My "top 10 tools" for implant dentistry

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The skills and knowledge attained with implant therapy are paramount to ensuring predictability and success in implant dentistry. Didactic lectures and reading of the literature help to cement this knowledge, however, dentistry is a hands-on profession. I have always found that attending hands-on workshops a beneficial means of learning, due to seeing how products and instruments are used. Alternatively, seeing practitioners at work can benefit immensely by watching procedures live to see the nitty gritty details of the specific procedures.

This article has been written to describe the armamentarium that we utilise to make our life less complicated, safer and more efficient in our dedicated implant practice. The mouth can be a difficult environment to work in with saliva, bleeding, tongue, cheeks, lips, and not to forget, there is a life support system to the mouth and that is the patient's psychology!

In my travels and training, I have been exposed to many different practitioners, with each having their own set of specific instruments that are a favourite. To help you in your practice, here are a list of some current products that you might want to keep in your bag of tricks... no particular order:

1. Salvin Featherlite Micropoint Scissors

Salvin Featherlite Micropoint Scissors (Figure 1) take the "wince" out of suture removal. They are very light and have excellent tactile feel to remove sutures, which can sometimes be a difficult task when patients are not anaesthetised. The design of the cutting blades has an increased shearing angle that makes them more efficient than the normal castroviejo scissors. The tips are blunt so there is no chance of penetrating tissues so suture removal can be carried out in a safe manner.

Figure 1. Salvin Featherlite Micropoint Scissor (curved).

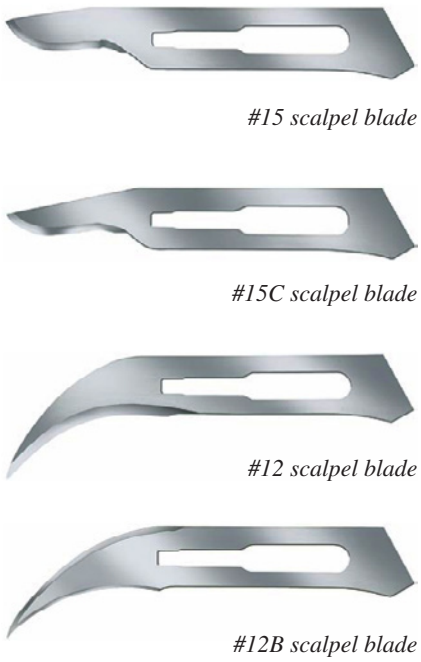

Figure 2. Hu Friedy 10-130-05E round scalpel handle.

2. Scalpel Handel and Blades

It's important to have very precise control of a scalpel and the use of a round handle allows enhanced control of the instrument. Oftentimes dentists use a flat handle, which does not give you the fine motor control that is needed to make a careful incision. My preferred handle is the Hu Friedy 10-130-05E (Figure 2). Common blades that we utilise in surgical implant dentistry are the 15, 15c, 12 and 12B.

Figure 3. Imaging Sciences i-CAT.

Figure 4. Anthogyr Torq Controller.

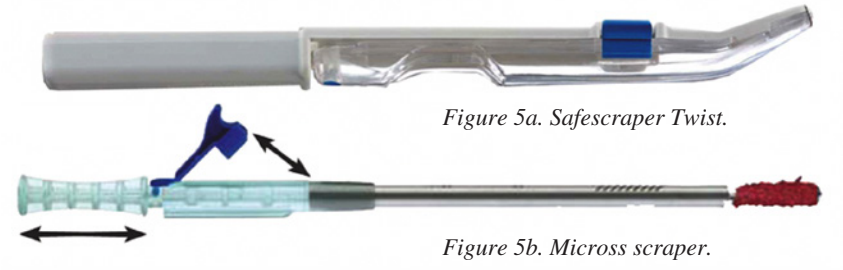

Figure 5a. Safescraper Twist.

Figure 5b. Micross scraper.

3. Cone Beam CT

CBCT is a medical imaging technique consisting of x-ray computed tomography where the x-rays are divergent, forming a cone. During a CBCT scan, the scanner rotates around the patient's head, obtaining up to 600 distinct images. The scanning software collects the data and reconstructs it, producing what is termed a digital volume composed of three-dimensional voxels of anatomical data that can then be manipulated and visualized with specialized software. CBCT has become crucial in treatment planning and diagnosis and is indispensible in the area of implant dentistry. It has often been said by many that we could not live without this innovative technology within our practices anymore!

4. Anthogyr Torq Controller

The Torq Control is a manual dynamometrical declutching torque wrench fitted with an adjusting knob allowing control of the tightening torque. It is lightweight, allowing better freedom of movement, with a 100° angulated micro-head giving improved access to tighten and loosen prosthetics screws. This is especially helpful in the posterior region where access is limited. This wrench has been designed so as to guarantee a very high reliability of use. The seven proposed torque values (10; 15; 20; 25; 30; 32 and 35N.cm) are factory calibrated, making it a tool of extreme tightening precision.

5. Bone Harvesters (disposable)

The use of bone scrapers is a minimally invasive option for obtaining autogenous bone. The manual harvesting of bone by scraping the blade against the bony ridge in this manner preserves the cortical bone tissue's cell vitality, thereby maximizing the osteogenic potential of the graft.

The Micross scraper is a small delicate scraper that is useful for minor defects and is the only bone collector that can be used in a tunnel technique, which allows collection of bone in narrow and hard-to-reach areas. A 160-degree blade allows clinicians to collect bone from any bony surface.

Safescraper® Twist is a disposable cortical bone collector that features an ergonomic design, a semicircular blade and a curved tip. These components allow clinicians to harvest autogenous bone from any intraoral site, including near the defect. The Safescraper® Twist's transparent chamber holds up to 2.5 cc of bone, which can be used alone or mixed in combination with other graft materials.

6. Regenerative products

Figure 6. Geistlich's Bio-Gide.

My favoured regenerative products are Geistlich's Bio-Oss (bovine hydroxyapatite) and Bio-Gide (porcine collagen).

Geistlich Bio-Oss® is a bone substitute made of bovine hydroxyapatite, which has a low substitution rate ensuring stability and less resorption of the augmented site. Oftentimes used in conjunction with autogenous bone, it resembles human bone tissue and thus is integrated continuously into the natural remodelling process. It is also one of the most documented biomaterials in regenerative dentistry and its safe and predictable use makes it ideal for use in augmentation therapy.

Geistlich Bio-Gide® is a non-cross linked porcine collagen membrane for guided bone regeneration (GBR) and guided tissue regeneration (GTR). The membrane prevents premature down growth of soft tissue into the defect, acting as a guide for the appropriate cascade of bone, soft-tissue and blood vessel development. The success is based on the natural bilayer structure, which contributes to excellent soft-tissue integration as the structure promotes homogenous vascularisation.

The membrane is a bilayer collagen membrane composed of both a smooth and rough layer. The smooth upper layer is catalyst for the attachment of fibroblasts that lead to a favourable healing of the gingival tissue. The rough more porous layer acts as a guide for osteoblasts, becoming the foundation for optimal bone formation and healing. It maintains a barrier function long enough to yield optimal bone regeneration.

The membrane allows optimal wound healing due to its good vascularisation and tissue integration, which leads to fewer complications like dehiscence and exposure of membranes. This is in contrast to the use of non-resorbable membranes with poorer vascularisation and which require a much more technique sensitive procedure. This sometimes led to inadvertent exposure, subsequent infection and loss of graft oftentimes in a catastrophic manner.

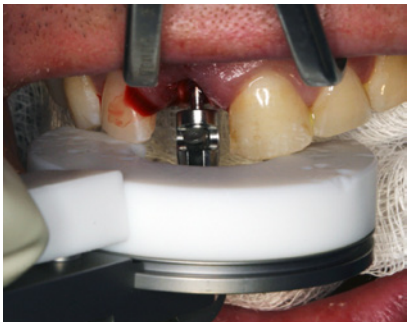

Figure 7. Meisinger's Benex® Control root extraction system.

Figure 8. Castroviejo Needle Holders.

Figure 9. Cytoplast PTFE sutures.

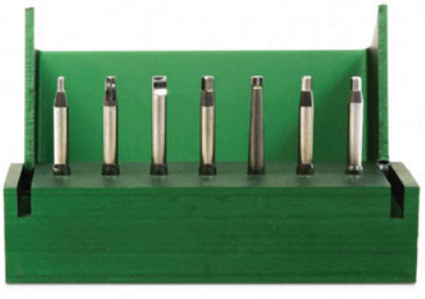

Figure 10. Latch type screwdrivers.

7. Benex Control

The Benex® Control (Root Extraction System) from Meisinger is a specialised device for atraumatic removing of tooth roots (Figure 7). An extraction screw is inserted like a post down the root and a pulley-like action is utilised with the other teeth as anchorage. An exertion force along the long axis of the root is applied, allowing extraction in a minimally invasive manner without any compression or injury to the soft or hard tissues surrounding the root. Due to the innovative construction of the extractor, the root can be removed very easily and in an extremely controlled manner. There are situations that this may not be successful and this is in the fractured root situation where the post has no anchor and in these cases, a conventional technique of root elevation or sectioning may be utilised to perform complete removal.

8. Castroviejo Needle Holders

The use of these style of needle holders (Figure 8) allows an ergonomic technique to suture tissues without having to move the whole wrist like normal needle holders. This allows very fine motor control with delicate handling of the soft tissues.

9. Suture materials

The Cytoplast™ PTFE suture (Figure 9) is an ideal suture for dental bone grafting and implant procedures where a soft monofilament suture is desirable. Cytoplast PTFE suture's monofilament construction is inert and doesn't allow bacterial wicking into the surgical site. This leads to superior tissue reaction with decreased inflammation at the suture site and less subsequent scarring. The other advantage is that it is soft making it comfortable for patients and is easily visualised allowing simple removal when required.

10. Latch type screwdrivers

Latch type screwdrivers (Figure 10) are designed for right angled drivers which are compatible with all major implant systems. In this day of patients having multiple different implant systems, it can be difficult to have every screwdriver you need to restore cases and even when you do, they are often lost in the sea of different components in different drawers. If you're like me, no matter how good your staff is, bits and pieces are lost continuously which can lead to both economic loss together with the frustration that builds when the patient is in the chair and you cant find the right bit!

You can stop wasting time or rescheduling appointments because you have to identify what type of implant system was placed by another dentist. With these bits you'll have what you need for 95% of the systems. Each bit is laser etched for quick identification and can be a life saver when you have no idea of what type of implant system the patient has attended with.

About the author

Dr Christopher Ho achieved his Bachelors degree in dentistry with First Class Honours at the University of Sydney and has completed postgraduate studies in the Graduate Diploma in Clinical Dentistry in Oral Implants at the University of Sydney and a Masters of Clinical Dentistry in Prosthodontics with Distinction from King's College, London. Dr Ho lectures extensively on aesthetic and implant dentistry and is a Senior Visiting Clinical Teacher at King's College London, a member of the Planning Committee, Mentor and Lecturer for the Oral Implant Diploma at the University of Sydney and a faculty member with the UCLA/Global Institute for Dental Education Certificate program in Implant Dentistry. Dr Ho has a referral-based restricted private practice in prosthodontic and implant dentistry in Sydney, Australia.