Guided surgery: the next chapter

The socket-shield technique

Sinus floor elevation: A new drilling technique

Highlights from Paris 2016

EAO Education Programme: First live learning event in Malmö

Wiki-implants: Implant screwdriver lost to airway

Be a social media success in dentistry!
Highlights from the 2016 conference

The EAO celebrates its 25th annual scientific meeting in Paris

Over 3,500 delegates and industry representatives attended the EAO’s prestigious annual meeting in Paris, France. The three-day conference took place from 29 September to 1 October, and was held in the heart of Paris at the Palais de Congrès.

This year’s congress marked the EAO’s 25th annual scientific meeting and offered a more diverse and interactive programme than ever before. The three arena sessions focused on treatment planning and decision making, and covered topics ranging from ‘Conservation versus extraction’ to ‘Decision making in the aesthetic zone’.

The programme included several panel discussions, during which experts discussed treatment planning in real time. The conference app gave delegates a platform to shape these discussions, allowing audience members to interact with the presenters of each session, submit their questions digitally, vote on preferred treatment plans and direct the discussion as never before. Several sessions also covered topics such as bone biology and the ‘digital revolution’.

As part of the invited Country programme, Japanese clinicians were invited to showcase their research in a dedicated parallel session, ‘Optimal long-term results for osseointegrated implants’. The Société Française de Parodontologie et d’Implantologie Orale (SFPIO), this year’s local collaborators, also held their own session: ‘Implantology needs periodontology’.

Recognising excellence in research and practice is a central aspect of the annual meeting. An unprecedented 753 scientific abstracts were submitted for presentation. 609 were accepted, and, for the first time, five authors were awarded EAO European Prizes for Research in Implant Dentistry. Winners receive a trophy and a grant of €2,000. Their names will be announced at the awards ceremony, during which five successful candidates also received the EAO’s Certificate in Implant-based Therapy.

Welcome to the latest issue of Inspyred. We are delighted to present our longest ever edition, where you will find a selection of compelling and thought-provoking clinical cases along with more figures and references than ever before. Don’t forget that as an EAO member, full access to the complete set of figures and references for all articles is available online.

For this edition, we have selected four clinical articles which cover a diverse range of topics. In the first, Marc Hinze looks at the effect of immediate implant placement and provisionalisation, combined with the socket-shield technique. The second article explores advances in dynamic guided surgery, and the use of surgical navigation in real time during implant placement. Victor Palarie presents an interesting clinical case where implants may have played a role in triggering the autoimmune disease, myasthenia gravis, in a 54-year-old patient. The final article describes a new drilling technique for sinus floor elevations with promising initial results.

We are also pleased to include an interview with Brenda Mertens, where she talks about the role of social media in dentistry today. On page 10 you will find another of our wiki-implant cases, where a real-life complication is outlined and analysed. We hope you enjoy reading the selection of articles and cases as much as we have enjoyed putting them together. This issue also includes the latest news from the EAO, with highlights of the Paris 2016 meeting. As the 25th annual scientific meeting, this year was a milestone for the EAO, and where better to celebrate than the beautiful and enchanting city of Paris?

Delegates came from all over the world and took part in sessions covering topics from treatment planning to decision-making. Cutting-edge research and the latest developments in the field were shared, and panel discussions between international experts gave participants a unique insight into how they plan treatment and make decisions.

This issue also includes a report on the EAO’s inaugural Live Learning Event in Malmö in June. This event launched the ambitious and exciting Education Programme. 20 clinicians embarked upon a three-year long course that will develop and refine their skills in cases progressing from straightforward to complex. See pictures, read feedback from participants and lecturers, and find out about the course’s second intake in 2017 on pages 11–13.

We hope you enjoy this issue, and we look forward to hearing your feedback and suggestions for this and future editions. Please do get in touch by emailing us at inspyred@eao.org.

Isabella Rocchietta and David Nisand

Read more about the Paris conference highlights and awards on pages 6–7.
The socket-shield technique: A new approach to immediate implant placement

The extraction of teeth is inevitably associated with distinctive changes in the surrounding hard and soft tissues. The aim of the following case report is to demonstrate that immediate implantation and provisionalisation, in combination with the experimental socket-shield technique, may result in a volume stability of the mucosa adherent to the inserted implant.

Hürzeler et al. have reported a novel approach to preserve the soft and hard tissues following tooth extraction without the use of biomaterials (Hürzeler, Zuih et al. 2010, Baumer, Zuih et al. 2015). The authors propose the retention of a buccal root segment during immediate implantation to prevent alveolar bone loss following tooth extraction.

In the following presentation a 40-year-old female patient was treated with a single tooth implant in the maxillary premolar region. The patient was a non-smoker and did not present relevant medical conditions. The primary indication for tooth extraction was an endodontic treatment failure. Figures 1 and 2 show the tooth (14) before extraction and immediate implant placement.

Without lifting a mucoperiosteal flap or affecting the marginal gingiva, the tooth was carefully decoronated using a diamond bur. A 1–2mm thick section of the root was preserved 1mm coronally to the buccal bone plate. The socket-shield technique may be a valuable experimental socket-shield intra-operatively. The implant was placed according to the manufacturer's recommendations in the lingual part of the extraction socket, without contact with the retained root fragment (Figure 4). The patient received a screw-retained one-piece provisional crown within the following two hours (Figure 5).

Special attention was paid to the emergence profile of the provisional implant crown. At the subgingival portion, a concavity was designed to avoid placing any pressure on the root fragment. To ensure ideal support of the soft tissue, the marginal portion corresponded exactly to the extracted tooth (or with a slight positive contour). Figure 6 shows the graphic control after implant placement.

Follow-up examinations were performed seven days after surgery (Figures 7 and 8) and at the three-week (Figures 9 and 10) and twelve-week (Figure 11) follow-up intervals. The implant site showed uneventful healing. No socket-shield exposure was observed.

The final restoration – a screw-retained ceramic-to-metal implant single crown – was delivered four months after implant placement. It was fixed according to the manufacturer's recommendations with a torque-control device using a titanium screw.

Functional capabilities were checked (Figure 12, 13). To support the marginal soft tissues, the submucosal emergence profile of the provisional implant crown was transferred into the final restoration identically. Figure 14 shows the radiographic control of the inserted final restoration.

Conclusion

This case illustrates an experimental technique for preserving a buccal root segment in conjunction with immediate implant placement and provisionalisation. The socket-shield technique may be a valuable technique to minimise buccal contour changes after tooth extraction, leading to increased volume stability of the mucosa adjacent to the inserted implant.

However, it is important to note that this technique should not be used in daily practice until long-term multicentre studies are available.

References


Five candidates received the EAO’s Certificate in Implant-based Therapy. This programme is the only Europe-wide standardised assessment of skills and expertise within the field of implant-based therapy. Obtaining the certificate is a significant achievement that demonstrates the holder is competent to perform basic and advanced implant treatments. This year’s recipients were (pictured left to right): Sawako Yokoyama; José Torres; Edith Groenendijk; Weihua Yang; and Emmanouil Symeonidis.

General assembly 2016: new board members appointed

During the EAO General Assembly on Friday, elections were held to fill two vacancies on the EAO board of directors left by Past President Pascal Valentini and board member Renishilde Jacobs. Isabella Rocchieta (below, left) and Irena Saiher (below, right) were elected as new board members.

This year, Björn Klinge is succeeded by Alberto Sicilia as President of the EAO. It was also confirmed at the General Assembly that Henning Schliephake would become President Elect. Luca Cordaro was appointed as Treasurer.

Scientific prizes

During the awards ceremony on Saturday, Björn Klinge announced the winners of the EAO’s five European Prizes for Research in Implant Dentistry. The winners each took part in one of the oral communications sessions during the congress, having had their work selected from among over 750 abstracts. The presentations which were selected for the oral communications were those which received the highest mean score from the Abstract Committee. The winners, pictured here, received a trophy and a €2,000 award.

Five candidates received the EAO’s Certificate in Implant-based Therapy. This programme is the only Europe-wide standardised assessment of skills and expertise within the field of implant-based therapy. Obtaining the certificate is a significant achievement that demonstrates the holder is competent to perform basic and advanced implant treatments. This year’s recipients were (pictured left to right): Sawako Yokoyama; José Torres; Edith Groenendijk; Weihua Yang; and Emmanouil Symeonidis.

Honorary membership of the EAO was awarded to Professor Niklaus P. Lang during the opening ceremony on Thursday. Honorary membership is awarded to individuals who have made outstanding contributions to the field. Klaus is the fourth person to have been conferred the honour, joining past recipients Professor F.-I. Brånemark, Professor André Schroeder, and Professor Daniel van Steenberghhe as honorary members. Klaus recently stepped down as editor of Clinical Oral Implants Research, the official EAO journal.

This year, Björn Klinge is succeeded by Alberto Sicilia as President of the EAO. It was also confirmed at the General Assembly that Henning Schliephake would become President Elect. Luca Cordaro was appointed as Treasurer.

During the EAO General Assembly on Friday, elections were held to fill two vacancies on the EAO board of directors left by Past President Pascal Valentini and board member Renishilde Jacobs. Isabella Rocchieta (below, left) and Irena Saiher (below, right) were elected as new board members.

This year, Björn Klinge is succeeded by Alberto Sicilia as President of the EAO. It was also confirmed at the General Assembly that Henning Schliephake would become President Elect. Luca Cordaro was appointed as Treasurer.

Faculty and Members’ dinner

This year’s Faculty and Members’ dinner took place at the magnificent Le Grand Hotel. The historic hotel opened its doors 150 years ago during the reign of Napoleon III. EAO guests enjoyed a champagne reception before being escorted to the stunning Salon Opera for dinner. A recognised architectural masterpiece and National Heritage Site, the Salon Opera was restored in 2014. It provided the perfect setting for the dinner, where guests were treated to an exquisite five-course meal.

Five candidates received the EAO’s Certificate in Implant-based Therapy. This programme is the only Europe-wide standardised assessment of skills and expertise within the field of implant-based therapy. Obtaining the certificate is a significant achievement that demonstrates the holder is competent to perform basic and advanced implant treatments. This year’s recipients were (pictured left to right): Sawako Yokoyama; José Torres; Edith Groenendijk; Weihua Yang; and Emmanouil Symeonidis.

Honorary membership of the EAO was awarded to Professor Niklaus P. Lang during the opening ceremony on Thursday. Honorary membership is awarded to individuals who have made outstanding contributions to the field. Klaus is the fourth person to have been conferred the honour, joining past recipients Professor F.-I. Brånemark, Professor André Schroeder, and Professor Daniel van Steenberghhe as honorary members. Klaus recently stepped down as editor of Clinical Oral Implants Research, the official EAO journal.

This year, Björn Klinge is succeeded by Alberto Sicilia as President of the EAO. It was also confirmed at the General Assembly that Henning Schliephake would become President Elect. Luca Cordaro was appointed as Treasurer.

During the EAO General Assembly on Friday, elections were held to fill two vacancies on the EAO board of directors left by Past President Pascal Valentini and board member Renishilde Jacobs. Isabella Rocchieta (below, left) and Irena Saiher (below, right) were elected as new board members.

This year, Björn Klinge is succeeded by Alberto Sicilia as President of the EAO. It was also confirmed at the General Assembly that Henning Schliephake would become President Elect. Luca Cordaro was appointed as Treasurer.

Faculty and Members’ dinner

This year’s Faculty and Members’ dinner took place at the magnificent Le Grand Hotel. The historic hotel opened its doors 150 years ago during the reign of Napoleon III. EAO guests enjoyed a champagne reception before being escorted to the stunning Salon Opera for dinner. A recognised architectural masterpiece and National Heritage Site, the Salon Opera was restored in 2014. It provided the perfect setting for the dinner, where guests were treated to an exquisite five-course meal.

Five candidates received the EAO’s Certificate in Implant-based Therapy. This programme is the only Europe-wide standardised assessment of skills and expertise within the field of implant-based therapy. Obtaining the certificate is a significant achievement that demonstrates the holder is competent to perform basic and advanced implant treatments. This year’s recipients were (pictured left to right): Sawako Yokoyama; José Torres; Edith Groenendijk; Weihua Yang; and Emmanouil Symeonidis.

Honorary membership of the EAO was awarded to Professor Niklaus P. Lang during the opening ceremony on Thursday. Honorary membership is awarded to individuals who have made outstanding contributions to the field. Klaus is the fourth person to have been conferred the honour, joining past recipients Professor F.-I. Brånemark, Professor André Schroeder, and Professor Daniel van Steenberghhe as honorary members. Klaus recently stepped down as editor of Clinical Oral Implants Research, the official EAO journal.

This year, Björn Klinge is succeeded by Alberto Sicilia as President of the EAO. It was also confirmed at the General Assembly that Henning Schliephake would become President Elect. Luca Cordaro was appointed as Treasurer.

During the EAO General Assembly on Friday, elections were held to fill two vacancies on the EAO board of directors left by Past President Pascal Valentini and board member Renishilde Jacobs. Isabella Rocchieta (below, left) and Irena Saiher (below, right) were elected as new board members.

This year, Björn Klinge is succeeded by Alberto Sicilia as President of the EAO. It was also confirmed at the General Assembly that Henning Schliephake would become President Elect. Luca Cordaro was appointed as Treasurer.

Faculty and Members’ dinner

This year’s Faculty and Members’ dinner took place at the magnificent Le Grand Hotel. The historic hotel opened its doors 150 years ago during the reign of Napoleon III. EAO guests enjoyed a champagne reception before being escorted to the stunning Salon Opera for dinner. A recognised architectural masterpiece and National Heritage Site, the Salon Opera was restored in 2014. It provided the perfect setting for the dinner, where guests were treated to an exquisite five-course meal.

Five candidates received the EAO’s Certificate in Implant-based Therapy. This programme is the only Europe-wide standardised assessment of skills and expertise within the field of implant-based therapy. Obtaining the certificate is a significant achievement that demonstrates the holder is competent to perform basic and advanced implant treatments. This year’s recipients were (pictured left to right): Sawako Yokoyama; José Torres; Edith Groenendijk; Weihua Yang; and Emmanouil Symeonidis.

Honorary membership of the EAO was awarded to Professor Niklaus P. Lang during the opening ceremony on Thursday. Honorary membership is awarded to individuals who have made outstanding contributions to the field. Klaus is the fourth person to have been conferred the honour, joining past recipients Professor F.-I. Brånemark, Professor André Schroeder, and Professor Daniel van Steenberghhe as honorary members. Klaus recently stepped down as editor of Clinical Oral Implants Research, the official EAO journal.

This year, Björn Klinge is succeeded by Alberto Sicilia as President of the EAO. It was also confirmed at the General Assembly that Henning Schliephake would become President Elect. Luca Cordaro was appointed as Treasurer.

During the EAO General Assembly on Friday, elections were held to fill two vacancies on the EAO board of directors left by Past President Pascal Valentini and board member Renishilde Jacobs. Isabella Rocchieta (below, left) and Irena Saiher (below, right) were elected as new board members.

This year, Björn Klinge is succeeded by Alberto Sicilia as President of the EAO. It was also confirmed at the General Assembly that Henning Schliephake would become President Elect. Luca Cordaro was appointed as Treasurer.

Faculty and Members’ dinner

This year’s Faculty and Members’ dinner took place at the magnificent Le Grand Hotel. The historic hotel opened its doors 150 years ago during the reign of Napoleon III. EAO guests enjoyed a champagne reception before being escorted to the stunning Salon Opera for dinner. A recognised architectural masterpiece and National Heritage Site, the Salon Opera was restored in 2014. It provided the perfect setting for the dinner, where guests were treated to an exquisite five-course meal.

Five candidates received the EAO’s Certificate in Implant-based Therapy. This programme is the only Europe-wide standardised assessment of skills and expertise within the field of implant-based therapy. Obtaining the certificate is a significant achievement that demonstrates the holder is competent to perform basic and advanced implant treatments. This year’s recipients were (pictured left to right): Sawako Yokoyama; José Torres; Edith Groenendijk; Weihua Yang; and Emmanouil Symeonidis.

Honorary membership of the EAO was awarded to Professor Niklaus P. Lang during the opening ceremony on Thursday. Honorary membership is awarded to individuals who have made outstanding contributions to the field. Klaus is the fourth person to have been conferred the honour, joining past recipients Professor F.-I. Brånemark, Professor André Schroeder, and Professor Daniel van Steenberghhe as honorary members. Klaus recently stepped down as editor of Clinical Oral Implants Research, the official EAO journal.

This year, Björn Klinge is succeeded by Alberto Sicilia as President of the EAO. It was also confirmed at the General Assembly that Henning Schliephake would become President Elect. Luca Cordaro was appointed as Treasurer.
How to be a social media success in dentistry

A periodontist's insights into using social media personally and professionally

The role of social media is growing in every walk of life, and dentistry is no exception. Brenda Mertens, a periodontist based in Montpellier, France, has worked with various social media platforms, producing valuable content for patients and peers. Now, she offers Inspyred's readers advice and directions for creating a successful social media presence.

Tell us about yourself. I graduated in dentistry from Heidelberg University in 2005, and then completed a full-time postgraduate degree in periodontology (a three-year programme) at the University of Strasbourg. In 2011, I opened a specialist clinic in periodontology and implantology with my father in Montpellier, France, and have been based there ever since. I also teach two days a week at the University of Montpellier's dental school as an Assistant Professor.

How long have you used social media for dentistry-related content? I have always been a Facebook member since 2008, but most of my dentistry activity has been in the last two years on Facebook, Twitter and LinkedIn.

What sort of platforms do you use or recommend? I would recommend Facebook, Twitter and YouTube to any dentist or surgeon interested in developing a social media presence for themselves or their business. LinkedIn is a great platform, but is specifically relevant for people in corporate sectors where head-hunting is common. Other platforms where content is fast-moving and temporary, like Instagram or Snapchat, are very much platforms used by 16-25 year olds. These generally aren't relevant for specialist peers or older patients, but can be very useful for reaching students or younger colleagues. Creating a blog can also be a useful and interesting approach.

As a dentist, what sort of content do you publish online? On my channel I mainly publish content about periodontal medicine for my peers and colleagues. Periodontology is a very multidisciplinary practise which involves many team-members, from physicians to lab technicians. It is important to share information with people from these different clinical backgrounds so that they have as much information as possible. This helps ensure we are all up to date on best practices and techniques.

What sorts of limitations do you face on social media? Limitations on social media vary a lot depending on your country, your workplace and your goals. For instance, in France, it is illegal for businesses to have their own social media channel. Our clinic has a website, but the only social media presence we can legally have is a 'location' page – not an official or linked channel. Other laws, or your organisation’s regulations, may extend to what you can or cannot publish. Ensure you are up to date with your country and organisation's social media rules.

What what are the benefits of using social media in dentistry? The most important aspect of Facebook, Twitter and YouTube is that they are geared towards producing and sharing video content. In my opinion, videos are very effective. They allow you to explain very clearly and concisely on-screen. This is particularly useful where content is fast-moving and temporary, like Instagram or Snapchat, which are very much platforms used by 16-25 year olds. These generally aren't relevant for specialist peers or older patients, but can be very useful for reaching students or younger colleagues. Creating a blog can also be a useful and interesting approach.

What makes Facebook, Twitter and YouTube particularly effective? The most important aspect of Facebook, Twitter and YouTube is that they are geared towards producing and sharing video content. In my opinion, video is the future of social media: on Facebook alone, video engagement is 10-30 times higher than that of static images. YouTube is also one of the fastest growing platforms, with new 10-30 second videos appearing every day. This is particularly effective for people in corporate sectors where head-hunting is common. Other platforms where content is fast-moving and temporary, like Instagram or Snapchat, are very much platforms used by 16-25 year olds. These generally aren't relevant for specialist peers or older patients, but can be very useful for reaching students or younger colleagues. Creating a blog can also be a useful and interesting approach.

What advice would you give to a dentist/manager launching a social media campaign for the first time? When you are considering launching a social media channel, it is important to keep to it rigidly. If your schedule only involves one post per month, that is fine – just stick to it! If you don’t keep to your regimen closely, any prospective followers will immediately see how irregular or infrequent your output is. Have real discipline about this. You must apply all your professional skills and habits to using social media.

Does social media have an educational role in dentistry? Yes. I have had the privilege of learning a lot about this since I became a Junior Officer on the European Federation of Periodontology's external affairs committee. One of our tasks, as professionals, is to produce information and ensure educational social media is handled with discipline and consistency. This helps make sure colleagues and patients receive reliable, high quality educational information. If you take a consistent approach, you will get more followers and help them learn more. YouTube is also really helpful and will be used even more in the near future.

What advice would you give to a dentist/manager launching a social media campaign for the first time? When you are considering launching a social media channel, it is important to keep to it rigidly. If your schedule only involves one post per month, that is fine – just stick to it! If you don’t keep to your regimen closely, any prospective followers will immediately see how irregular or infrequent your output is. Have real discipline about this. You must apply all your professional skills and habits to using social media.

What are the benefits of using social media in dentistry? There are three main benefits of using social media in a clinical context: spreading new, evidence-based information, keeping your users or readers up-to-date; and collecting data about them in return. You can tell a lot about your users and patients. You can see a lot of information about the people who visit your webpage or social media page, or those who ‘like’ something you put online. This can help you reach new patients, peers, or ensure they are as up to date as possible.

How do you think social media will develop in the future? Social media is moving so quickly that it is literally impossible to predict. In a few years there will probably be social media platforms we have never even heard of. Facebook alone recently purchased the virtual reality product Oculus Rift, and is planning on implementing that on its web platform. Perhaps virtual reality will be used more and more. Otherwise, it is impossible to predict where we will be in five years, let alone 10 or 15!

Officer on the European Federation of Periodontology's external affairs committee. One of our tasks, as professionals, is to produce information and ensure educational social media is handled with discipline and consistency. This helps make sure colleagues and patients receive reliable, high quality educational information. If you take a consistent approach, you will get more followers and help them learn more. YouTube is also really helpful and will be used even more in the near future.

Below: EAO news shared on Facebook by Brenda.
Wiki-implants case:
Implant screwdriver lost to airway

Gender: Male Age: 40
Initial situation: The patient presented with a loose screw-retained implant crown on an implant replacing the lower left second molar tooth. On investigation, there appeared to be wear of the prosthetic engaging cast-on abutment. The decision was made to replace the crown. A new impression was made using a screw-retained impression component.

Prior treatment: The crown had been fitted three years previously. It had been torqued to 35Ncm⁻¹ and the screw hole had been closed with PTFE tape and composite. It was in light occlusal contact in the intercuspal position and not in occlusion in excursive movements.

Complication: While the new implant impression was being made and the impression component was being unscrewed from the implant, the implant screwdriver slipped from the operator’s fingers and was lost to the tongue and then the airway. The patient felt it and tried to expel it by coughing, but was unable to do so. He was aware of minor excursive movements.

Resolution: Following contact with the local emergency department, the patient was escorted there with a letter of explanation. A chest X-ray revealed implant screwdriver lost to airway.

Case submitted by: anonymous

Applications are now open for the 2017 intake of the EAO’s Education Programme. Places are limited. Register your interest now by emailing info@eao.org.

The EAO’s groundbreaking Education Programme launched in June 2016 when participants gathered in Malmö for the inaugural live learning event. On successfully completing the course, they will receive the EAO’s Postgraduate Diploma in Implant Dentistry.

A full complement of 20 people signed up for the programme’s first intake and will follow a structured curriculum over three years. This will include live learning elements at six of Europe’s best-known universities. During the programme participants will progressively develop the skills to undertake cases at a straightforward, advanced and complex level.

The participants who began the programme in Malmö had widely different levels of experience, ranging from a few years in practice to more than two decades. They had also placed dramatically different numbers of implants, ranging from around 20 to over 1,000. Despite this diversity of experience, there was unanimous support for the programme’s structured approach, with even the more experienced clinicians appreciating the benefit of starting with a ‘back to basics’ approach before embarking on more complex cases later on.

Structured training with no industry influence

The Education Programme was first proposed by Professor Henning Schliephake, and has been developed to provide a structured route towards attaining the EAO Certificate in Implant-based Therapy. As with all of the association’s educational initiatives, the programme is entirely free of sponsorship, ensuring there is no commercial influence in any of the teaching. The strong emphasis on practical learning, delivered in a structured format, sets it apart from many alternative postgraduate programmes which are more research-based.

The live learning event (LLE) in Malmö marked the culmination of several years detailed planning in the run-up to the launch of the programme, which is supported by expert mentoring and an online classroom. This enables participants to access a wide range of interactive materials, as well as to carry out self-assessments, upload cases, ask questions and chat with their mentors.

A sociable and stimulating event

The LLE in Malmö was significant for several reasons. It was the first time any element of the Education Programme had been road-tested in practice, and it also provided the first opportunity for the participants to meet each other. It was a sociable and stimulating few days which ran very smoothly and generated excellent feedback. Participants got the chance to observe live surgery and practise hands-on exercises, as well as taking part in a variety of interactive small-group seminars on topics including dental radiography, how to prepare for surgery, and implant prosthetics. In the evenings they enjoyed warm Swedish hospitality, with a combination of group activities and free time to explore the city.

One of the hallmarks of the Education Programme is the high quality of the university departments that are hosting the LLEs, each supported by an internationally recognised faculty of lecturers and practitioners. The LLE at Malmö was led by Professor Andreas Stamvroudis, supported by a world-class team of clinicians and academics. The participants were clearly impressed by the calibre of the staff delivering the LLE.

Live surgery

During the three-day meeting, the 20 participants were split into groups of five, rotating through a series of small-group sessions which included live surgery. As this was the first of the six modules, the surgical cases were categorised as ‘straightforward’. Despite this, they provided many opportunities for learning, with the surgeons taking the opportunity to share their experiences and talk to the participants through their treatment planning process.

Assistant Professor Hadar Hallström was one of the team who conducted the live surgery sessions. He met with the group of five students who were joining him in the operating theatre beforehand, establishing their level of experience and quizzing them on their approach to the case he was going to perform. Professor Hallström started by discussing the radiographs he had been provided with prior to surgery, explaining that when he first started placing implants, imaging techniques were exclusively analogue and CBCT scans weren’t available. The group discussed the OPG for the forthcoming...
Talking about the dental implant landscape in general, Professor Hallström expressed the view that the variety of implant systems now available was becoming an issue, with a huge variety of screws and screwdrivers and a lack of standardisation. Challenges to practice included a tendency among patients to choose the cheapest clinics, which didn’t necessarily correspond with an optimal standard of treatment. He added that the number of infections associated with dental implants was becoming a problem, saying that ‘anyone who places a lot of implants will invariably experience some complications’. During the live learning sessions participants gained a clear insight into all aspects of the procedure and asked questions. Feedback following the sessions was very positive.

Going on to discuss the surgical technique, he asked whether those present would opt for flapless surgery or not. He went on to say that he preferred to open a flap, albeit one that is as small as possible, as he liked to ‘see what I am doing’ and this enabled him to expose the mental foramen and root and compare the anatomy with what he could see on the X-ray. He added that anyone who places a lot of implants should add as many safety measures to their practice as possible, and this was his rationale for raising a flap.

The subject of guided surgery came up and Professor Urde lectured on three topics over the weekend, including case presentations and clinical photography. He shared a wealth of experience and explained how the principles being discussed would be bedded in during the mentoring phase when participants presented their own cases. This would enable them to demonstrate that they were putting what they had learned into practice when planning and executing their own cases.

The discussion started with an explanation of the rule of thumb he splinted all posterior cases, and that the best location for your implant is ‘because if an unanticipated challenge occurs during surgery, an alternative option will be required. The discussion also discussed implant stability and biomechanics. Cases involving three implants were considered, and Professor Urde made the interesting point that placing the implants in a triangular pattern, rather than a straight line, led to significantly better distribution of biomechanical forces. He added that as a rule of thumb he splinted all posterior cases, and that if there was sufficient bone for three implants, this was his preferred approach, rather than using a pontic or cantilevered bridge.

Diagnostic imaging

Professor Christina Lindh provided small-group workshops on radiographic techniques and diagnostic imaging. She talked about the technological progression from intraoral to panoramic radiographs, followed by the advent of CBCT scanning through to the use of MRI scans to evaluate soft tissue.

Professor Lindh stressed that there is no such thing as a safe dose of radiation, and that the risk is higher the younger the patient is. She said that ‘sometimes I think we take X-rays a bit routinely without thinking about whether it’s necessary for surgery’. Discussing digital versus analogue imaging techniques, she noted that the literature suggested more retakes occur with digital systems because these can be harder to set up. She stressed the ALARA principle, under which radiation exposure should be ‘As Low As Reasonably Achievable’, and talked about capturing the amount of information that was diagnostically acceptable, explaining that you ‘don’t always need the best image quality from a technical point of view for a certain task’. Radiographic examinations should always be both justified and optimised in order to minimise radiation exposure to both patients and staff. The role of imaging is to establish the amount of bone, identify any anatomical structures, and to establish bone quality. Professor Lindh concluded with a caution, asking whether there is an imaging method that can predict the outcome of implant treatment. The answer to this question is ‘not at the moment’.

A dynamic learning environment

During the live learning event, Assistant Professor Goran Urde had held the high calibre of participants on the programme, describing the valuable discussions that had developed during his lectures. He explained how he and the other members of the faculty in Malmö could be ‘extremely flexible’ and adapt their sessions in real time to reflect the knowledge and needs of the participants. ‘The groups engaged in some fantastic discussions, and were able to tailor the content of our presentations to include additional information or a detailed focus on a particular topic that was most beneficial to the group. It has been a very enjoyable and valuable two-way experience.’

Case presentations and clinical photography

Professor Urde lectured on three topics over the weekend, including case presentations and clinical photography. He shared a wealth of experience and explained how the principles being discussed would be bedded in during the mentoring phase when participants presented their own cases. This would enable them to demonstrate that they were putting what they had learned into practice when planning and executing their own cases.

The discussion started with an explanation of the role and value of using checklists to gather appropriate information about each patient and their proposed treatment. Professor Urde stressed the importance of combining these with appropriate photography (and of course radiography) to document the initial, interim and final situations. He explained how he talks his patients through their proposed treatment with the help of an OPG, making sure to flag up any bone deficiencies and other issues to them. He didn’t recommend showing patients a large model of an implant (which some companies offer clinicians) as these can be scary and off-putting. Instead, showing them a real implant alongside a radiograph (which is typically magnified) is less likely to scare them. Professor Urde described pre-treatment photographic images as a ‘very good insurance policy’, as patients tend to forget what their dentition looked like before treatment. Photos are also very useful for communicating with technicians.

He concluded a very detailed and informative session by saying that if a clinician recommends implants, the end result must be as good or better than conventional techniques. The group learned a lot during the session, and shared ideas and opinions on a wide range of topics.

Managing cases and avoiding complications

In another of his presentations, Professor Goran Urde looked at the management of cases and avoiding complications. Having carried out clinical and radiographic evaluations and an analysis of the diagnostic casts, practitioners could plan their treatment. With this in mind, Professor Urde stressed that ‘you should know where the second best location for your implant is’, because if an unexpected challenge occurs during surgery, an alternative option will be required.

The session also discussed implant stability and biomechanics. Cases involving three implants were considered, and Professor Urde made the interesting point that placing the implants in a triangular pattern, rather than a straight line, led to significantly better distribution of biomechanical forces. He added that as a rule of thumb he splinted all posterior cases, and that if there was sufficient bone for three implants, this was his preferred approach, rather than using a pontic or cantilevered bridge.

Groningen and beyond

During the three-day event in Malmö, participants were introduced to the EAO’s innovative online learning platform, which is a key benefit of the programme. It has been independently developed for the EAO’s Education Programme, and is also linked to Dental Campus, meaning that participants have complimentary access to all Dental Campus learning materials while they are enrolled. As well as providing access to a range of videos and articles, the platform provides a place for group discussions, and features tests, questionnaires and tools for uploading case studies.

After a busy and stimulating meeting, the participants left Malmö feeling inspired. The faculty at the University of Malmö was equally impressed by the quality of the educational interaction between participants and the staff team. Since then, the second live learning event has taken place in Groningen, which the EAO has confirmed that a second intake of participants will be able to join the programme in 2017. There will only be 20 places available, so if you are interested, you are encouraged to register straight away.

One of the hallmarks of the Education Programme is the high quality of the university departments that are hosting the LLEs, each supported by an internationally recognised faculty of lecturers and practitioners. 

...
Join this prestigious hands-on programme and obtain the EAO’s Postgraduate Diploma in Implant Dentistry

- 6 modules over 3 years in 6 prestigious universities
- 3 day on-site training for each module
- expert advice from your mentors
- unique online learning platform

Covers surgery, prosthodontics, periodontics, treatment planning and maintenance in every module. Visit www.eao.org for more information or email info@eao.org to register your interest.

Places are limited. Register today.

Dynamic guided surgery: the next chapter

Implant placement using real time navigation

Computer-aided planning, design and treatment techniques are advancing at an exponential rate, as are their applications in healthcare. Dentistry, and in particular, osseointegrated implants and implant restorations are also following this trajectory.

Stereolithographic surgical guides are currently considered to be the gold standard for guided surgery. Stereolithographic guides are fabricated using data from CBCT scans and prosthetic planning carried out prior to surgery. These guides do not, however, allow for any adjustments to be made in the surgical stage. This is due to the fact that the surgical drill holes are at fixed locations in the stereolithographic template and cannot be adjusted intra-operatively; such guides are therefore termed ‘static’.

It is currently possible to create 3D scans of the patient’s facial structure, which surgeons can then use to plan and practise procedures, and review predicted results digitally before undertaking long and/or difficult surgical procedures.

With the development of increasingly sensitive optical cameras, and advancing software, the next generation of guided surgery application is now available. The Navident (ClaroNav, Toronto, Canada) surgical navigation system utilises CBCT images, but differs fundamentally from previous systems in that it allows for the guidance of osteotomy and implant placement to be navigated in real time. It does this by means of an optical tracker and tag system that can be shown on a computer monitor. The main advantage of this type of guided surgery is that the aforementioned limitations of static guides can be avoided. This article presents two case studies illustrating the use of this next-generation guided surgery in practice.

Case 1

The patient came to the clinic with a request for a fixed solution after functioning with a partial removable prosthesis for about one year. This was provided following the failure of a conventional bridge after 33 years. He requested a fixed solution as the nature of his profession would not allow him to be edentulous.

A complete periodontal, dental and functional examination was carried out, and the proposed treatment plan was accepted. A conservative approach was taken to the mandible, with composite built up to restore the occlusal table. It was decided that implant therapy and the removal of the remaining periodontally compromised teeth would be required in the maxilla. For the purpose of this case study, only the treatment steps for the maxilla will be demonstrated. With clinical parameters considered and the patient’s wishes respected, the following preparations were carried out for simultaneous flapless implant placement followed by immediate loading.

1. The surgical guide (Navistent, ClaroNav, Toronto, Canada) was made chair-side by the surgeon. This was done by moulding the thermoplastic tray to the patient’s specific anatomy. A window was created for access to the surgical site (Figures 1.3, 1.4).
2. A planning CBCT (Planmeca Promax 3D MaxTM (Planmeca, Illinois, USA) was made with the Navistent in the mouth (Figure 1.5).
3. The patient was anaesthetised
4. The surgeon performed surgical planning with the Navident planning software (ClaroNav, Toronto, Canada) and this was then verified by the assistant surgeon
5. The guide was once again secured in the mouth and connected to the jaw tag optical tracker
6. The drill tag optical tracker was connected to the surgical hand-piece, and the two trackers were calibrated by means of a central stereo camera.
7. The surgery commenced, and the surgeon was able to use the computer screen to follow a digital representation of the surgical field (Figure 1.10)
8. The assistant followed the surgery by looking directly at the surgical field itself
9. Conventional commercially available surgical sets and implants were used (Dentsply, Astra EV in this case)

Co-authors: Professor Dr Hugo De Bruyn, DDS, MSc, PhD; Professor Dr Gwont Hommeed DDS, MSc, PhD; Dr Jan D’Haese, DDS, MSc, PhD

Johan Achhurst, DDS, is an assistant in the Department of Periodontology, Oral Implantology, Removable and Implant Prosthodontics at Ghent University, Belgium, and currently a PhD candidate under the mentorship of Professor Dr Hugo De Bruyn and Dr Jan D’Haese. Dr Achhurst got his BDS in 2008 at the University of the Western Cape, South Africa and obtained his Diploma in Oral Surgery from the same university.

After a few years in private practice he continued his training and research at Ghent University. His current interests include the development and application of dynamic guided surgery. He is currently a teaching clinician at the training foundation for dynamic guided surgery.

Top, Figure 1.1: Pre-operative frontal view. Middle, Figure 1.2: Pre-operative OPG. Left, Figure 1.14: Three-month post-operative view of immediate loaded bridge.
Case 2

The patient presented at the clinic asking for a fixed solution; his sole request was that his original maxillary midline diastema be re-established when the final restoration was placed. The patient’s treatment history included various procedures over a six-month period after an earlier blunt-force trauma to the 21 and 22. The patient presented with a partial prosthesis to replace the missing 21 and had received endodontic treatment to the 22.

Due to the fact that the patient had a healthy dentition, and taking into account his primary request for an open diastema, a single implant was indicated. Due to bone volume, medical history and aesthetic demands, this patient was selected as an ideal candidate for flapless guided implant placement. The same series of nine steps as described above was carried out during surgery.

Conclusion

The Navident surgical navigation system has been used in various applications. The same protocol can be used for the maxilla or mandible, and in the anterior or posterior region. It is compatible with both a flap or flapless approach. Slight alterations are necessary in an edentulous maxilla or mandible. The system is particularly helpful in difficult and/or compromised cases.

There are various ongoing research projects relating to this system and its applications. More evidence is required before the system can be considered the new gold standard. It is important to note that, as with any advanced technological treatment, the system is sensitive to technique, and there is a steep learning curve involved in its clinical application. Following the prescribed product orientation and master clinician courses is strongly advised.
Inflammatory complications and myasthenia gravis

An investigation of the role inflammatory complications play in triggering myasthenia gravis

Treatment planning for dental implants requires not only an evaluation of the patient’s oral situation, but also an assessment of patient-related medical risk factors. While numerous risk factors have been documented, there are some autoimmune diseases which can lie dormant for years before they manifest themselves, and their onset cannot be predicted. Such diseases are referred to as ‘sleeping syndromes’ and may be awakened by some key factors, such as acute infection.

Myasthenia gravis (MG) is a chronic autoimmune disorder which affects neuromuscular transmission, resulting in muscle weakness. It presents several challenges for patients and clinicians. MG is no longer considered a terminal illness, and quality of life varies depending on the severity of symptoms and what initially triggered the disorder.

This case report describes a patient who had implants placed in the maxilla and developed MG two years after prosthetic rehabilitation. While the majority of scholarly literature concerning MG patients focuses on dental treatment, thus far, no correlation between implant placement and the occurrence of MG – as a direct consequence of implant-related inflammatory complications – has been reported.

Case report

A 54-year-old male patient was referred to the clinic from a regional ENT department with a diagnosis of acute maxillary sinusitis and ocular manifestations. An oral surgeon, ophthalmologist, neurologist and thoracic surgeon consulted and treated the patient.

Medical history

The upper left first molar had been extracted three years before the patient was referred. Oroantral communication arose after the tooth had been extracted and the oral mucosa was sutured closed. One year later, the patient received two implants in the region of the upper right first and second premolar which were restored with cement-retained splinted crowns following osseointegration of the implants. All treatment was performed by the same dentist.

Six months after prosthetic rehabilitation, the first rhinogenic symptoms appeared, including headache, blocked nose, feeling of nasal stuffiness, pressure and pain in the left frontal and maxillary sinuses. The patient was treated at an ENT department where endonasal revision and drainage of the left maxillary sinus was performed. Necrotic tissue and pus indicative of acute sinusitis was present at this stage. Adjunctive conservative treatment consisted of antibiotics and anti-inflammatory and analgesic medication. After ten days the patient developed ptosis (drooping of the upper eyelid) and diplopia (double vision) of the left eye. A second revision of the maxillary, ethmoid and frontal sinuses did not show any pathological changes. At this point, the patient was referred to our clinic.

An ophthalmic examination revealed that visual acuity was not disturbed. The only ophthalmic symptom was ptosis. Optical coherence tomography of the retina and optic nerve in both eyes showed no pathological changes (Figures 1–2).

Dental examination

A panoramic X-ray revealed crater-like peri-implant bone loss surrounding the implant in region 25 and the extrusion of root canal filling material in multiple teeth, as well as close proximity of the implant in the area of the upper right first premolar and the root of the upper right canine (Figure 3).

An intraoral examination revealed mobility of the splinted crowns replacing the upper left first and second premolar (note the gap between abutment and restoration in Figure 3) without any sign of pain or bleeding. Both the splinted crowns and the implant in the region of tooth 25 were removed under local anaesthesia. Execution of the Valsalva manoeuvre confirmed that no oroantral communication was present.

A neurological examination found fatigable muscular weakness, with normal sensation and reflexes in the muscles. This resulted in the preliminary diagnosis of myasthenia gravis accompanying acute infection.

Specific laboratory and thoracic CT examinations confirmed the diagnosis of MG (Figure 4). The chest CT scan identified a thymoma as an anterior mediastinal mass. To differentiate MG from other neurological disorders, a cholinesterase inhibitor (prostigmin) was administered, and electromyographic tests were carried out. Specifically, the performance of the patient’s cholinergic factor, thyroid function and antinuclear antibodies were tested in order to exclude systemic lupus erythematosus, hypothyroidism and rheumatoid arthritis.

Surgical treatment and post-operative treatment

Surgical resection is state of art in treatment for thymomas. A thoracoscopic approach was used in this case (Figure 5). To avoid having to cut the sternum or the ribs, the operation was performed endoscopically. Small incisions were made between the ribs on the right part of the chest, through which a camera and flexible thoracoscope accessed the thymus and removed the thymoma. An active tubular drainage system was used for two days after the operation.

A histological examination determined that the thymoma could be classed as type AB (Figure 6).

Morphologically, type AB thymomas exhibit foci with features of both type A and type B thymomas, combined with foci rich in non-epithelial lymphocytes. Post-operative treatment involved the administration of acetylcholinesterase inhibitors and muscarinic receptor antagonists.

Conclusion

An acute infection which may not be localised in the maxilla may trigger the onset of MG. As far as can be determined, this is the first report describing the presence of peri-implantitis, maxillary sinusitis and concomitant onset of MG. It is still not clear if peri-implantitis is a potential cause of thymoma. Greater numbers of patients with MG who undergo dental procedures must be evaluated in order to illuminate the clinical implications of dental treatment in the occurrence of myasthenia gravis.

References

Sinus floor elevation with conical implants

A new drilling technique

The purpose of this article is to describe a drilling technique for sinus floor elevation for conical implants. This avoids the use of conical drills with the goal of increasing primary stability of the implant. The article will present two clinical cases.

The first case concerns a 45-year-old woman who is missing tooth 26, with a residual bone height (RBH) of 2.8mm. In this case, a crestal approach to the maxillary sinus was proposed. The second case describes a 60-year-old man with an edentulous superior maxilla. The decision was also made to treat using a sinus crestal approach. In both cases bovine xenografts were used.

Different drills were used for the sinus crestal approaches in each case in order to achieve maximum primary stability; there was no need for preparation with a counterbore drill to prevent the loss of primary stability. In both cases, the primary stability of the implants was satisfactory. Based on these results, and within the limitations of the present clinical cases, the use of special drills in conjunction with conical implants may be an acceptable surgical technique to increase the primary stability of the implants.

Introduction

Sinus floor elevation involves the internal augmentation of the maxillary sinus, which is intended to increase the vertical bone dimension in the lateral maxilla. This, in turn, makes the placement of dental implants possible.1 The procedure was first conceived of and introduced by Tatum at the Birmingham, Alabama implant meeting of 1976.2 The first publication concerning this surgical technique was, however, by Boyne, with a later paper by Tatum himself.3

The classic technique involves preparing a top hinge door in the lateral maxillary sinus wall, which is then lowered inward and upward together with the Schneiderian membrane to a horizontal position, which will form the new sinus floor. The space underneath this lifted door and sinus mucoa is then filled with graft material.4,5

The implant can be inserted at the time of the sinus lift or during a second-stage procedure, depending on the primary stability of the implant.6 In 1994, Summers introduced the ostotome sinus floor elevation (OSFE). This technique is minimally invasive with an increase in residual height ranging from 5–10mm and a success rate of 96%. The OSFE procedure was subsequently modified with the addition of bone, and renamed bone-aided ostotome sinus floor elevation (BAOSFE), a technique which allows surgeons to accurately and consistently achieve complete control over the height of space without the risk of perforating the sinus membrane.6,8

Since the publication of Summers’ original technique, various modifications have been proposed.9–11 one even suggesting the separation of the sinus membrane using the balloon lift control system (BLC).12 One of the most significant changes, however, has been the use of special drills for crestal elevations with simultaneous implant placement.9–13 One even suggesting the separation of the sinus floor elevation (BAOSFE), a technique which allows surgeons to accurately and consistently achieve complete control over the height of space without the risk of perforating the sinus membrane.6,8

Clinical case 1 (implant diameter 4mm)

The first case involves a 45-year-old female patient (Figure 2.1–2.13) who was missing tooth 26. Pre-surgical evaluation without relevant medical history revealed that she was a non-smoker and in good health. Cone beam computed tomography (CBCT) was performed, and residual bone height (RBH) of 1.81mm and crestal bone width of 7mm was observed. The treatment plan chosen was a sinus floor lift using the transcrestal technique and simultaneous implant placement.

The patient was treated with antibiotic amoxicillin/claravulanate 875/125 mg q8h starting one day before surgery for seven days, and ibuprofen 600mg for five days. Local anaesthesia was administered (articaine hydrochloride 4% with epinephrine 1:100,000).

A full-thickness crestal flap was lifted with release incisions. After marking the bone with the initial drill, the second and final drill (2.8mm diameter) was inserted to a depth of 2mm until the maxillary sinus membrane was reached, taking care not to perforate it. At that stage the sinus membrane was touched lightly with a measuring probe and the Valsalva manoeuvre carried out in order to check that the membrane had not been perforated

The graft material was prepared, and anorganic bovine bone mineral (Bio-Oss, Geistlich) was introduced through the aperture using a bone carrier. Next, a bone condenser was used to insert the biomaterial between the membrane and the sinus floor, coronally displacing the sinus membrane. Once the biomaterial had been inserted, an implant with a diameter of 4mm and length of 10mm (Biomet 3i) was placed with a stability of 40Ncm.
Clinical case 1 (implant diameter 4mm)

The second clinical case involves a 63-year-old male (Figure 3.1–3.9) with a completely edentulous superior maxilla. Pre-surgical evaluation established that the patient smoked one cigar per week. CBCT was performed and an RBH of 2mm and crestal bone width of 10mm was observed. The treatment that was chosen was a sinus floor lift using the transcrestal sinus floor elevation where the RBH is ≤4mm. If a parallel-walled implant is used, one of the complications that can occur is that the implant can step at the cortical maxillary sinus floor and rotate around itself, rather than penetrating the maxillary sinus. This is because the aperture in the sinus floor is smaller in diameter than the apex of the parallel implant. Finally, to maintain primary stability, preparation using countersink drills is not recommended.

Overview

Two sinus floor elevations with simultaneous implant placements were performed in two patients. These procedures involved the replacement of missing molars. In both cases, implant site preparation was completed with a drill diameter that measured 1.2mm less than the implant used. In the first case, an implant with a diameter of 4mm, length of 10mm (Biomet 3i) and stability of 40Ncm, was placed where RBH measured only 2mm. In both cases the apex of the implant penetrated the maxillary sinus floor less than the implant used. Although bone quantity, quality and width were paramount in deciding on a sinus floor elevation where the RBH is ≤4mm. If a parallel-walled implant is used, one of the complications that can occur is that the implant can step at the cortical maxillary sinus floor and rotate around itself, rather than penetrating the maxillary sinus. This is because the aperture in the sinus floor is smaller in diameter than the apex of the parallel implant. Finally, to maintain primary stability, preparation using countersink drills is not recommended.

Discussion

Although osteotomes are routinely used for the crestal elevation of the maxillary sinus, the use of drills to make such preparations minimises patient trauma, and minimises the occurrence of benign paroxysmal positional vertigo. To achieve greater primary stability, a conical implant is ideal. Its anatomy favours greater primary stability in type III and type IV bone which is characteristic in the posterior maxilla. Transalveolar sinus floor elevation is a reliable method for implant placement in the posterior maxilla with ≤4mm of residual alveolar bone height, and even at sites with ≤4mm. There can, however, be serious complications when the RBH is lower.

One of the most common complications can be the migration of the implant to the maxillary sinus, or the expulsion of the implant into the oral cavity due to the loss of primary stability during the process of osseointegration. To further increase stability, the quantity of bone removed during milling should be minimal. To achieve this, a cylindrical bone preparation technique is recommended, because this removes less bone around the coronal third of the implant, thereby leading to increased pressure between the implant and the bone.

Additionally, conical implants have a narrower apex than parallel wall implants, and a progressively wider base. Therefore, the apex of a conical implant can more easily penetrate the sinus floor preparation. If a parallel-walled implant is used, one of the complications that can occur is that the implant can step at the cortical maxillary sinus floor and rotate around itself, rather than penetrating the maxillary sinus. This is because the aperture in the sinus floor is smaller in diameter than the apex of the parallel implant. Finally, to maintain primary stability, preparation using countersink drills is not recommended.

Conclusion

It is important to start by noting that the technique described above is only suitable for a small subset of cases, and, additionally, that there can be serious consequences when carrying out a maxillary sinus floor elevation where the RBH is ≤4mm. If a thorough clinical evaluation determines that the patient is suitable for this approach, there should be a difference of at least 1–2mm between the diameter of the drill and the diameter of the conical implant in order to ensure sufficient primary stability. Using drills to make a parallel preparation for the insertion of a conical implant may be a valid approach for increasing the primary stability of the implant, although further studies are needed to establish this.
References