‘Smart Thinking’ on Restorative Outcome for the Dental Team – Part Two

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Handout – hodsollhousedental.co.uk / teaching & education / course downloads
My aspiration

Like Kevin - my vision was to set up and work in a ‘no blame’ environment – and achieve contentment.
GIRFT – attention to detail
it’s the least we can try and do

GETTING IT RIGHT FIRST TIME
Improving the Quality of Orthopaedic Care within the National Health Service in England

BIOGRAPHY OF TIMOTHY BRIGGS

INFORMATION ABOUT THE REPORT AND THE PILOT PROJECT

To download the report for Getting It Right First Time (GIRFT) and/or Executive Summary please use the link below


The ‘Getting it right first time’ (GIRFT) report published by Professor Briggs in late 2012, considered the current state of England’s orthopaedic surgery provision and suggested that changes can be made to improve pathways of care, patient experience, and outcomes with significant cost savings. The report takes the view that this approach has the potential to deliver a timely and cost effective improvement in the standard of orthopaedic care across England.

The Secretary of State has now approved a national professional pilot of this approach across England, financially supported by the NHS PCC (Primary Care Commissioning). The pilot formally will be a national professional trial of clinicians offering what is, in effect, management consultancy services. It will be led by the sector of clinical professionals involved in leading the provision of local services; funded by the NHS; and endorsed by the Department of Health and the Medical Directorate of the NHS Commissioning Board.

The pilot will undertake a national review of baseline data and “deep dive” meetings with providers and thereafter offer a succession of regional healthcare economies a review. This review features targeted self-assessment and peer review at local level of data relating to musculoskeletal services and their:

- Clinical outcomes,
- Processes (including revisions),
- Patient experience,
- Patient pathways,
GIRFT – you want to be able to land the ‘dental’ plane when things conspire against you
Craft Skills - Smart thinking trainers - we need to change

• The craft of dentistry is / has changed
• We need to reflect on this and not dismiss newer ideas
• But there are craft skills that can only be learnt by repetitive skills training and reflective practice of the one being taught — they must realise that they need help
• Some of this help will still need to be delivered in the style of Sir Lancelot
‘Smart thinking’ and optimising success with posts - preparation

Good or Bad?
Grieve & McAndrew (1993)

- Radiographic examination of 327 post-retained crowns
- 20% had deviated posts
- 10% had no root filling
- 50% inadequate RCT
- 47% had radiolucent areas
- 74% of posts tapered
Preparation the post hole

Deviation / Perforation – 20% of posts deviate – what implication does that have to those of us using implant drills?
Drilling a post channel is a high risk procedure – particularly for younger practitioners – DFs will need very close supervision.
Diameter & Drilling the post channel

Parapost burs create significant deviations from the centre of canals than Gates Glidden (Gegauff et al 1988) Therefore safest to use the GGs first to remove (mostly by heat) the GP and then prepare / cut a post channel within the root.
Never use the post drill first – always start with ‘a measured’ Gates Glidden Burs

In a multi-rooted tooth use only one root canal
Cementation
What does GIRFT look like?

• Good endodontic and periodontal health
• Good ferrule
• Good post fit
• No voids or gaps
• Single teeth
• Favourable loading
The ‘Moshonov’ Gap to be avoided


The effect of the distance between post and residual gutta-percha on the clinical outcome of endodontic treatment.

Moshonov J¹, Slutzky-Goldberg I, Gottlieb A, Peretz B.

Author information

Abstract
To determine whether the distance between the post and the residual gutta-percha influences the clinical outcome of endodontic treatment, 94 endodontically treated teeth following post and core restoration were evaluated radiographically. The teeth were divided into three groups: (I) no gap between the gutta-percha and the post; (II) a gap of >0 to 2 mm; (III) a gap of >2 mm. Treatment outcome was evaluated in follow-up radiographs, taken 1 yr after treatment and up to 5 yr posttreatment. In group I, 83.3% of the teeth were evaluated normal, 53.6% of group II, and only 29.4% of group III. A gap between the gutta-percha and the post was related to an increased rate of emerged disease in endodontically treated teeth restored with a post and core.

Team work: nurse, technician & dentist
Greater risk of periapical infection when there is a radiographic space between the root filling and the post (Moshonov et al 2005)

- No Gap - 83.3% PAH normal
- GAP 0-2mm - 53.6% PAH Normal
- GAP greater than 2mm - 29.4% PAH Normal
This is why cementation and passive seating of posts is so important?
Smart thinking on getting best outcome for the tooth needing a post
Was the UL1 worth all the effort?
HIGH LIP LINE

- Symptoms from UL1
- Past apical surgery UL1
- No sinus, mildly TTP no deep pocketing
- Past history of trauma
- Very high lip line
- Unhappy aesthetically – temp post core – recurrent de-cementation – no conventional RCT
Post removal – do not use the presence of post to drive decision-making in the wrong direction

On the whole we are pretty good at getting posts out root fractures are very, very rare PV Abbott (2002) got all (1200) consecutive posts out of teeth - only one #’d = 0.06% risk
A Briggsy tip (Abbott 2004)

**Never** ever use the presence of a post to drive decision-making – it should be the strategic worth, what you are asking of the tooth, amount of caries, remaining supragingival tooth tissue present and the risk to reward of the other options.
POST REMOVED AND ASSESS RESTORABILITY – ANY FRACTURE AND ADEQUATE DENTINE AND HEIGHT OF FERRULE?
The amount, height, thickness & ferrule of remaining tooth structure is the most important factor on outcome - much more so than the type & length of post and the type of core.
• I think that there is enough dentine to predictably restore the standalone UL1
• Is it worth attempting to control the periapical infection?
• Structure good / biological issues poor
Investigation and conventional Re-RCT

Fox and Gutteridge (1997)
FIT & CEMENT POST & ‘TEMP’ CROWN – NEED TO DO THAT ASAP

Fox and Gutteridge (1997)
One step ahead and control and protect your seal if you are using a temp post crown

Remove the problems, cleanse, seal and protect
Re-Seal and temp crown ASAP

Article

An in vitro study of coronal microleakage in root-canal-treated teeth restored by the post and core technique

K Fox  Diana Lynn Gutteridge

Division of Restorative Dentistry, Leeds Dental Institute, UK.
DOI: 10.1111/j.1365-2918.1997.tb00726.x
Source: PubMed

ABSTRACT The aims of this study were to compare coronal microleakage around cast and prefabricated post and cores and to examine the coronal seal achieved by temporary post crowns. Thirty extracted, single-rooted, human teeth were prepared chemomechanically, root filled with gutta-percha and sealer and prepared for a standard post. Three groups; each of 10 teeth, were restored with either: (i) cast post and cores cemented with zinc phosphate cement; (ii) prefabricated posts and composite cores cemented with a composite luting cement; or (iii) temporary post crowns cemented with a temporary zinc oxide-eugenol cement. The teeth were thermocycled and placed in Indian ink for 1 week, then demineralized and rendered transparent.

Linear coronal dye penetration around the posts was measured and recorded. Results indicated that while cast post and cores and prefabricated posts and composite cores produced a good seal, leakage was significantly greater with temporary post crowns (P < 0.05). It is concluded that to prevent re-infection of the root canal system, it may be preferable to restore the teeth immediately with a prefabricated post and composite system rather than place a temporary post crown and subsequently with a cast post and core.
Metal or Glass-Fiber?

- The less tooth-tissue you have remaining – the more you need an indirect core
- Survival better for glass fiber posts and all ceramic crowns if you have 3 or 4 remaining walls of tooth tissue
- If you have less go for an indirect arrangement and optimise ferrule

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Long-term survival of endodontically treated, maxillary anterior teeth restored with either tapered or parallel-sided glass-fiber posts and full-ceramic crown coverage.

Signore A¹, Benedicenti S, Kaitasas V, Barone M, Angiero F, Ravera G.

† Author information
Indirect cast post cores – when you have little remaining tooth tissue – do you need cuspal coverage?

Three-year clinical comparison of survival of endodontically treated teeth restored with either full cast coverage or with direct composite restoration

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Statement of problem. Little information exists regarding the outcome of crown build-ups on endodontically treated teeth restored with metal-ceramic crowns or with only a direct-placed composite.

Purpose. The aim of this study was to evaluate the clinical success rate of endodontically treated premolars restored with fiber posts and direct composite restorations and compare that treatment with a similar treatment of full-cast coverage with metal-ceramic crowns.

Material and methods. Subjects included both edentulous one maxillary or mandibular premolar for which a direct restoration was scheduled. Inclusion criteria were age 20-60 years, mandibular premolar teeth with an inclined long axis, and anterior bite height of at least 4 mm. The causes of failure were assessed for each restorative method of evidence.
Maximise Ferrule Post core to support one tooth (not lost friends)
Performance is better if they have anterior and posterior contact (bounded saddle)

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)

Is my Endodontics likely to work?

- I pushed out the RRF?
- Patient had a stormy time
- Long history of infection
- So I am very doubtful
- How long would you want to review patient before placing new definitive crown?

Is our Endodontics going to work?

**Intra-operative:**

- Achieving patency (two-fold increase)
- Canal prepared short of terminus (12% lower for every 1 mm 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)

Ngo, Mann & Gabrielis; International Endodontic Journal, 2011
Apical Re-Surgery

• If done for the right reasons and in the right circumstances predictable outcome (Saunders 2014)
• Normally means poor first attempt – rather like Re-RCT
• Technique and magnification?
Prosthodontics UL1 – watch out for long-term discolouration of temps – monitor during hopeful apical healing
Smart thinking or was a RBB or OI a better choice? – buys time and what would you have?

I hope that you all enjoyed the day

The End

Thanks for your attention and I hope you all enjoy the rest of the conference