concern as far as esthetics is concerned. Maintaining the alveolar ridge is also important for esthetics. Missing canines can be

treated by canine substitution. It is one of the treatment options that is chosen when the patient has a missing lateral incisor or over-retained deciduous lateral incisors. Canine substitution offers a conservative option that satisfies individual esthetic and functional requirements. Patient selection depends on the type of malocclusion, profile, canine shape, and smiling lip level while smiling. This paper presents a case report of an 18-year-old male patient who had proclined maxillary anterior teeth with spacing, increased overjet and overbite with end-on molar relationship bilaterally, missing maxillary lateral incisors bilaterally, and over-retained deciduous maxillary left lateral incisors. Management of this patient was done by extraction of the mandibular second premolars and mesialization of molars along with space closure with canine substitution, allowing achievement of class I occlusion bilaterally, retraction of teeth, and reduction of increased overjet and a remarkable change in soft tissue profile. Canine substitution can be an excellent esthetic treatment option for replacing missing laterals. However, patient selection is a very critical component to get the desired results.

Myofunctional Therapy for Children with Special Health Needs: Indeed, a Blessing

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Private Practitioner

The purposes of this paper are to: (1) describe the variety of orofacial myofunctional disorders commonly seen in children with special health needs; (2) discuss the benefits of several orofacial and myofunctional therapies available and the benefits associated with such therapies; (3) represent the data collected through a questionnaire survey regarding awareness of parents of children with special health needs regarding preventive orofacial and myofunctional therapy needs and benefits; and (4) narrate the response of parents following a knowledge sharing session regarding benefits of myofunctional therapy at an early age. A questionnaire pilot survey study prepared and distributed among parents of special health needs. Evaluation of the survey reports done statistically. Following the survey, a knowledge-sharing session was also conducted for the parents with an open house discussion. There is a clear lack of awareness among parents regarding the treatment modalities used in orofacial and myofunctional therapy that help to stimulate oral motor responses of children with special health needs. Spreading awareness among parents and educating and training more pediatric dentists regarding myofunctional therapy can definitely reduce the gap. In turn, we can offer children with special health needs a better and healthy life.