

The specialty of periodontics has grown in the past 25 years to encompass a variety of surgical techniques that span the scope of dentistry. The advent of predictable implant placement, use of LASER, microsurgery and numerous new bone augmentation techniques has broadened the repertoire of the periodontist to a point where technical developments through research have impacted other specialties, including Orthodontics, Endodontics, Oral and Maxillofacial surgery and Prosthodontics. The focus of periodontal surgical procedures has shifted over from a philosophy based on resection (subtractive) to one of regeneration of lost tissues (additive). This shift has had particular significance in cases of advanced periodontitis. When a patient presents with severe attachment loss, regeneration cannot take place until the etiologic factors have been effectively managed or reversed and the disease progression arrested.

Recent Advances in Periodontology



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Recent Advances in Periodontology



Singh, Goswami, Mittel



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The most common endodontic infection which is due to the surface-associated growth of microorganism, it brings about the importance of applying the concept of biofilm to endodontic microbiology to understand the pathogenic potential of the root canal microbiota as well as to form the basis for new approaches for disinfection. It is a prerequisite to understand how the biofilm is formed by root canal bacteria and shows resistance to endodontic treatment measures. Since, bacterial etiology has been root cause for common oral diseases such as periodontal diseases, caries and endodontic infections.

The aim of this book was to bring about the understanding of the different types of biofilms, the factors influencing biofilm formation, mechanism of biofilm formation, their roles in periapical and pulpal pathosis, antimicrobial resistance, techniques to identify and manage the biofilm.



Swati Jha
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Endodontic Biofilm



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Manual of Pediatric Intensive Care

provides completely updated and in-depth information for thorough understanding of intensive care by all the general pediatricians, consultants, residents and intensivists handling pediatric cases. The content of the book is reinforced and enhanced by numerous figures, tables, algorithms, and clinical material based on real-time experience of the author and the contributors. With its simple, contemporary, and lucid presentation, this manual will prove to be an extremely useful tool for all the pediatricians working in intensive care units.

A must for all the pediatric consultants, residents and intensivists dedicated to intensive care provided in the ICU environment.

Salient features

- The manual carries various text chapters incorporating completely updated and latest information on the clinical and practical aspects.
- The book covers the topics right from the evolution and organization of pediatric ICU, nutritional support, laying emphasis on pediatric illness.
- Pediatric critical care has been covered in depth and evidence-based literature is included, which is correlated with real-time experience.
- Neuroimaging in pediatrics has been included with relevant literature.
- This manual is intended to serve as a complete guide for pediatricians, not just a synopsis of the most salient points.
- This book makes a serious and concerted effort towards updating practical skills and knowledge of the general pediatricians, consultant and intensivists to benefits the patients to the maximum.

Amit Rathee MBBS, MD, FNB, FIAP, Pediatric Intensivist and Neonatologist

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Manual of Pediatric Intensive Care

Rathee



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Amit Rathee

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48 CHAPTER

Dental Emergency in Pediatric Trauma

INTRODUCTION

Injuries in children are very common and 9 million children from birth to age 19 are treated every year in emergency departments (EDs) for unintentional injuries.¹ Injury results in more deaths in children and adolescents than all other causes combined. Deaths caused by injuries, intentional or unintentional, account for more years of potential life lost under the age of 18 years than do deaths attributable to sudden infant death syndrome, cancer, and infectious diseases combined. It is estimated that 1 in 4 children sustain an unintentional injury that requires medical care each year. Survivors of childhood trauma may suffer lifelong disability and require long-term skilled care. Improving outcomes for the injured child requires an approach that recognizes childhood injury as a significant public health problem. Efforts should be made to improve injury-prevention programs, emergency medical care, and trauma systems for pediatric patients. The management principles in the treatment of facial trauma are the same for all age groups; however, the techniques required for reconstruction for children must be modified to accommodate their developing anatomy, rapid healing, immature psychology, and their potential for deformity as a consequence of altered facial growth.²

AIRWAY

The first and foremost maxillofacial injuries are usually complicated by a compromised airway. On account of its location in the “crumple zone” of the face, even minor injuries can result in significant casualty to the airway. The situation may be aggravated by diminished consciousness, alcohol, and/or drug intoxication, as well as altered laryngeal and pharyngeal reflexes, making the patient vulnerable to the risk of aspiration. Furthermore, this scenario is complicated by the presence of broken teeth, dentures, foreign bodies, avulsed tissues, multiple mandibular fractures, and massive edema of glottis which can cause a direct threat to the airway. Alcohol, drugs, and head injury along with ingested and pooled blood can trigger nausea and vomiting. The act of vomiting prompts a rise in intracranial tension which in turn increases the bleeding and salivation that occludes the airway. Vomiting and risk of aspiration are particularly high when patients are in supine position. Technically speaking, in patients with multiple facial fractures, the displacement of maxilla or mandible posteriorly can decrease the airway patency. Although of less frequency, injuries to larynx and trachea can also create airway embarrassment.³

MANAGEMENT

Despite recent major medical advancements, the basic fundamental of airway management remain the same. Upper airway obstruction due to craniomaxillofacial trauma invariably results in a threatened airway. The potential concomitant injury to other organs and the presence of an unclear C-spine further complicates airway management. A variety of airway handling techniques are currently available. However, nothing is a fool proof and should be tailored according to a particular situation depends on the magnitude and type of the injury. Supervision of an emergency situation like this demands the experience and technical skills of the emergency operator and he or she should always prognosticate airway obstruction and be qualified enough to perform a surgical airway.³

Initial Assessment

The strategy of look, listen, and feel helps to figure out airway obstruction and anticipated airway complications. The airway management approach, particularly in unconscious trauma patients should be complimented with





significantly. The main vessels involved are an ethmoid artery, ophthalmic, vidian branch of internal carotid, and maxillary artery. In most cases, bleeding can be easily controlled, but rarely severe epistaxis that ranges from 2% to 4%³ of all facial trauma arises from the maxillary artery, creating difficulty in hemorrhage control. It is important to differentiate bleeding from the skull base fracture and oral bleeds by careful observation of pharynx for lacerations and tears. Patients with multiple maxillofacial injuries must be taken care. Otherwise, they will go into hemorrhagic shock even though only 1.4%¹⁰ such cases have been reported. In the supine position, bleeding into oropharynx and swallowed blood in a conscious patient may cause vomiting thus, risking the C-spine. Hence, the purpose of hemostasis in maxillofacial trauma patient, is twofold, namely to protect the airway, and to reduce blood loss. Control of hemorrhage can be achieved by pressure packing, manual reduction of fractures, balloon tamponade, and in severe cases with angiography followed by transarterial embolization or in some cases with direct external carotid artery (ECA) ligation. Severe nasal bleeding may continue even after adequate anterior and posterior nasal packing. Sakamoto et al found that Foley's catheter balloon tamponade and ECA ligation does not respond in 72.2% of epistaxis. Balloon tamponade should be used with caution in comminuted midface fracture since it may cause displacement of fractured fragment into orbits and brain. The effectiveness of surgical exploration and ECA ligation particularly in cases of nasoorbital ethmoidal fracture are proven ineffective due to superfluent collaterals from the internal carotid artery at this region. In uncontrolled bleeding that does not respond to noninvasive methods, angiography and selective embolization of bleeder is the method of choice. Nevertheless, the use of transarterial embolization in managing epistaxis is not favored by many authors except in firearm injuries on the area of anastomoses of external and internal carotid system. However, these anastomoses have an increased risk of passage of embolic material into the brain causing serious neurological problems. The complications of selective embolization have been reported in 50% population, which includes seventh nerve palsy, trismus, necrosis of tongue, blindness, migration of emboli into internal carotid,

and eventually a stroke. Once bleeding is controlled maxillofacial injuries not always require early correction. Two large bore IV lines should be placed for replacing fluid loss; similarly, exclude other concealed bleeding from the thorax, abdomen, and vascular injury of other vital organs. Coagulopathy if any should be corrected. Temporary stabilization of patient allows for any further resuscitation, clinical and radiographic investigations, and definitive care.³

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Pediatric aesthetic dentistry deals with maintaining and enhancing the beauty of the oral hard and soft tissues of children through adolescence, including those with special health care needs. In today's era, there are multitudes of options that are available to treat aesthetically compromised teeth, but the issue is how to choose treatment as the situation and demand vary with patients. The various esthetic options for pediatric patient are being discussed in this book like aesthetic restorative material and crowns, biological restoration, prosthetic rehabilitation, ortho-gnathic management of jaw and various alternative techniques to improve esthetic like veneers and bleaching.



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Aesthetic Consideration In Pediatric Dentistry



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Malocclusion is commonly seen in deciduous and mixed dentitions, negatively impacting the children's quality of life. Hence there is a greater need for preventive and interceptive orthodontic therapy. Prevention may be regarded as the best treatment option. Furthermore, interceptive orthodontics reduces or eliminates the severity of developing malocclusion. The appliances used in both the preventive and interceptive treatment are discussed in this book.

Appliances in pediatric dentistry



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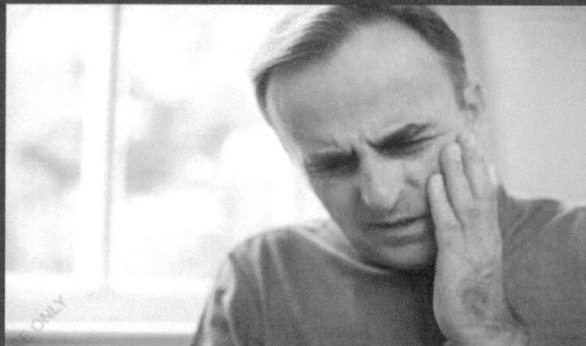
Appliances in pediatric dentistry

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One of the greatest challenges in clinical dentistry is managing endodontic emergencies. Endodontic emergencies are a challenge in both diagnosis and management. Application of knowledge and skill in multiple facets is indispensable, for failure to apply these will result in disastrous consequences. Incorrect diagnosis or treatment is an obstacle in providing pain relief to the individual. On the contrary, this may aggravate the situation.

The book is a narrative on proper treatment of endodontic emergencies in patients which requires a sound understanding of case diagnosis, conventional endodontic treatment, application of local anesthesia and clinical pharmacology for appropriate pain control. The dentist should develop these clinical skills, thorough enough to treat emergency endodontic cases as a routine, conventional non-emergency endodontic treatment. The successful treatment of emergency endodontic treatment should be in a way that gratifies both the patient as well as the doctor.



Isha Singh
Dakshita Joy Sinha

Endodontic Emergencies

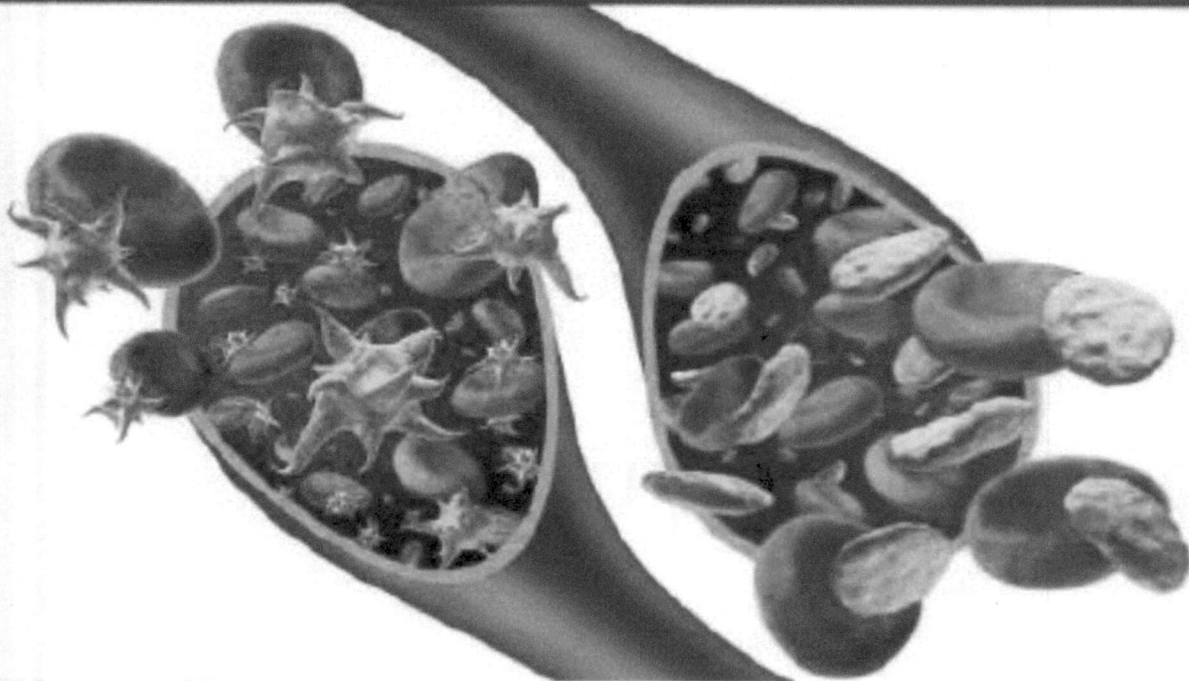


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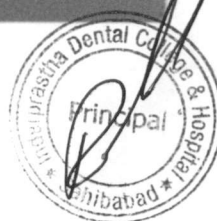




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WOUND HEALING IN PERIODONTAL THERAPY

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Most forms of the disease states begin with cell injury and consequent loss of cellular function. Cell injury is defined as a variety of stresses, a cell encounters as a result of changes in its internal and external environment. Wound healing is a complex but generally orderly process. Sequential waves of specialized cell types first clear the inciting injury and then progressively build the scaffolding to fill in any resulting defect. The events are orchestrated by an interplay of soluble growth factors.

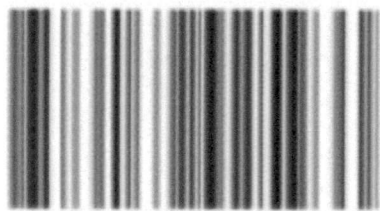
The general principles of healing and the cellular and molecular events observed in nonoral sites, also apply to healing processes that take place following periodontal treatment.

It is important to mention that these various phases of wound healing overlap somewhat in time.

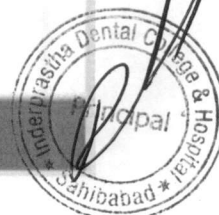
In this book an attempt has been made to collect the available literature pertaining to wound healing related to various periodontal treatment modalities.

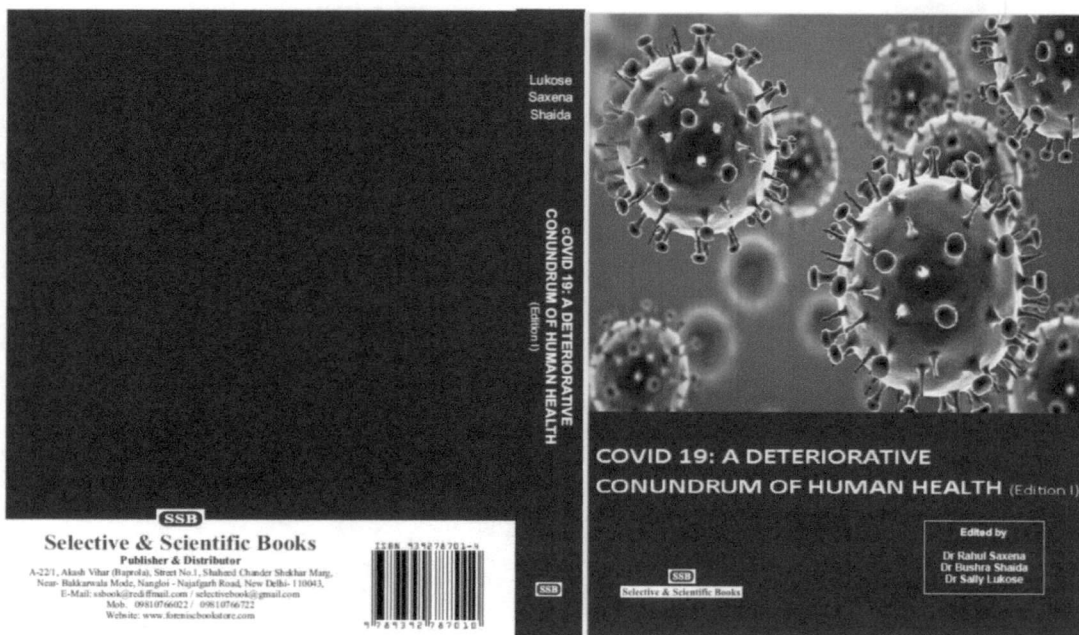


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CHAPTER-3

COVID-19 and Neurological Health

Sankalan Sarkar¹ and Sudipta Kundu²

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Introduction:

SARS coronavirus 2 (SARS-CoV-2) infections impacted 230,418,451 individuals including 4,724,876 deaths reported globally till 25th September 2021.¹

Seventy percent of COVID-19 patients have mild to moderate respiratory symptoms, while the remaining have severe to fatal respiratory and systemic diseases based on their unique genetic makeup, the severity or phase of infection and inappropriate management.²

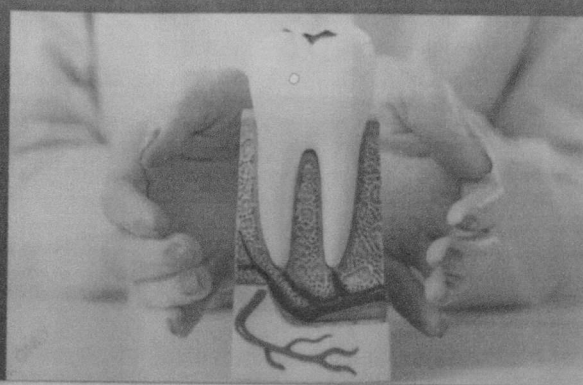
Several neurological disease complications have been seen in severe acute respiratory syndrome SARS-CoV-2.³

Multiple coronavirus strains have been shown to have neurotropism and neuro invasive properties, resulting in neuro and psychological repercussions in a subgroup of the COVID-19 afflicted population. The majority of COVID-19 patients with respiratory disease have headaches, nausea, and vomiting; up to 40% have dizziness, disorientation, cerebrovascular disease, muscular pain, ataxia, and seizures. Taste and smell loss, visual acuity problems, and discomfort also occur at the same time. SARS-CoV-2 infection is associated with such central nervous system (CNS) signs and symptoms, and the majority of deaths are due to respiratory failure, which is a pathophysiological result of a compromised brain-lung-brain axis in which neurological dysfunction and lung injury are mutually inclusive.²



Dental caries is often not self-limiting and without proper care, caries can progress until the entire tooth is destroyed. It can be prevented considerably by controlling multiple factors that are the causative agents of this disease. Any factor that can balance between remineralization and demineralization can be utilized as a weapon in the battle against dental caries. However, for some individuals, it happens simultaneously in the oral cavity.

For a Paediatric patient assessing the risk of dental caries and preventing the teeth from it is extremely important. Various materials and methods have been reported in the literature to attain prevention from decay depending on its clinical potential. Along with the improved advancements in prevention and assessment of dental caries patient's and operator's convenience must also be considered. Therefore, by re-establishing the optimal oral health through the various approaches which are discussed in this book, a Paediatric dentist can preserve tooth structure and avoid costly & extensive dental treatments among children.



Dr. Swati is a budding pediatric dentist who loves being around children and trying her 100% in giving the pediatric patients the best dental experience as she is very passionate about her work she keeps on digging newer ideas about how to make every smile a beautiful smile and make the world a happier place.



Dr. Swati Tomar
Dr. Shabana Alam
Dr. Ritika Ahuja Malhotra

Recent Advances in Caries Prevention

Caries Prevention

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This book will also guide when to start with surgical means and which all are the best patients suitable for different treatment options available. I believe that the combination of expert opinion complemented by clear illustrations help make this book a unique and useful guide for every sleep doctor.

Obstructive Sleep Apnea

[illegible]

Deepti Yadav
Ish Kumar Sharma
Tanushree Singh



Prof. Dr. Deepti did her Bachelors(2005) and Masters(2008) from GDC, Goa. She has profound interest in academics and vast knowledge in orthodontics and is currently working as professor in Inderprastha Dental College and Hospital. She has won many awards including best graduate award, best orthodontist of the year 2019-20 by eminent healthcare awards.

Obstructive Sleep Apnea

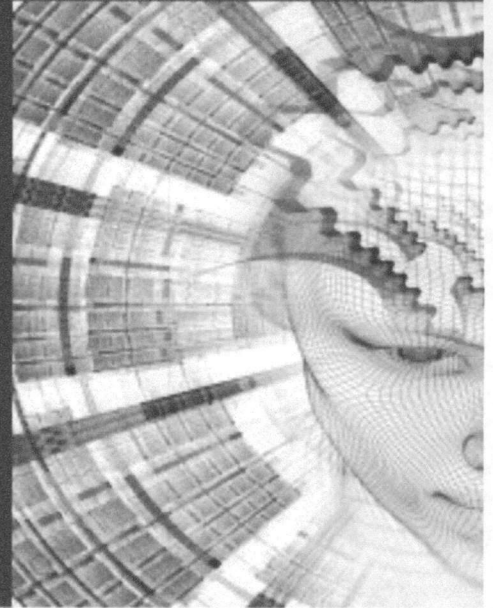
An Orthodontist's Perspective



Yadav, Sharma, Singh



In fixed orthodontic treatment, wires and brackets are the basic elements that are used to move teeth. Orthodontic wires are components of orthodontic appliances used to carry out the necessary tooth movements. The development of an optimum, predictable and effective orthodontic force system is predicated on the knowledge of mechanics, biomaterials and their interaction. Wires have been a mainstay in orthodontic treatment since the establishment of the profession. Growing demand of invisible braces by aesthetically conscious patients has led to remarkable inventions in materials for aesthetic labial archwires. Appropriate use of all the available wire types may enhance patient comfort and reduce chairside time and the duration of treatment. It may be beneficial instead to exploit the desirable qualities of a particular wire type that is specifically selected to satisfy the demands of the presenting clinical situation.



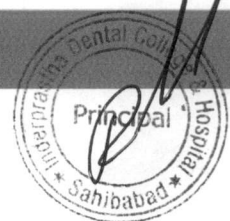
Prof. (Dr) Vineet Golchha, a proud alumni of Manipal Dental College, where he did his Bachelors from and Rajiv Gandhi University of Health Sciences where he completed his Masters in Orthodontics in 2008. He has a strong foundation in academics and currently works as Professor in Department of Orthodontics, Inderprastha Dental College and Hospital.



Golchha, Gulia, Lakher

ORTHODON

Evolution, Propertie



Orthodontics is the speciality of dentistry, which deals with the alignment of the teeth in order to achieve optimal function and aesthetics. Space closure after extraction becomes an integral part to be included in orthodontic treatment planning which demands a thorough understanding of the biomechanics. Space closure can be done via 2 different mechanics i.e., friction mechanics and frictionless mechanics. Frictional forces pose clinical challenges. In order to minimize them, they should be understood so that they can be effectively controlled. Their increase may be an advantage when used for anchorage, but harmful because of their effects on sliding mechanics. The effects of biological and mechanical variables on orthodontic tooth movement should be evaluated. The physical or mechanical variables that influence friction are more frequently researched than the biological variables. They should be carefully taken into consideration during orthodontic treatment to increase efficiency in different clinical situations. The technological innovations used to develop new low-friction materials seem to present good potential to reduce friction in specific clinical situations.

Friction vs Frictionless Mechanics



Dr. Rahul Paul, MDS is an orthodontist as well as an academician. He has infinite clinical skills and immeasurable academic knowledge in Orthodontics and is currently working as the principal of Inderprastha Dental College & Hospital. He has various awards to his name which he attained throughout 25 years of experience in the field of Orthodontics.



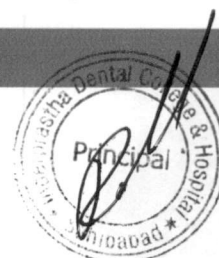
Paul, Gupta, Tarishma

Rahul Paul
Mudita Gupta
Potsangbam Tarishma

Friction vs Frictionless Mechanics

Biomaterials, Biomechanics, Innovations


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Digitization in Dentistry

Clinical Applications

Priyanka Jain
Mansi Gupta
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Mansi Gupta	





13.1 Introduction

An attractive smile is always a desire of an individual for his or her social well-being and confidence. Aesthetics, being one of the most important pillars of dentistry, has always been a part of the research for better outcomes. Smile analysis and designing have been under focus in dentistry since last decade and necessitates a comprehensive approach to patient care.

Knowledge of interrelationships between dental anatomy and physiology and patient's soft-tissue treatment limitations [1]. From the first generation when hand drawing on printed photos of the patient was used to communicate and explain the final outcome, it has now progressed into complete digital drawing on DSD software on a computer.

The chapter is divided into three parts for ease of understanding. The first part starts with explaining the analysis of dental and facial components required in a smile design followed by the digital shade matching instruments and its advantages over conventional technique and the various systems available commercially. It then goes on to discuss the requirements for a digital smile design technique (and the different software) which is a tool to design and modify the smile of patients and helps them to visualize it beforehand the final outcome. This section also includes information on photographic views required for smile designing. Various devices are now being used to visualize diagnosis and improve communication and enhance predictability throughout treatment. The chapter concludes with the future advancements in this field.

S. Hooda (✉) · G. Paul

Department of Prosthodontics, Inderprastha Dental College, Ghaziabad, India



Dental caries is a disease of dental hard tissues, characterized initially by the decalcification of the inorganic portions of the tooth. Various treatment modalities have been implemented since long time to prevent this disease. Remineralizing agents are part of a new era of dentistry aimed at controlling the demineralization/ remineralization cycle, depending upon the microenvironment around the tooth. The rationale of these agents is the remineralization of early carious and non-carious white lesions, advocating a biological or therapeutic approach rather than the traditional surgical approach. This book gives a detailed account of current trends & updates regarding various remineralizing agents used in dentistry.



Dr. Pratik Pande
Dr. Pratik Pande has graduated from Seema Dental College & Hospital. He is currently pursuing his postgraduation in the Department Of Pediatric & Preventive Dentistry from Subharti Dental College & Hospital, Meerut. He has been a part of many state & national conferences with various paper & posters presentations.



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REMINERALIZING AGENTS

Current Trends In Remineralization In Dentistry

Pratik Pande
Vivek Rana
Nikhil Srivastava

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Chapter 4

**MUSCULOSKELETAL DISORDERS
AMONG INDIAN DENTISTS: POSTURE AND
EXERCISE IS THE KEY TO PREVENTION**

Vineet Golchha^{1,*} and Pooja Sharma², PhD

¹Department of Orthodontics and Dentofacial Orthopedics,
Inderprastha Dental College and Hospital,
Ghaziabad, Uttar Pradesh, India

²Amity Institute of Physiotherapy, Amity University,
Noida, Uttar Pradesh, India

ABSTRACT

The prevalence of work-related musculoskeletal complaints in dentists is high and the past two decades have witnessed a sharp rise in the incidence. The prevalence of general musculoskeletal pain ranges between 64% and 83% among the dentist. The most affected regions for pain in dentists have been identified as the back and the neck. Prevention

*Corresponding Author's E-mail: orthodontist@gmail.com

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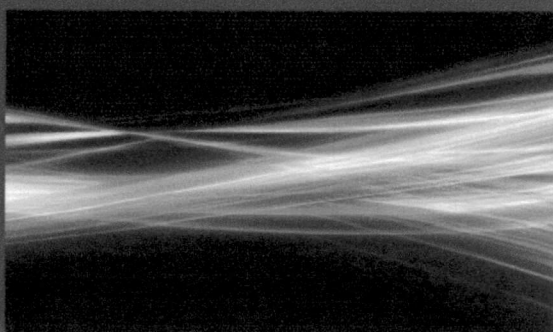
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The laser is an oscillator of light using an amplification process based on stimulated emission from atoms in an optical resonator. Laser light has a narrow spectral width with a high degree of spatial coherence. The handbook provides an understanding of laser physics, its safety, and laser-tissue interaction. The laser beam is unidirectional, focuses on the tiny spot. The book deals with the history and classification of laser and its application in nonsurgical periodontal therapy. Laser applications in implant and various fields of dentistry are highlighted in the text with the detailed role of laser in surgical periodontal therapy. The writing lays great emphasis on low-level laser therapy with its application in Perimplantitis. LASER is truly a "magical" light in Periodontology.

LASER in Periodontology



Manika Jindal Mittel
Vikram Blaggana
Preeti Upadhyay



Dr. Manika Mittel BDS, MDS, PhD maintains a private practice in aesthetic and implant dentistry for more than 20 years. She is currently the Program Director of the post-graduate training at Implant Centre, Inderprastha Dental College & Hospital, India. Dr. Mittel is a Fellow of the International College of Dentists.

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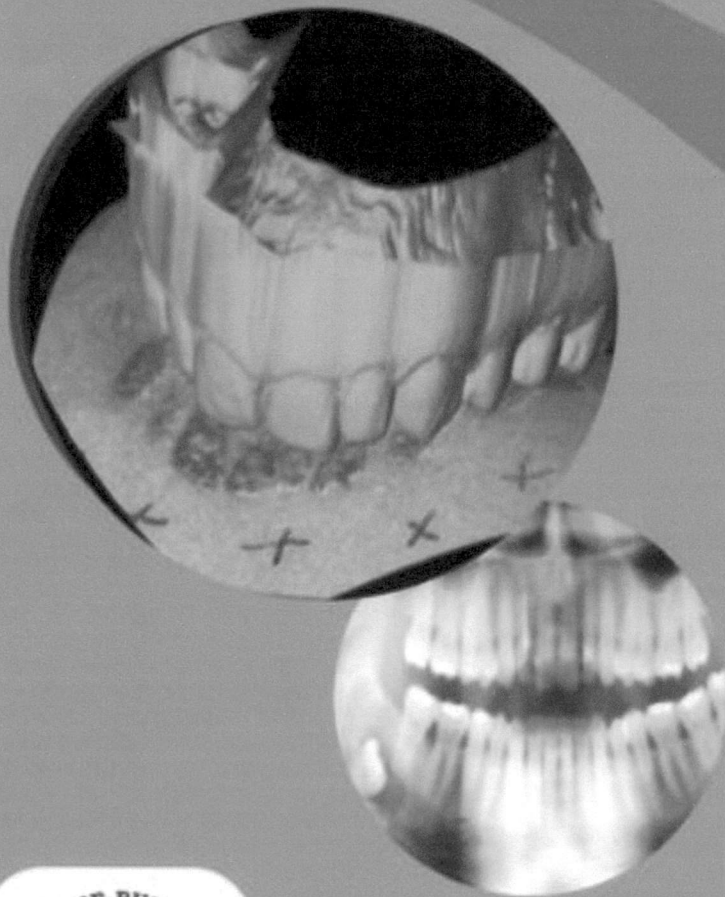
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A Concise Textbook on Forensic Odontology

First Edition



Dr. Sumit Bhateja
Dr. Geetika Arora



A Concise Textbook on Forensic Odontology

Dr. Sumit Bhateja has obtained Master of Dental Surgery in the specialty of Oral Medicine, Diagnosis and Radiology from Dr. B.R. Ambedkar University, Agra, UP. He has over 100 publications in various National and International journals to his credit till date. He's been in editorial and reviewer board of some National journals. He has authored two textbooks with foreign publishers and one with National. He has worked on two ICMR funded projects in the year 2012 and 2020. He's completed Postgraduate Diploma of 1-year duration in the speciality of Forensic Odontology. Further completed Ph.D. programme in the field of Alternative Medicine. Has teaching experience of 9 years at various dental colleges in India. Has been Thesis Guide to M.Sc Forensic Science students. Presently working as HOD, Dept. of Oral Medicine and Radiology, Faculty of Dental Sciences, Manav Rachna International Institute of Research and Studies, Faridabad, Haryana.



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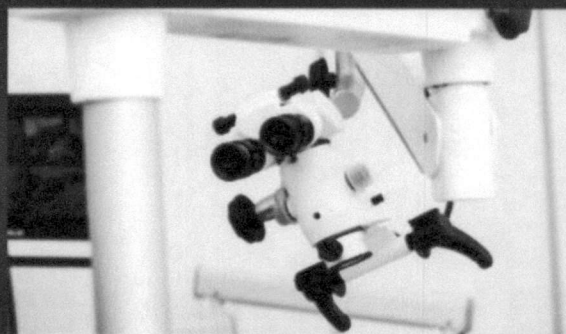
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Endodontic Microsurgery



Dr. Upasana Bhandari is pursuing MDS in the department of Conservative dentistry and Endodontics at IDST, Modinagar. She believes in quality research and holistic treatment.



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Meet the Authors



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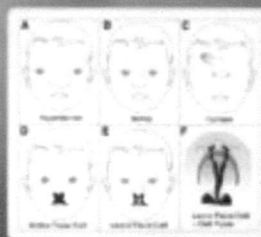
Dr. Geetika Arora passed her BDS from prestigious BGSPPS Bangalore in the year 2006 and MDS in the specialty of Public Health Dentistry from Dr. B.R. Ambedkar University Agra in the year 2012. She has around 60 papers published in various National and International journals. Presently working as Associate Professor in the Department of Public Health Dentistry at Indraprastha Dental College and Hospital, Subhashid.

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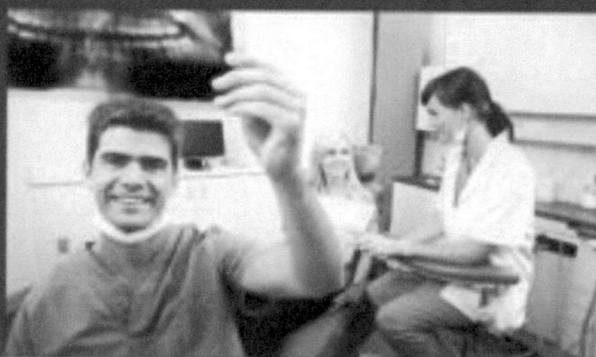
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Detailed knowledge of the morphology of multirrooted teeth and their position in the dental arch is a fundamental prerequisite for a proper understanding of periodontal problems. These problems or malocclusion both are the result of defective periodontal status. They appear in a high challenge to the periodontist because of their unique etiological characteristics including the size and shape of the teeth, the root and their alveolar housing, crown nature and pattern of periodontal destruction and their unique response to treatment. Thus, it creates a situation in which routine periodontal procedures are somewhat ineffective and requires special procedures to attain success. For the treatment demands for the furcation involved lesions, it must be noted that there is no specific scientific evidence that a given treatment modality is superior to the others. However, the key to long term success of treatment of furcation appear to be selection of a well motivated patient with good oral hygiene and a thorough diagnosis leading to careful surgical and restorative management.



Vinod Panwar
Anshu Shigga
Ritu Dahiya



Dr Vinod Panwar, MDS (Periodontology & Implantology) is working in Harjana Government, India. He has presented many posters and papers in various national conferences and has many publications in reputed journals.

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