Modern Day Endodontics
- working together as a team
(Dentist and Nurse)
Ahmed, Tracy, Peter and Janice (QED)

Practical Hands-on Course
For the Dentist & Nurse
Norfolk and Norwich University Hospital,
March 2015
Introduction – why?

Dummer (1997a & b)
The general standard of Endo in the UK is ‘sub-optimal’


Introduction – Why here today?
Knowledge - Knowledge of skill – (early) Competence of skill – Proficiency of skill – Expertise of skill
Today – learning aims and tools for aiding the road of proficiency: knowing, understanding, incompetent practice, competent practice and proficiency

- Achieve Endodontic **Access**
- Understand use of different rotary tools for root canal **Preparation** (Protaper & Reciproc)
- Understand and be able achieve **Apical Patency**
- Understand and apply **Apical Gauging**
- Know how **Verification of GP point** both **directly** and **indirectly**
- Understand and start to use **Warm Vertical Obturation**
Rotary and Reciprocation Preparation
Rotary and Reciprocation Preparation
Small things that we all need to be able to do better

- Access
- Canal(s) location

- Small Scout Files (#08 / #10) to confirm presence and patency of root canal(s) – very important for re-treatments – must learn ‘watch-winder’ action
- Preparation – Coronal, Mid and Apical thirds
- Preparation for Obturation
- Obturation

- Coronal Restoration
Today

• Take the opportunity to enjoy the facilities
• We know that endodontics is a team game
• Tracy will support the dental nurses here today and we will all come back together to put in place positive team work – to ease the endodontic task
• As a profession we need to be looking at ways of improving clinical outcome – also planning to do things better in the future
• We need to break down our goals into important small do-able tasks
• Do not get in the habit of avoiding doing things
Handouts (PDFs) can be found at www.hodsollhousedental.co.uk
COURSE DOWNLOADS, PAPERS & SEMINARS

Please find below downloaded course material and lecture summaries to accompany recent courses & presentations to aid teaching. These will be removed 4-6 weeks after the course. Please note that the content is most suitable and appropriate for the education of dentists and dental professionals. In addition summaries (with reading material) are also available of the 2014 Specialist Registrar Seminars that Peter is involved with in South West London. We hope both are useful.

2014 Courses and lectures:

Thursday 24th July 2014 – Modern Endodontics – Pan South London DFY2 / CDP Practical Training Day at LonDEC, Waterloo

The day allows practical exposure to modern rotary and reciprocation root canal preparation aids – together with warm vertical obturation for South London Foundation trainees. The course is lead by Peter Briggs and SW & SE colleagues. Learning outcomes will include understanding the systems, applying them practically, knowing the importance of how to achieve apical patency and gauging.

Handout (PDF) to accompany training day: Fundamentals of Endodontics lecture 2014
Knowledge-base
Results of single tooth implant – v - endo and tooth restoration:

• The results obtained from this study show similar overall OHIP scores and show a high rate of satisfaction with both treatment modalities (saving tooth with endo and post versus extraction and replacement with SC implant).

No advantage from a patient perspective of an implant crown over a restored RCT’d tooth
Results of single tooth implant-endo and tooth restoration:

- The results obtained from this study show similar overall OHIP scores and show a high rate of satisfaction with both treatment modalities (saving tooth with endo and post versus extraction and replacement with SC implant).

- No advantage from a patient perspective of an implant crown over a restored RCT'd tooth.

The patient will be equally happy (or unhappy) with either form of fixed restoration.
What factors have been proven to make a difference to endodontic outcome that we should link to what we do today?
We all should all have read this critical review on Endodontics Ng et al. (2008 a & b) Int Endod J 41: 6-31

- Pre-operative apical area
- Root filling ending within 2 mm of radiographic apex (instrumentation and obturation)
- Voids within the root-filling (obturation quality)
- Satisfactory restoration coronal seal (post-Rx Rest Dent)
Dead or Alive?

Electronic Pulp Tester - a great tool

Get the patient to hold the pulp tester and let go when they feel something.
Dead or alive – fridge cold water
Can we predict if our Endo is going to work?

**Pre-operative:**

- Presence of periapical lesion (49% lower)
- Size of periapical lesion (14% lower for every 1mm)
- Presence of sinus (48% lower)
- Presence of root perforation (56% lower)

*Ng, Mann & Gulabivala; International Endodontic Journal, 2011*
Predictive Discussions with the patient

• CAP with exudation - presence of sinus (48% lower)
Presence of pre-operative area

• Why do you think this is important?
• How long will it take to heal after treatment?
If no sign of healing or radiographic improvement at 24 months then likely not to have worked
Root filling ending within 2 mm of radiographic apex (hand SS files, apical patency, canal instrumentation, obturation and coronal seal)
Electronic Apex Locators

always use the tip (not the clip) - your nurse can put hold it on the head of the hand-piece it doesn’t need to be on the file

- Location,
- WL
- Patency
Team working – in the digital age

- Learn to use and trust an EAL – it’s right as long you can get predictable Zero readings and it’s not ‘jumping’
- Prepare the root canals with tip of EAL placed on the hand piece as you work
- Always know where you are with reference to the Zero reading
- Use the ‘Wand’ not the ‘Clip’
We will learn how to gauge the apical size of our root canal(s) and verify our chosen master GP point to this size.
This will optimise outcome and control Obturation (Ng et al 2011)
Teeth with apical areas you will get an approximate 12% drop-off in healing outcome per mm short of ideal length (Ng et al 2011)
Is our Endo going to work?

**Intra-operative:**
- Achieving patency (Two-fold increase)
- Canal prepared short of terminus (12% lower for every 1mm short)
- Long root filling (62% lower odds of success)
- Using Chlorhexidine as irrigant (53% lower)
- Using EDTA (Re-RCTx) (Two-fold increase)
- Inter-appointment swelling/pain (47% lower)

*Ng, Mann & Gulabivala; International Endodontic Journal, 2011*
Early patency and drainage is very important with teeth with CAP
‘Golden Rules of Team Endodontics’

• Never put an unmeasured endodontic instrument into a root canal – never give (unless requested) an unmeasured instrument to dentist
• Use your pre-operative radiographs to help provide a guide on likely working length(s)
• Share measuring responsibilities
• ATD – with gauging and pre-cementation radiographs please
Ng et al. (2008 a & b) Int Endod J 41: 6-31

• We are now probably as good as we can get “ARE WE THERE YET?”
• The older techniques hold up well
• Irrigation and ‘bug-killing’ are extremely important when apical periodontitis is present
• We must all ‘crack’ a predictable obturation technique
Is our Endo going to work?

Post-operative:

• Good coronal restoration (Eleven-fold increase in odds of success)

Ng, Mann & Gulabivala; International Endodontic Journal, 2011
We must protect the investment
Satisfactory Restoration

cracked tooth - coronal seal (post-Rx Rest Dent) – orthodontic band and amalgam core UR6 prior to casting
A comparative study matched 196 single-tooth implants to 196 root-canal-treated teeth, compared 4 different outcomes: success, survival, survival with intervention, and failure. Interestingly, 73.5% of implants were considered successful in comparison with 82.1% of endodontically treated teeth. Failure was recorded in 6.1% of subjects in both groups. Implants required a significantly greater amount of interventions (18%), which varied from connective tissue graft and remedial surgery for peri-implantitis to screw loosening. Although markedly fewer (3.6%) interventions for the endodontic group were noteworthy and included root canal retreatment and apical surgery.

Endodontic Rx tooth survival

Survival at eight to ten years was 87%

They were able to place the influential factors in order of significance:

1. A full coverage coronal restoration after root canal treatment
2. Tooth has both mesial and distal proximal contacts
3. Tooth not acting as abutment for either a removable or fixed prosthesis
4. Tooth type, specifically non-molar teeth.


Endodontic Tooth Survival

After four years the cumulative tooth survival rate was 95.4% for primary treatment and 95.3% for secondary treatment.

Post-operative factors relevant to survival of root filled teeth were:

- The presence of a cast restoration coronally (positive)
- Two proximal contacts (positive)
- Cast post and core (negative)
- Terminal tooth (negative)

Cleaning
Increasing ‘bug-killing’ with hypochlorite

- Warm - 1% at 40 degrees is as effective as 5.25% at room temp
- ‘Pump’ with final GP – 30 seconds per canal with EDTA then 30 seconds with hypochlorite immediately prior to obturation
- This has been shown to make a big difference to outcome for both de-novo and revisions (EDH / USA)
Lets get going with practical stuff please