



# Orthodontics from every angle



The theme of the British Orthodontic Conference (BOC) in 2018 was Orthodontics 360 and a team of writers led by Sally Dye, chair of the Orthodontic National Group, give us a whirlwind tour of the two days dedicated to orthodontic therapists and nurses

An outstanding feature of BOC this year was that orthodontic therapists and orthodontic nurses each had a discrete day. Amy Gallacher was the first speaker for the therapists' session with her talk 'Consent in Orthodontics'. She outlined what to discuss with patients, for example the types of appliances, proposed treatment outcomes, the costs, patient commitment and the risks and benefits of treatment, but reminded us to reinforce that in orthodontics doing nothing can be an option.

The discussion regarding patient commitment needs to include:

- An estimate of treatment time
- The need to attend regular appointments
- Reinforcement of maintaining good oral hygiene
- Significant adjustments to diet
- Elastic wear
- Lifelong retention

When discussing the benefits of treatment we should be talking about:

- Changes in appearance
- Changes in function
- Psychological benefits

The risks we need to discuss include:

- Pain and discomfort
- Decalcification / decay
- Gingivitis
- Soft tissue trauma
- Root resorption
- Relapse – again reinforce the need for lifelong retention

Amy discussed recent changes in the law in particular the Mental Capacity Act of 2005. This applies to everyone involved in the care, treatment and support of people aged 16 and over living in England and Wales who are unable to make all or some decisions for themselves.

Amy reminded us that the therapist should speak to the orthodontist if the patient decides not to accept treatment or any part of the treatment. Consent is continual, it must be constantly revisited – the patient should be re-consented should the treatment plan change or should the patient want to terminate treatment early.

The next speaker on the programme was Hesham Ali who obtained the Membership in Orthodontics in 2016. His talk was entitled 'What's in a smile?' He discussed, how, as orthodontic professionals, we are taught to assess the face in thirds. While assessing the smile we really only need to focus on the lower third of the face. The main features of this are: the lips, the amount of gingival show, the smile arc and the buccal corridor.

Hesham then discussed the importance of the gingival zenith position. This is the most apical point of the gingival marginal scallop. He then went on to look at and discuss symmetry, centre lines and occlusion.

Toby Ganley Head of Right Touch Regulation who joined the General Dental Council (GDC) earlier this year, spoke about Enhanced Continuing Professional Development (ECPD). Toby gave some general background on the GDC which is the UK wide regulator for 110,000 members of the dental team, explaining its primary purpose is to protect patient safety and maintain public confidence in dental services. The GDC regulates the entire profession through education, registration, setting standards and continuing professional development (CPD).

So why have Enhanced Continuing Professional Development (ECPD)? The GDC acknowledged that with the previous system of accruing CPD verifiable hours, there was not much evidence of how it would improve an individual.

Toby showed a chart - easily accessible on the GDC website- of the fundamental changes to CPD which include:

- *the number of hours to be recorded*  
It was acknowledged that for some registrant groups there is an increase in hours
- *only verifiable hours to be recorded*  
Now to be recorded more equally over the 5 year cycle, with only one 'zero' return permitted
- *the CPD must show links with the GDC development outcomes*  
Registrants must demonstrate how their CPD

how TADs (Temporary Anchorage Devices) are helpful in orthodontic treatment.

**What is a TAD?**

A small screw device 1.2 – 2.0 mm in width and 6, 8 or 10mm in length. Unlike a dental implant it does not fuse to the bone. Careful placement is required so as not to cause any damage to the bone or roots of adjacent teeth.

**What can a TAD be used for?:**

- Distal movement of molars
- Space closure following extraction, or in hypodontia cases
- Molar intrusion for closure of anterior open bites
- Incisor intrusion for overbite reduction

rates can be achieved when they are placed in the palate.

There are several good points in the palate where a TAD can be placed depending on the anchorage required.

Both speakers then showed some challenging cases with palatally placed TADs in both adults and teenage patients, with excellent results.

Molar protraction can be achieved successfully by using an indirect attachment to a buccally placed TAD. TADs can also be placed asymmetrically in the palate when the anchorage demands are asymmetric.

TADs were also compared to headgear. John Scholey explained that headgear is effective if worn correctly with good patient co-operation but is becoming less popular in orthodontics. He



Debra Worthington and Sandra Beard at the gala reception

**'THE SPEAKERS GAVE AN INFORMATIVE LECTURE ON HOW TADS (TEMPORARY ANCHORAGE DEVICES) ARE HELPFUL IN ORTHODONTIC TREATMENT'**

will meet the GDC standards. It must also be linked to a Personal Development Plan (PDP). There is a template on the GDC website but each registrant is free to design their own. Toby also showed the audience a model certificate that would be acceptable as verifiable CPD which must include Development Outcomes.

Every CPD record must have a PDP with it. The GDC will not routinely ask for this to be submitted, only the verifiable hours. His summary was straightforward: meet the hours, keep a record of the activity and link it with your PDP and the Development Outcomes and finally reflect.

The last speakers on the therapists programme were Colin Melrose and John Scholey. Their talk was entitled 'Anchorage management. Do we really need TADs to help us?' The speakers gave an informative lecture on

- Molar uprighting
- Intrusion of supra-erupted teeth
- Correction of a cant of the occlusal plane
- Application of orthopaedic forces
- Intermaxillary fixation during maxillofacial surgery.

**TAD's.... What has changed ?**

When TAD's were first introduced they were placed almost exclusively buccally, however they are increasingly placed in the palate, which has good quality bone. Furthermore, they can be positioned well away from the roots of teeth.

Direct traction to the TAD with sometimes challenging mechanics and force vectors: TAD's can be used to provide indirect anchorage, which means that standard mechanics do not have to change.

Success rates for buccally placed TADs vary between 75% and 90%, whereas 90% success

also pointed out that TADs are not dependent on patient compliance as they are under the control of the clinician.

**Summary**

- Good mechanics and a well thought out treatment plan can still achieve great results without TADs.
- Unfortunately, this often calls for patient compliance, which may not be forthcoming.
- Some tooth movement such as molar intrusion for open bite correction are far more challenging and far less certain of success without TADs.



Mariyah Nazir

On the second day, dedicated to orthodontic nurses, Sheena Kotecha, consultant at Birmingham Dental Hospital and University Hospitals North Midlands started the session with a lecture entitled ‘*Orthodontics: It’s only straight teeth.*’

Sheena explored the links and importance between what we perceive as attractive – the social norms verses ideas of what is beautiful, the need to improve function, reduce trauma, improve malocclusion and the psychological benefits. The presentation was evidence based and examined data from the national bullying surveys and patient reported outcome measures (PROMs). This data is collected regularly and supports the value of orthodontics. Teeth remain the number 1 target of bullying and the effects are far reaching in our society, influencing truancy, running away from home, eating disorders, depression and self-harm. PROM data shows that patients are 100% happy with the treatment outcome. It is encouraging to know that what we do really does make a difference, and we should continue to develop and grow the service that we offer our patients.

Next Christine Whitworth gave a cross infection control update. She started by reminding us that we all need to appreciate the risk of infection to patients and what the consequences can be if the chain of infection is broken.

entry to the body either through respiration, swallowing, inhalation, broken skin, splashes to eyes etc. All people are susceptible but people who may have a compromised immune system are more vulnerable.

Christine reminded us that it is necessary to take a medical history for patients at each appointment, and to wear appropriate personal protection equipment (PPE) for all tasks including decontamination of instruments, cleaning surfaces and equipment and to have a waste management system in place. Patients need to be protected. Christine showed several photos demonstrating how infection can be passed on in the dental surgery by not wearing gloves to treat patients.

Preventing cross-infection by adequate

of inoculation injuries, splatter and aerosols. The use of visors is recommended instead of face masks to protect against splashes or splatter into eyes. If using ultrasonic baths the solution should be changed every 4 hours or more frequently if heavily soiled. It is a requirement that a function test is carried out regularly if these baths are still in use.

All washer-disinfectors need to be correctly installed and the use of detergent and neutraliser should be stored in a clean area that is regularly maintained. Training is needed to use the washer-disinfector. Use of the correct trays or cassettes and bur holders is important. Allow the trays to be placed at an angle to drain properly. Autoclaves are the best means of sterilising instruments. They use dry heat and steam,



Speakers Sheena Kotecha and Chris Whitworth with Session chair Laura Moloney (left)

**‘AUTOCLAVES ARE THE BEST MEANS OF STERILISING INSTRUMENTS. THEY USE DRY HEAT AND STEAM, THIS PROVIDES ENERGY THAT KILLS THE BACTERIA.’**

Pathogenic organisms are harmful and cause disease. Examples are viruses and bacteria. Viruses include HIV, Hepatitis B, Hepatitis C, and the Herpes Simplex Virus (HSV). New cases of HIV are still being diagnosed each year. Hepatitis B can be present in blood and saliva. The best defense is immunisation against infection. For Hepatitis C there is no vaccination available. HSV, Herpes Simplex Virus causes cold sores. This raises the question of do you treat or not? Bacteria include MRSA, which is a common bacteria that can be present in the mouth and another example is Tuberculosis.

All of these pathogens can be passed on through the dental environment either via people to people contact, equipment, instruments, water lines and clinical waste. Transmission routes for transference of infection can be via direct contact, droplets, splashes or aerosols.

Christine reminded us of the portals of

sterilisation, as well as no reuse of single use items, is paramount as well as having designated clean and dirty areas in the surgery and the decontamination area. Consideration should be given to equipment and instruments and whether they can be cleaned. Items can trap debris, some instruments or equipment may have a lumen so may need to be exchanged for disposable options such as 3-1 tips.

Prior to sterilisation all debris should be removed from instruments otherwise this will be baked on during the autoclave cycle and the sterilisation process will not be effective. Instruments should be soaked to remove proteins and prions. Instruments should be inspected after washing and decontamination prior to sterilising.

Manual cleaning is operator sensitive and again PPE should be worn. Validation of the process is difficult and it also causes greater risk

this provides energy that kills the bacteria. Autoclaves are far better than a hot air oven. Once sterilised, instruments should be stored in packets. If the packets become damaged this will allow recolonisation to occur.

In conclusion:-

- Micro-organisms are spread by hands. Good practice is to always follow a proper hand washing technique which should be displayed at all hand washing sinks. Do not wear watches, nail varnish, false nails, rings, including wedding rings and keep nails short as these can all harbour bacteria and prevent effective handwashing.
- Disinfect equipment, surfaces, instruments to remove as much of the micro-organisms that will grow.
- Have clear designated clean and dirty zones within the surgery and decontamination area
- Designate tasks to ensure compliance and have appropriate check lists
- Do not refill containers
- Do not use alcohol wipes as they are bacteria tolerant
- Do not use sprays
- Use water line cleaners and carry out regular water line checks and audit

After the coffee break Peter Mc Callum spoke on the topic of Invisalign. Peter is Senior Partner in a specialist orthodontic practice in Stirling, he founded the Scottish Specialist Orthodontic Society in 1992 and sits on the Specialist Advisory Board for Align Technology.

His presentation titled Encompassing Invisalign looked at the 360 approach to working with Invisalign in daily practice and the role of individual members of the team in the delivery of aligner treatment. Peter began by explaining the journey in development for the Invisalign system from 1998 to the present day. Changes in how the system manages to move teeth is a constant evolving process. The most recent being how the position of the attachments has changed and how the laterals are now being controlled.

This was a very useful presentation for those who solely work with NHS service provision in secondary care settings.

Next Hamza Anwar who currently works in the University Dental Hospital of Manchester and in specialist practice spoke about Impacted canines and techniques for alignment. Hamza stated that 0.8% -5.2% of patients will present with a palatally impacted canine, and there is a higher female to male ratio of 2:1. The aetiology of Impacted Canines is multi-factorial to include, long path of eruption, the development starts before the lateral incisors, the deciduous canines are resistant to resorption and crowding in the arch. The presentation is approximately 61% palatally placed, 34% in the line of the arch and 45% are buccally placed.

Hamza then discussed the Guidance Theory: small or missing laterals are associated with 42.6% of impacted canines as they use the distal surface of the upper lateral for the path of eruption and the Genetic Theory: There is currently no evidence to support why genetics are or are not involved with impacted canines

Hamza explained the clinical signs that should be identified with delayed eruption of canines

- Prolonged retention of Upper deciduous canines
- Unable able to palpate the canine bulge
- Distal tipping of the Upper Lateral incisor
- Loss of vitality or mobility of the upper lateral incisors

In terms of radiographs it is important to follow the Royal College of Surgeons guidelines which state that if the canines are un-erupted by the age of 10-11 years, radiographic investigations must be undertaken. Either 2 periapicals, and upper standard occlusal and a periapical or the preferred option an upper standard occlusal and a denotantomograph. Hamza also explained the parallax technique

and the SLOB rule.

The research states that 12% of impacted canines resorb the roots of adjacent teeth. Hamzar explained the use of Cone Beamed Computerised Tomography (CBCT) and its ability to assess the presence and extent of root resorption. Treatment options ranges from – no treatment, through to surgical removal or orthodontic alignment, with the risks ranging from increased treatment time through to resorption of adjacent teeth or ankyloses.

Hamzar also showed slides and discussed the open and close exposure techniques for the canine and stressed the importance of anchorage management whilst traction was applied to the canine. The traction itself could take on various forms such as direct traction, piggy back, whip arm and ballista spring. This was an enjoyable

Top tip – transillumination gives us a lot of information about a tooth and is a free resource to aid diagnosis.

The final speaker on the nurses programme was Richard Burnham Consultant in Oral and Maxillofacial Surgery at UHNM and County Hospitals. His talk was entitled ‘*Oral Cancer – Red flags*’ Richard’s talk was an informative if somewhat sobering lecture on the facts around oral cancer. Richard began with some basic cancer facts: oral cancer is the 4<sup>th</sup> most common with the statistics being 1 –in 75 for men and 1 in 150 for women with Caucasians slightly more susceptible than Afro Caribbeans, in the UK. 38% of head and neck cancer in the UK is preventable. The death rate for cancer is on the decline, but the diagnosis is on the rise with the survival rate being 10 or more years.

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Richard Burnham (left) and Jay Kindelan with session Chair Tamiley Morris

Richard showed the audience a typical mouth map and advised that this is referred to regularly to remind health care workers of the sites and incidences of cancer in those sites – typically to routinely check, lips, gingiva, hard and soft palate, tongue to include dorsum and edges, and floor of mouth.

The early stages of cancer may present itself as leukoplakia, erythroplakia or a non-healing ulcer. Later stages are more visual, big lumps and foul smelling.

Treatment is extensive. After an initial examination and endoscopy together with PET scan (positron emission tomography) an incisional biopsy is carried out and appropriate bloods are obtained. The patient will be discussed at a multi-disciplinary meeting where, if the cancer can be removed, treatment is then planned. Richard Burnham’s take home message: Squamous cell carcinoma is preventable. Patients should be well informed about lifestyle and diet. If a soft tissue presents and it looks odd, monitor this. If it still looks odd, refer using a cancer pathway.

and informative lecture on the management of impacted canines.

After lunch Jay Kindelan Consultant Orthodontist for York and Harrogate gave a lecture entitled ‘Management of dental trauma, the orthodontic angle.’

Jay took us through all the main areas to consider when presented with a trauma situation. These included luxated teeth, ankylosis, infra occlusion, luxation injuries and general treatment principles.

There is a lot to consider when presented with a patient with a history of trauma but Jay made it an interesting and informative journey. The most important being that a study of root anatomy prior to treatment is essential and the use of gentle forces throughout treatment will enable the safest journey for the traumatised tooth.

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bdjteam2018209