Complex dental problems and the contribution of adjunctive orthodontics

By Professor Athanasios E. Athanas, DDS M

The goal of contemporary dentistry is the maintenance of natural dentition under biologically, functionally and esthetically optimal conditions, for the longest possible period. An increasing number of adult people present a variety of complex dental problems, which concern more than one clinical discipline or specialty. These include caries, periodontal diseases, dental trauma, edentulous sites, malocclusions, or their combination.

This article outlines existing orthodontic therapeutic possibilities for adjunctive dental work and emphasizes the importance of teamwork among the general dentist, the orthodontic specialist, and other dental specialists.

Principles of treatment planning for complex dental problems

The need to formulate problem-oriented treatment plans, which address patients’ chief complaint for complex cases necessitates consensus among the parties involved namely the general dentist, the specialist and the patient. Diagnosis must utilize patient’s data, derived from records interpreted by the clinician using strict scientific criteria. On the other hand, treatment planning constitutes an intellectual process where subjective elements are often involved. It is the path that the well-educated and experienced clinician follows in order to maximize the benefits for the patient, which must be contrasted to the cost and risk involved when certain procedures are adopted (1). An essential requirement for successful interaction is that both general practitioner and specialist are in agreement regarding the advantages and limitations of the treatment chosen.

Adjunctive orthodontics

Orthodontics and periodontics

It has been documented that orthodontic treatment in patients with severe periodontal destruction is no longer a contraindication (3). On the contrary such treatment might even enhance the possibilities of saving and restoring a deteriorating dentition. During the orthodontic movement it is the entire periodontal unit (bone, periodontal ligament, and soft tissues), which moves with the tooth (4). This all-embracing movement has been shown to be beneficial when orthodontic uprighting of tipped molars is undertaken since the crestal bone exhibits predictable and considerable changes (5) (Figure 1). Forced eruption has also been reported to decrease the depth of isolated vertical infrabony defects and to expose tooth structure, thus allowing the prosthetic management of subgingival fractures, caries and lateral root perforations (6) (Figure 2).

Orthodontics and missing teeth

In cases where lateral incisors are congenitally missing and other malocclusion co-exist, in most instances the treatment of choice is the orthodontic movement of the canines to-
O ral surgery is an important cornerstone in orthodontic treatment of malocclusions. Tooth movement is only possible to a limited extent and always depends on the biomechanical adjustment of the jaw and mandible in relation to each other, as well as on deformities of the jaw in relation to the other facial bones.

Abnormalities may be congenital or acquired and may affect patients in childhood already. If so, the focus of orthodontic treatment is not primarily in the aesthetic correction, but is guided by functional and prophylactic concerns. Efficient occlusion and restoration of masticatory function are decisive factors for tooth preservation and prevention of secondary disorders (Figs. 1a–c). Without a doubt, aesthetic improvement, as well as the associated self-consciousness, is the main concern of adult patients, which can be pursued through surgical correction.

Causes of malocclusion

Generally, patients visit an orthodontic practice only after symptoms or significant abnormalities are already present. Clinically, this results in late mixed dentition or permanent dentition, when they still complicate an accurate mapping of the reasons for this malocclusion. In the literature, the causes of malocclusion and the aetiologic structure of the symptoms of malocclusion in orthodontic patients are controversial issues. No explicit information on the percentage of patients with acquired and hereditary aetiologies can be found in a study by Schopf (1981) on the exogenous factors identified whether the deformities and mandible, it must be clarified whether the deformities are dentoalveolar or skeletal. Owing to the limitations of conventional orthodontic treatment, skeletal discrepancies can rarely be entirely resolved. In those cases, combined orthodontic–surgical treatment using removable appliances or brackets. A detailed medical preoperative discussion should inform patients about the risks of combined treatment and the consequences of untreated malocclusions. Malocclusions can cause numerous side-effects, such as back pain and chronic headaches (Figs. 4a–d), in particular dolichocephalic face types, malocclusions can cause ankylosis of the jaw area, it is important to consider the correct position of the jaw and the optimal occlusion. This crucial step has to be performed by the orthodontist as accurately as possible because determining the degree of displacement of the jaw depend on achievable occlusion. Furthermore, teeth have an influence on the access to the surgical field and wisdom teeth must be removed before osteotomy in certain cases.

Osteotomy can be done on both jaws or can be limited to the maxilla or mandible. However, in many cases it is functional to perform bimaxillary osteotomy and to shift both jaws. Today, generally the entire tooth-bearing part of the jaw is shifted. Segmental osteotomy has not been proven to be very successful in the past and corrections of malocclusions are left to the orthodontic treatment partners. In this field of treatment, the Osteoveriser-Dal Pont surgical technique is recommended. This procedure describes an intra-oral stepped osteotomy at the mandibular ramus (Figs. 7a & b). Since Bell and Epker described the possibility of bimaxillary surgery as the “down graft” technique in 1975, it has been popular and today you can find it mostly as a combinative procedure.

Orthodontic–surgical collaboration as a key to success

By Drs Martin Jaroch & Friedrich Banz, Germany

The causes of malocclusion and the aetiologic structure of the symptoms of malocclusion in orthodontic patients are controversial issues. No explicit information on the percentage of patients with acquired and hereditary aetiologies can be found in a study by Schopf (1981) on the exogenous factors identified. In addition to inspection, dental records or simply owing to the orthodontic treatment part-

Selection of patients

Combined orthodontic-surgical treatment requires not only strong and focused interdisciplinary collaboration, but also absolute acceptance of the treatment plan by parents and patients. The treatment is time-consuming and post-operative corrections cannot be excluded. A medical decision must be taken on achievable occlusion. Furthermore, teeth have an influence on the access to the surgical field and wisdom teeth must be removed before osteotomy in certain cases.

Osteotomy can be done on both jaws or can be limited to the maxilla or mandible. However, in many cases it is functional to perform bimaxillary osteotomy and to shift both jaws. Today, generally the entire tooth-bearing part of the jaw is shifted. Segmental osteotomy has not been proven to be very successful in the past and corrections of malocclusions are left to the orthodontic treatment partners. In this field of treatment, the Osteoveriser-Dal Pont surgical technique is recommended. This procedure describes an intra-oral stepped osteotomy at the mandibular ramus (Figs. 7a & b). Since Bell and Epker described the possibility of bimaxillary surgery as the “down graft” technique in 1975, it has been popular and today you can find it mostly as a combi-
nation of Obwegeser–Dal Pont and Le Fort I osteotomy. The bimaxillary approach seems reasonable, since the maxilla and mandible influence each other during growth. However, it is frequently only possible to obtain a very good and risk-free result by using Obwegeser–Dal Pont surgery. Fixation in split osteotomy of the mandible is usually realised by using minimally invasive plate osteosynthesis. In modified techniques of Obwegeser–Dal Pont surgery, a displaced ramus is fixed using osteosynthesis screws only (Hochban 1997; Figs. 8a & b). This modification avoids the complicated surgical removal of osteosynthesis plates.

Operation risk
Any surgical procedure can lead to unexpected complications, which must always be considered according to the risk-benefit principle. Today, the need for osteotomy remains controversial because a jaw deformity is not a serious illness like a tumor, abscess or bone fracture, which is necessarily treated by surgery. Since deformities are often aesthetic corrections and can be classified as elective procedures, operation safety is a chief concern. Isolated osteotomies of the mandible, which present a significantly lower surgery risk, should be the first choice for orthodontic–surgical interventions.

The most significant risk of osteotomy of the mandible is a probability of about 5% of damaging the sensory nerve, called the inferior alveolar nerve. This can cause sensibility problems of the lower lip and chin area (Figs. 9a–c). Additional serious risks are not expected using Obwegeser–Dal Pont surgery and post-operative bleeding can be controlled very safely.

Interdisciplinary collaboration
The literature review of work done in the 1970s makes clear that today’s conscientious collaboration between surgeons and orthodontists is not a matter of course. Over the years, orthognathic surgery was considered to be the last option for treating orthodontic cases that could not be resolved using standard treatment techniques. Therefore, operations were carried out based on tolerance of dentoalveolar compensation and likely made further corrective surgery more probable. Today, in almost all cases of malocclusion, orthodontic treatment is preceded by surgical treatment. Nowadays, the planning of the operation based on simulated cast surgery and the creation of a splint is a very safe method by which to achieve predictable and stable long-term results (Figs. 10a & b). Individual dentoalveolar discrepancies in occlusion can be corrected preoperatively or post-operatively by orthodontic treatment. Therefore, interdisciplinary collaboration is always a benefit for the patient and treatment team.
By Dr. Khaled Abouseada, KSA

It was a pleasure to interview Dr. Nihiklesh Vaid, who could be ranked as one of the key doctors to enliven and strengthen our orthodontic section in the Ortho Tribune, bringing it to new heights by displaying a wide screening of Dr. Nanda’s vast crucial achievements. The focal objective was encapsulating the accumulated information I received from him in an easily digestible manner providing a platform for all the diverse ideas, updates, ethics and principles of orthodontic practices and researches Dr. Nihiklesh conveyed. Working with the philosophy of placing an attractive, remarkable plan to shine light and distinguish professionals orthodontists to paint the path forward for our science-related readers. Dr. Vaid is an innovative leader in the field of Orthodontics and has demonstrated a robust side which played a major role in improving the practice in India, targeting unique researches and development efforts as well as leading growth initiatives.

Dr. Khaled Abouseada: Compared to when you started practicing Orthodontics, has Orthodontics developed through the past years? What are the driving factors behind this development?

Dr. Nihiklesh Vaid: To be very honest I have not been an orthodontist for that long, to see a decade-by-decade shift in the practice of Orthodontics has been a remarkable journey. In the last 12 years from when I did start out, the major thread has been the incorporation of technology in all spheres: Diagnosis, Research, Planning, Materials, and appliances. A lot of purists feel the skill levels of the contemporary Orthodontist are becoming redundant because of technology; I would like to think otherwise. The shift in the role of change and the only thing constant with any science, Fundamental principles will still govern Orthodontic care delivery, but incorporation of technology will ensure a high quality of life both the orthodontist and the orthodontic patient. Today, Micro implants are the main stay of anchorage control, I only use Self Ligating brackets, because of chair side efficiency. Lingual Orthodontics, Aligners, Stereolithography, Robotics are the main stay of our teaching and practice protocols. The third generation is to drive improved precision in these appliances due to CAD CAM and Robotics.

Back to years of study and residency in India, how can you describe those days?

My residency years in Mysore, India at the JSS Dental College & Hospital were literally; to borrow a line from a famous song, the “best days of my life”. Orthodontic training in India is very regimented and even today the aspect is mainly on enhancing dexterity skills, which I think are non-negotiable as far as any Orthodontic training is concerned. The programme at JSS was very “cerebral” and “clinical”, in the sense, we were encouraged to think, very often, out of the box. This has influenced us to be receptive to new advances, without the dogma of a particular school of thought. The bonding and the camaraderie amongst colleagues as well as the discipline that kept us on our toes, were actually lessons that have moulded me to assume greater responsibilities in life.

Do any of your teachers stand out who encouraged you to pursue this career? What would you tell them now?

Well the soul of any teaching programme is the Programme Director or a Director in a Masters Programme, whatever the nomenclature is in any part of the world. The biggest influence in my life has been my Professor, Prof. E. T. Roy, who has mentored me as an Orthodontist in my years in my Masters programme. He is a strict disciplinarian, and was responsible for influencing my life beyond Orthodontics as well. Its important to inspire your residents to be complete professionals, Orthodontics is only a part of what we do. The spirit to serve my profession and professional organization is something that he has instilled in me. Dr Ashok Sinha, Dr Ravi Gupta, Dr Ravi Sable, Dr Shailesh Deshmukh and Dr Sripad Nagarkar have taught me Orthodontics at different stages of my life as an undergraduate and graduate student. My colleagues during my Masters programme, later, most importantly Dr Meghana Vandekar, Dr Gurjeet Singh and Dr Jacob John are also responsible for what I am today. I would like to thank each of these individuals for touching my life and a promise to make them proud with everything I attempt to do.

What can you tell us about your experience as the president elect of the Indian Orthodontic society and Editor in Chief of the Asian Pacific Orthodontic Society?

I have just been elected President Elect of the Indian Orthodontic Society, which is amongst the largest Orthodontic Societies globally. We have an obligation to contribute to the knowledge bank of global Orthodontics, and encourage scientific content of the highest caliber. I will be President in the Basic Science Year (50th Year) of the IOS, which will be a time for us to rejoice and commemorate the past, but at the same time, plan to propel our readers by always respecting the ultimate satisfaction in enhancing quality, ensuring this highest level into focus thus enhancing our material are our main concern.

As having a lot of scientific publications in the field of orthodontics, can you tell us how can we come to a statistically significant scientific conclusion that needs to be published and the benefit of being published?

I believe documentation of every form of scientific data is paramount. That is creating database, which is critical to any form of research and future reference. As long as any form of information serves to enhance the knowledge bank of Orthodontics and follows guidelines and procedures of research that are contemporary, it needs to be considered for publication. Statistically significant information also can give information that is of clinical relevance. It’s important to understand that phenomenon. With respect to the benefits of publication, I would not dwell on the fact that we need it for career enhancement. It is our contribution to our profession. If Andrews did not publish the “Six Keys to an Angle”, or Angle, the classification of malocclusion”, would we have evolved to where we are today?

It is critical to understand that publishing our work is a privilege and a duty to our specialty. We cannot do more, we should not dare to do less!

What are your future expectations in Orthodontics?

I envision a tomorrow, where Orthodontic care will be available in every corner of the world, provided by a specialist Orthodontist. From a health care perspective, the scope of orthodontics should also include interdisciplinary and adjunctive therapies. Collaboration with Sleep Medicine, Plastic Surgery, ENT, Dentists and other Dental Specialist will be the tomorrow of Orthodontics. Advances in Orthodontics using CAD CAM and Robotics will be a regular feature of our appliances as well as our Diagnostic and finishing protocols. Diagnostic Aids will become 3 Dimensional for a fact. Research in Genetics, Bone Biology and Molecular Genetics will play a significant role in the way we approach the growing patient in the next decade. It is an exciting time to be an orthodontist in Orthodontics.

Regarding our Middle East region, as you are an active contributor in many events in the area, which can you say about the Orthodontic mark in the area?

I think the Middle East region is right up there in terms of Orthodontics, as the last 12 years from the time I have travelled to lecture in UAE, Jordan, Lebanon and Oman, I have progressed with the quality of work and enthusiasm in the region.

Conclusion

My main purpose will always revolve around focusing and bringing Professors of the highest level into focus to enhance quality, ensuring this top quality and therefore creating the ultimate satisfaction for our readers. I hope that our crew have gained the trust of our readers by always respecting them, providing the best service possible and improving our material are our main components of value. Receiving feedback is always welcomed whether positive, negative, thankful or harsh replies, which will always keep us on our toes. I would be happy to guide you to our next steps. Continuous improvement of this section is our quest, and its growth is our distinct mission, which we hope would be envisaged to meet your needs.

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“The Middle East region is right up there in terms of Global Orthodontic standards”
The 2nd International Students’ Dental Conference 2014

By University of Sharjah Dental Students Association

April 9-10, 2014, saw over 700 students from ten countries gather together at the University of Sharjah College of Dental Medicine for the 2nd International Students’ Dental Conference. The conference was opened by His Highness Crown Prince Sheikh Sultan bin Mohammed bin Sultan Al Qasimi who toured all the exhibits from eight companies such as Lisencion, Gavel, Oral B and Glaxo Smith Kline, asking many questions along the way, before he oversaw the opening ceremonies.

The conference was a huge success for the students of the University of Sharjah Dental Students Association, who created, planned, organized and executed the whole conference of exhibits, poster presentations, oral research presentations and debates. The two debates focusing on the treatment options of endodontics versus implants, and the other debate on where to draw the line between prevention and restoration in cases of incipient caries, drew lots of interest and resulted in lively and sometimes passionate discussion.

Additionally, a number of participation workshops on topics ranging from layering of anterior resin composite, to TML, lasers, rotary endodontics, implants, veneers and a suturing clinic gave participants some outstanding hands-on experiences.

All-in-all, the conference was a culmination of very hard work from the Executive Committee of the Student Association and the Organizing Committee. Dean of the College, Professor Richard J. Simonsen noted in his strong praise of the students that he has never seen a more active and giving group of young people in his over 40 years in dental education.

“It is quite remarkable that a group of 20-year old young students (mainly ladies by the way!) could pull this off” - Prof. Richard Simonsen, Dean of the University of Sharjah College of Dental Medicine

The main organizer, Rawand Naji, the President of the USDSA was very pleased with the program and participation from countries as far afield as Russia and Poland. “Next year we hope to consolidate this conference into a regular annual highlight on the dental calendar and eventually to attract more many students from all over the world to the University of Sharjah” said student-doctor Rawand.

Social events such as a desert safari, go karting, and a dinner cruise in Dubai were added attractions for the international students which also included large contingents of students from the Kingdom of Saudi Arabia, Sudan and Malaysia as well as students from all the local schools.

The President of the USDSA was also supported by the rest of her Board of student-doctors, Maya Faris, Jumana Lisa Irbayec, Abeer Sha'al, Shoureik Mahmoud, Sally Masoud Manla, Sana Anbari, Deema Rashan and Mohammed Hussein, Haider, all from the second-year dental program at CoS. “It is quite remarkable that a group of 20-year old young students (mainly ladies by the way!) could pull this off with such success while still studying hard for upcoming final exams,” said Dean Simonsen.

Faculty support was provided by Dr Karim Sabash and Dr Eman Mustafa, and huge support was provided by former USDSA Presidents, Faraj Ediber and Hila Abdulwahid, who were the first to give the credit to the student association leadership, and all the many other students who helped out with the execution of this remarkable conference.

Still lots to see and discover at IDEM

By Dental Tribune International

SINGAPORE: In the presence of Singapore’s Health Minister Gan Kim Yong and senior representatives of Koenmisse, the Singapore Dental Association, and FDI World Dental Federation, the eighth edition of IDEM Singapore was officially opened on 09 April 2014 at the Suntec Singapore International Convention and Exhibition Centre. The Minister, who grace the traditional Opening Ceremony outside the Exhibition Hall on Level 4 as Guest of Honour, congratulated the organisers of the show that, in his words, “has evolved to be a ‘must-attend’ event for all dental healthcare professionals and related industries in the Asia-Pacific region.”

said that the ongoing support of Gar’s Ministry and other sponsors is a testament that IDEM has firmly consolidated its status as the focal event for the Asia Pacific dental community. “Besides the opportunity to interact with friends and dental professionals from around the world, IDEM also offers the opportunity to share knowledge, ideas and practical applications in dentistry,” he said.

IDEM 2014 is poised to be the largest dental show ever to be held in Singapore since it was launched in 2000. According to Koenmisse’s Vice President of Asia Pacific, Michael Dreyer, 50 per cent more dental manufacturers and distributors have signed up for the event, which is being held over the weekend at the recently renovated Suntec convention centre.

Aside from the trade fair hustle, clinical presentations as part of the scientific programme will continue today at Level 4 with lectures and workshop focusing on fields like prosthodontics and orthodontics. A special presentation by US dentist Dr Jeremy Freyberg on 05 April 2014 at 4.50 p.m. focused on the detection and prevention of oral cancer, which is among the few types of cancer which are currently on the rise worldwide. At the Dental Tribune Study Club Symposium at booth 6F-22, Singapore’s own prosthodontic expert, Dr Stephen Soo of Specialist Dental Group, will provide insight into CAD/CAM and how its use can benefit workflow in dental practices.

New concepts and methods for dental labs will be discussed at the Dental Technicians Forum, one of the new educational formats specifically targeting other members of the dental profession. In addition to these presentations, lectures for dental hygienists/therapists were also held throughout the days.
Dentistry – your dream profession

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Composite Veneers and Masking Discoloration; About Red & White Aesthetics; Direct Veneers Diastema Closure; Virtual Articulator and CAD/CAM Designing Workshop.

The second day of the conference will feature the new Dental Hygiene Seminar focused entirely on the Dental Hygienist providing the latest in Periodontal Instrumentation and Oral Prevention and Management of Dentine Hypersensitivity.

Additional to the knowledge delegates will exchange, all attendees will benefit from the networking opportunities in the cozy atmosphere provided by Jumeirah Beach Hotel where you can meet your colleagues from across the globe while lunching at Dubai’s best restaurants.

All Dentists, Dental Technicians and Dental Hygienists are welcome to get the most updated scientific exchange and view the latest technology, trends and developments in CAD/CAM & Digital Dentistry. The future is here and all are welcome to join.

Contact Information
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For Registration Info Please Contact: infomed@infoemed.com

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To make them resemble to the same time their cusp tip are ward the midline, while at the same time their cusp tip are esthetically reshaped in order to make them resemble to the laterals, which they replace (7). Furthermore, periodontal health is greatly improved as compared to that of cases, which have been rehabilitated by means of prosthodontics (8). The orthodontic closure of the space might be indicated when a premolar or any molar are missing as long as certain indications exist concerning the whole occlusion or malocclu-
sion (9) (Figure 5).

Orthodontics, restorative den-
tistry and oral health

When teeth have been lost early, those remaining distal to the edentulous space, usually present with a mesial tipping, displacement and rotation. Indi-
viduals with an abnormal mesio-distal inclination or displacement of the posterior teeth were found to have a positive association between me-
sial inclination and periodontal destruction. Once periodontal health is established, occlusal forces can be used to reduce mobility, to regain bone lost owing to traumatic occlusal forces, and to treat areas of clinical problems related to occlusal instability and restorativ-
ely. Failure to provide appropriate treatment of occlusal trauma in patients with chronic periodontitis may result in progressive bone loss, adverse change in prog-
nosis thus resulting in tooth loss. Uplifting these teeth by orthodontic means before the conventional restoration of the edentulous areas may cor-
rose more to their periodontal treatment and maintenance in the dental arch. When premo-
olars will be replaced adequate spaces is necessary not only at the mesio-distal but also at the bucco-lingual direction. Teeth with a negative prognosis can be used to maintain or improve the volume and structure of the alveolar bone at the site where they are located. The forced eruption of a tooth, which is planned to be extracted, alters the architecture of the soft peri-
odental tissues and improves the quality of the available bone (Figure 4). Therefore, the final prosthetic work is associated with a better overall result due to the increase in the gingival height produced by this method.

Failure to provide appropriate treatment of occlusal trauma in patients with chronic periodontitis may result in progressive bone loss

Subsequent absence from the dental arch of impacted perma-
nent teeth is not an indication for their prosthese replace-
ment but rather a sign for the start of their orthodontic trac-
tion, placement and alignment into their natural position in the de
tition (9).

In cases of extreme anterior overbite, direct trauma to the gingiva from the incisal edges of the mandibular incisors may result in palatal recession of the maxillary incisors (Figure 5). Similarly, in severe Class II, division 2 malocclusions with linguversion of the maxillary incisors, functional trauma can cause marginal recession of the labial gingiva of the mandibular incisors. This recession, although not the result of peri-
odontitis, can result to a signifi-
cantly loss of attachment.

Clinical observation suggests that when crowding causes overlapping of adjacent teeth, the interproximal space may be minimal, root proximity may occur, and the quality and amount of bony support may be compromised (Diedrich, 2000). This is a poor environment for tissue health. The removal of plaque and subgingival calculi in the inaccessible proximal space may fail despite careful application of prophylaxis pro-
cedures. Orthodontic interven-
tion can improve the anatomic and functional environment and may limit the recession.

Conclusions

Provision of adjunctive orth-
odontic treatment should be characterized by the following preconditions: (a) Knowledge of the clinical boundaries of gen-
eral dentistry and of any other dental specialty involved in maintaining natural dentition under biologically, func-
tionally, and esthetically optimal conditions; (b) establishment of two-way, structured, and continu-
ous communication between general dentists and orthodontists concerning the contribution of specialised care to the oral rehabilitation; (c) assessment of the cost-benefit relationship concerning treat-
ment fees and duration, coop-
eration, inconvenience, dis-
comfort, pain and difficulty; and (d) diagnosis and treat-
ment planning relying on strict evidence-based criteria.

References

1. Proffit WR. Special consider-
atations in comprehensive treat-
2. Marveos D, Athanassios AE. Orthodontics and its interac-
tions with other dental disci-
3. Re S, Corrente G, Abundo R, Cardaropoli D. Orthodontic treatmen-
t in periodontally compromised patients: 12 year
 report. Int J Periodontics Re-

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