

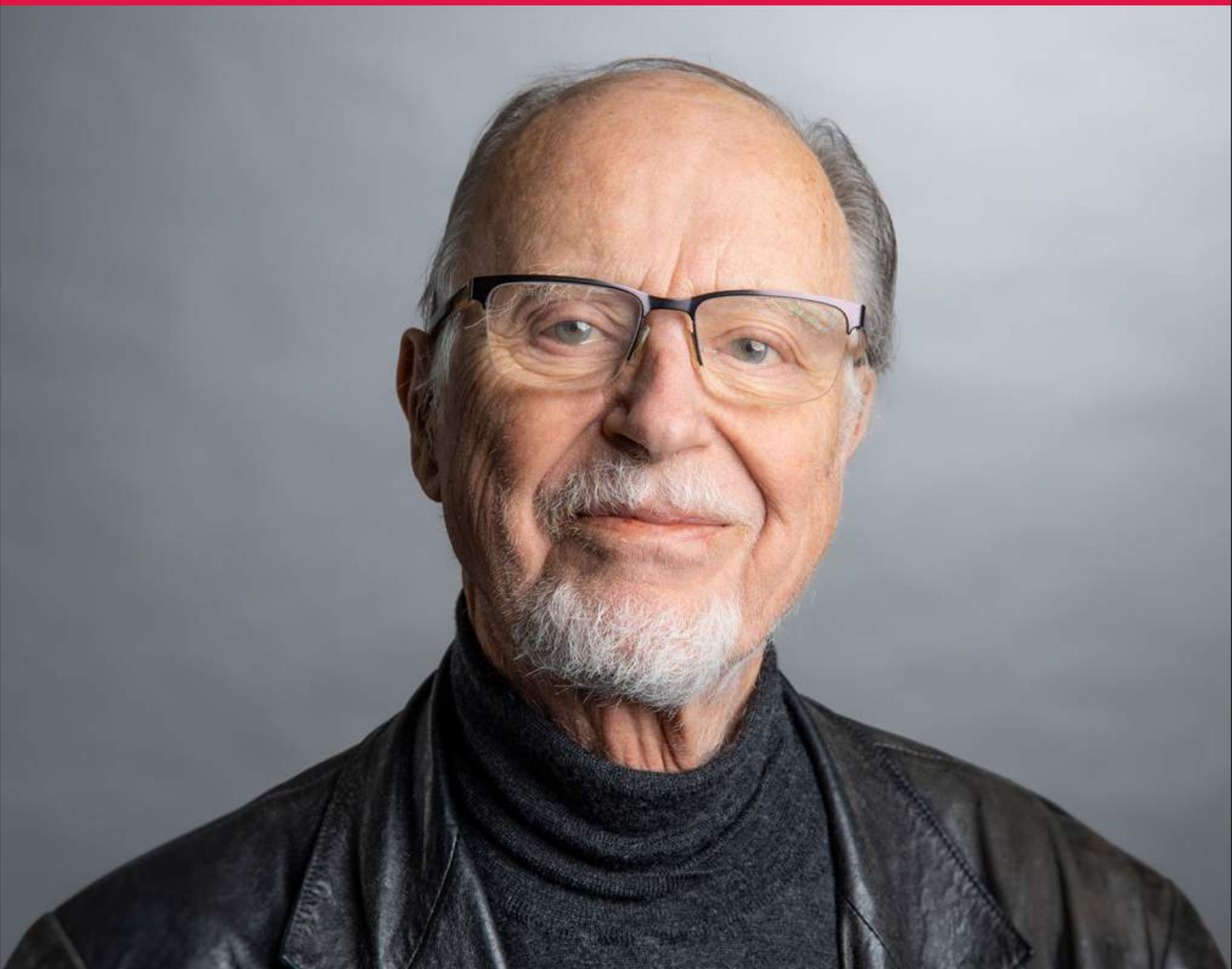
DENTAL 360

Volume -1, Issue -5, October 2020

e-Newsletter published by Prevest DenPro Limited, India.



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THE FUTURE OF DENTISTRY



"I would like to invite you to keep up with researching and giving the best treatment to the millions of new trauma patients each year. That is the best gift you could give me."

Jens Ove Andreassen
(1935-2020)

In Memory of Jens Ove Andreassen (1935-2020)

This issue of Dental 360 is dedicated to the memory of Prof. Jens Ove Andreassen. Jens Andreassen is regarded as the father of modern dental traumatology and his passion, research and knowledge in his field of study has been the best so far. Dr. Jens was a giant in dental traumatology and his demise on 26, September 2020 was a big blow to the scientific fraternity.

Dr. Andreassen graduated from the Royal Dental College, Copenhagen, in 1959. He completed his postgraduate training in Oral and Maxillofacial Surgery at the University Hospital in Copenhagen and continued to serve the hospital for the rest of his life. As a young surgeon, he realized that knowledge in the field of dental traumatology was inadequate.

Dr. Jens transformed the management of traumatic dental injuries by his meticulous approach to research and education. His collection of standardised records of over 40,000 patients formed the basis of many publications and textbooks and has contributed hugely to the knowledge base on traumatic dental injuries. Jens was instrumental in creating the Dental Trauma Guide. He authored 350 published articles and 11 textbooks on dental traumatology. His first textbook was published in 1972 and he continued to add substantial information regularly. The 5th edition of his book was released recently and it continues to be the bible of dental traumatology.

Jens was a founding member of the International Association of Dental Traumatology and his passion was to improve the management of dental trauma globally. He generously shared his wisdom and experience and inspired researchers around the globe.

In his last greeting, Dr. Andreassen said...

“I would like to invite you to keep up with researching and giving the best treatment to the millions of new trauma patients each year,” he wrote. “That
Dr. Sai Kalyan is the best gift you could give me.”

I hope we can continue to pursue his legacy and keep him close to our heart.



REGENERATION - 'THE APEX OF ENDODONTICS'

By : DR. NIDHI PARIKH

Platelet concentration has been utilized in various specializations of dentistry for about three decades as a regenerative tool that releases supraphysiological doses of growth factors responsible for tissue regeneration. Since then platelet rich plasma (PRP) has been used comprehensively not only in regenerative endodontics but also in oral maxillofacial surgery, orthopedic and other esthetic surgeries. However, various concerns have been raised owing to use of anticoagulant i.e. bovine thrombin or other anticoagulants which are known suppressors of tissue regeneration¹. Thus platelet rich fibrin (PRF) was developed as the first autologous blood derived growth factor harvested without use of anticoagulants. PRF further forms a three dimensional fibrin matrix which may serve as a scaffold for tissue regeneration². Taking advantage of slower and shorter centrifugation speed injectable form of PRF (i.e. i-prf) was developed with aim of delivering platelet concentration in liquid form. This injectable PRF has enabled clinicians to use liquid formulation alone or in combination with various other biomaterials.³

Regeneration rather than replacement of tissues with an artificial substitute is an emerging trend in field of endodontics. This procedure is done to reestablish the vitality of a nonvital, immature tooth with a wide open apex which at times is blunderbuss. Regenerative endodontics has shown promising results especially in young patients. It allows resolution of periapical infection followed with thickening of thin fragile dentinal walls and elongation of underdeveloped root.

CASE REPORT :

A 16 year old female patient reported to the department of conservative dentistry and endodontics, Rural dental college, Loni with chief complaint of discoloured and mal-aligned #21 (Fig 1). As the tooth was proclined and out of the arch, it was subjected to trauma 8 years ago. The radiographic examination revealed an immature apex # 21 (Fig 2). On electric pulp sensibility testing the tooth was non-vital. Thus a multidisciplinary approach was planned where along with regenerative endodontics, orthodontic treatment was simultaneously started.

TREATMENT PROTOCOL :

Access opening was performed under the rubber dam with a round diamond and an Endo-Z bur (Dentsply Maillefer, Tulsa, OK). Minimal mechanical instrumentation with 60 k file and 0.5% of sodium hypochlorite and normal saline was used. Working length was established and confirmed radiographically (Fig 3). After thorough disinfection, triple antibiotic paste (metronidazole, ciprofloxacin and doxycycline) in 1:1:1 ratio was mixed and placed intracanal for 21 days. The tooth was restored with IRM and the patient was recalled after 21 days for further

treatment.

On the second appointment, IRM was removed and isolation with rubber dam was achieved. Patient was anesthetized with local anaesthesia 2% lignocaine without a vasoconstrictor. Root canal was irrigated with 0.5% NaOCl and activated with an endoactivator (Fig 4) followed by normal saline to remove the triple antibiotic paste dressing. 20 cc of 17% ethylenediamine tetra acetic acid was used to irrigate the canal. The canal was dried with paper point and bleeding was induced with #25 k file 2mm beyond apex till frank bleeding was seen (Fig 5). Blood was withdrawn with scalp vein set and plain 6cc vacutainer from antecubital vein (Fig 6). Slow Centrifugation was done at 800 RPM for 8 mins in REMI centrifugation machine (Fig 7), i-PRF was withdrawn from the vacutainer with needle of 20 gauge which was kept at the junction of RBC's and platelet rich layer (Fig 8). The liquid form was injected into the canal, Pro Root MTA was condensed coronally after 10mins so as to ensure proper gel formation of the injected prf. The chamber was sealed with moist cotton above MTA followed by glass ionomer cement and checked radiographically (Fig 9). Patient was recalled after 48 hours, the set MTA was evaluated and permanent composite restoration was done. Patient was evaluated at 3 months, 6 months and 12 months follow up clinically and radiographically (Fig 10).

As the regenerative procedure had started at the same time orthodontic treatment for rapid maxillary expansion with Bonded Hyrax appliance was placed for the duration of 3 months followed by fixed orthodontic treatment with MBT twin bracket system to correct proclination of upper arch which is still ongoing treatment with expected duration of 15 months (Fig 11).



Fig 1 - Pre operative clinical photograph showing discoloured and proclined # 21.

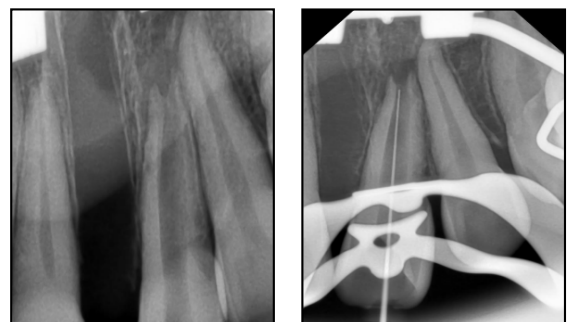


Fig 2, 3 - Pre operative radiograph and working length estimation #21.

Regeneration-'The Apex Of Endodontics'



Fig 4 - Clinical photograph with sonic activation by EndoActivator.



Fig 5 - Bleeding was induced with #25 k file.



Fig 6 - Blood withdrawn from antecubital vein.



Fig 7 - After centrifugation injectable PRF.



Fig 8 - Withdrawal of i-prf



Fig 9 - Immediate postoperative radiograph.

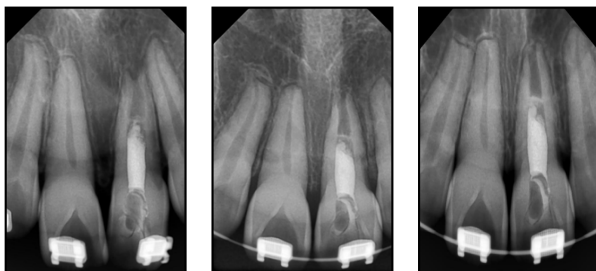


Fig 10 - 3 months, 6 months and 12 months follow up respectively.



Fig 11 - Ongoing fixed orthodontic treatment.

DISCUSSION AND CONCLUSION:

Choukroun⁴ and Ghanaati et al⁵ in their experimental study showed that low speed centrifugation, that is just enough to separate platelets from red blood cells yields

significantly higher number of leukocytes, platelets and growth factor concentration as compared to conventional PRF. This new protocol also resulted in formation of liquid PRF matrix without use of anticoagulants. Authors claim that i-PRF prepared by low centrifugation concept are highly enriched with vascular endothelial growth factor and transforming growth factor which are required for neovascularization and angiogenesis. The present immature non vital tooth utilizing this low centrifugation concept has shown promising results.

Revascularization of a necrotic immature tooth has been assumed to be impossible due to extreme difficulty in disinfecting the canal. Mechanical instrumentation cannot be performed in these teeth as dentinal walls are thin and fragile. Thus the sole disinfection role is played by irrigants and intracanal medicament. 0.5% NaOCl and triple antibiotic paste achieved disinfection in the present case. Polymicrobial root canal flora was effectively eliminated by a combination of metronidazole, ciprofloxacin and doxycycline. Doxycycline inhibits matrix metalloproteinases and collagenases, ciprofloxacin and metronidazole in addition can generate new fibroblasts.⁶ Further use of 17% EDTA in revascularization has shown to increase SCAP survival expression. EDTA acts to demineralize dentin and expose dentin matrix to release growth factors.⁷ Dentin matrix derived growth factors has shown to be capable of signaling stem cells of apical papilla to differentiate into odontoblast like cells.⁸

Induction of intracanal bleeding was intentionally done to provoke periapical tissue bleeding into the pulp canal space. This blood clot acts as a scaffold for growth factors and mesenchymal stem cells into canal space for possible pulp regeneration.⁹ Along with blood clot i-PRF was used as it is extremely rich in growth factors thus enhancing the outcome of blood clot. The present case shows evidence of continual root formation after regenerative endodontic procedure despite ongoing orthodontic treatment. As bone is in continuous state of remodeling, due to fixed orthodontic treatment there is bone resorption as well as bone deposition. This can lead to root resorption at times due to excessive orthodontic forces. Yet we can see radiographically a well-defined calcific barrier below placement of MTA and apical root formation #21.

Thus, we can conclude that properly executed regenerative endodontic treatment governed by proper inclusion criteria ensures most definite results.

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Dr. Nidhi Parikh

Education Qualification : Pursuing M.D.S in the field of Conservative dentistry and Endodontics. Presently she is a final year post graduate student at Rural dental college, PMT PIMS, Loni Bk.

Completed Bachelor of Dental surgery (B.D.S) in 2017 from Rural dental college, PMT PIMS, Loni Bk.

She has been crowned with the best paper in 2nd International Congress Of World Academy of Growth Factors And Stem Cells In Dentistry. Has attended various national and zonal conferences and presented papers and posters in the same. Also published articles in various national and international journals.



Product Profile :

A.C.E. (Ceramic Repair Kit)

Comprehensive set for intraoral repairs of ceramic and composite restorations. This comprehensive system comprises the necessary bonding and veneering materials.



Product Profile :

OraTemp C&B (Temporary Crown and Bridge Material)

OraTemp C&B (crown and bridge material) is a two component self curing composite material for chair side fabrication of temporary crowns, bridges and other temporary intra-coronal restorations. Ideal for both short and long term temporization.

DENTISTRY & COVID-19 :

Dentistry, also known as **dental** medicine and oral medicine, is a branch of medicine that consists of the study, diagnosis, prevention, and treatment of diseases. Dentist is basically a certified degree holder who practices dentistry. It basically deals with oral health and encircles around 32 teeth. Dentistry starts from prevention to conservative treatment to replacement till rehabilitation of teeth or its nearby structures. Oral health is considered as mirror of overall health of body.

With the end of 2019, a virus and its exponential casualties raised in Wuhan province of China which spread across the globe in matter of few months. WHO declared this Covid-19 a pandemic in March 2020. Post that many countries observed nationwide lockdown to ensure lower infectivity thereby decreasing total number of casualties. India also observed lockdown from last week of March till Mid of May whereby all sorts of travel was prohibited for the sake of reducing transmission and infectivity.

Practicing dentistry in such major pandemic situation is another bigger question and threat to both, operating dentist and the patient as coronavirus majorly spreads through droplet infection. It became difficult for dentists to look after their

patients as patients were not able to even visit the dentist for their treatment. Tele-counselling helped much in such time or atleast to provide relief for some time till procedure by dentist is done.

Nationwide lockdown has been lifted and dental clinics are running again. Special precautions to stop transmission of this infection were and are required such as regular sanitization of dental clinics with hypochlorite solution or regular wearing of PPE (Personal protective equipment) kit in order to protect oneself from transmission of disease. Pandemics proved to be a major setback as far as oral health is considered but emerging out stronger is the need of hour.



Dr Rupali Raina

Dr Rupali Raina belongs to land of Jammu and Kashmir. She completed her bachelor's in dentistry from IDS, Jammu (Institute of Dental sciences) in 2017. She is a member of Indian Dental Association. Post her graduation, she practiced at a private clinic in Jammu but later on opted for master's in public health and working as a consultant with an International Organization Care India in Bihar.

Impact of COVID-19 on geriatric dental treatment

Aging is a natural process. Like other health problems, oral health starts deteriorating as the person matures, therefore, there is an increase need to provide age appropriate oral health care to the patients. With the emergence of SARS-CoV-2 that causes COVID-19, new challenges to access oral health care have arisen for the geriatric population. The problem is caused by the synergistic effect of two factors: 1] older age and the presence of co-morbidities, which have been clearly linked to fatal outcomes of COVID-19 infection 2] Production of aerosols during dental procedures, which is the way that SARS-CoV-2 infection is transmitted. As person starts aging immune system becomes less efficient and therefore they become more susceptible to emerging infectious diseases. Consequently, it is not surprising that data have shown that older adults are more at risk for COVID-19 infection. During the COVID-19 pandemic, elective dental procedures have been suspended in most countries, only emergency care has been provided in many dental practices to avoid patients overwhelming the already overflowing emergency rooms in hospitals which is likely to worsen the condition of patients with chronic dental problems during this crisis. In the new normal, dentistry will need to adhere to new oral health care protocols, which will include pre-screenings, rapid testing, social distancing, and new infection control procedures intended to prevent respiratory pathogens spread. Currently, aerosol generating procedures should be avoided in open areas. Contemporary conservative approaches for treating older adults, like the use of silver diamine fluoride - SDF - and atraumatic restorative techniques - ART, such as using hand instruments and glass-ionomer cements are likely to become more routine. In summary, providing oral health care for

geriatric population is facing important new challenges due to the emergence of COVID-19 infection, and will continue to include new barriers at least until an effective treatment/vaccine is developed because until an effective treatment or vaccine is developed for COVID-19 infection, it is unrealistic to expect that the older adults and their caregivers/guardians will expose themselves to dental procedure. In order to avoid predictable increases in oral hygiene problems during this crisis it is important to establish good communications with caregivers. Using empathetic listening and compassionate care, the dentist/hygienist should be able to encourage oral hygiene routines to be maintained, in spite of the current stresses over the pandemic. Teledentistry can be an important ally to encourage the maintenance of oral hygiene routines and the ability to evaluate urgent oral health problems. When determining if the patient needs to have a face-to-face appointment, the clinician will need to decide where the patient should be seen, and what should the patient and his/her caregiver expect during the appointment. This needs to be carefully considered and explained to the patients and his/her caregiver before setting up the appointment.



Dr. Surbhi Gandotra

Dr. Surbhi Gandotra belongs to Jammu and Kashmir. She has completed her Bachelor's in Dental Surgery from Institute of Dental Sciences Jammu. Now she is pursuing a postgraduate degree in health and hospital management from Institute of Health Management Research Jaipur. She is highly enthusiastic and motivated to work in the health care field in the coming years.



Jens Ove Andreassen (1935-2020)



Dr. Andreassen received his dental degree from the Royal Dental College, Copenhagen, in 1959. He did his postgraduate training in Oral and Maxillofacial Surgery at the University Hospital in Copenhagen, where he was an associate Professor. Dr. Andreassen authored 400 publications and 12 textbooks, covering topics such as dental traumatology; tooth replantation and auto-transplantation, tooth eruption and tooth impaction. In relation to traumatology the Textbook and Color Atlas of Dental Traumatology is now in its 5th edition and includes 62 contributors. He founded the interactive Dental Trauma Guide in 2008 which is now being used in 180 countries. It contains information of a series of prospective long term studies

of all types of traumatic dental injuries carried out at the trauma center and Department of Oral and Maxillo-Facial Surgery as well as information from 50 animal experiments reproducing treatment scenarios of various dental traumas affecting primary as well as permanent teeth. Dr. Andreassen received four honorary doctorate degrees and visited 49 countries to deliver lectures.

He was a true professional, and also a devoted family man and our thoughts are with his wife Anna-Lena and his family. He will be missed by many colleagues and friends worldwide, and his legacy will live on forever.