

The "root" to success in endodontics

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Thank you

Dental Protection



10 ENDODONTISTS ACROSS 6 LOCATIONS.



WHY DO WE WANT TO AVOID COMPLAINTS?

- Cost - average 3 day trial \$60-80k
- Reputation
- Psychological upset!



WHERE DOES ENDO RANK? (FREQUENCY OF CLAIMS)

Discipline	%
Endo	21
Crown & bridge	21
Implants	12
Nerve damage	8
Oral surgery	8
Restorative & perio	7
Orthodontics	6

(Personal communication JR McNamara and DPL Australia)



COST PER COMPLAINT

1. Crown & bridge Average claim - \$200,000

2. Implants

3. Nerve damage

4. Oral surgery

5. Restorative & Perio

6. Orthodontics

7. Endo Highest claim - \$137,000
Average claim - \$18,000

(Personal communication JR McNamara and DPL Australia)



ENDODONTIC COMPLAINTS

Category	%
Inadequate treatment	36
Fractured instruments	28
Other inc. inhaled instruments	14
Perforations	9
Extruded mat'l & nerve damage	5
Wrong diagnosis	3
Chemical injury	3
Rubber dam	2

(Personal communication JR McNamara and DPL Australia)



INADEQUATE TREATMENT (36% OF ENDO COMPLAINTS)



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"Didn't want to awaken the sleeping giant"

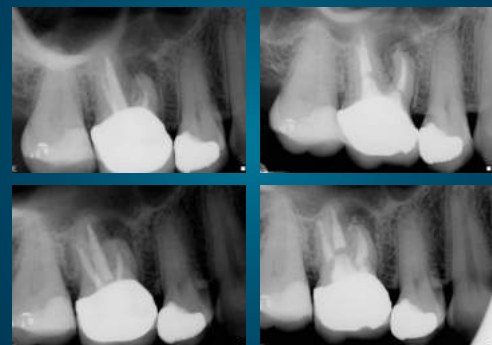


WHY WILL HE GET A COMPLAINT?

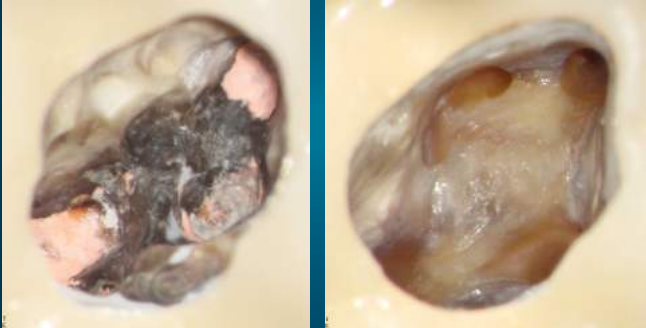
- Inadequate exam (PA image not diagnostic)
- Did not recognise the PA area & contamination
- Did not inform the patient of the issue
- Has not managed their expectations
 - no warnings of future problems
 - given the impression the tooth is "fixed"
- Expensive indirect restoration.



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1st Molars Referred

Maxilla			Mandible		
n	≥4rc	GDP find all rcs	n	≥4rc	GDP find all rcs
142	92%	7%	115	50%	50%

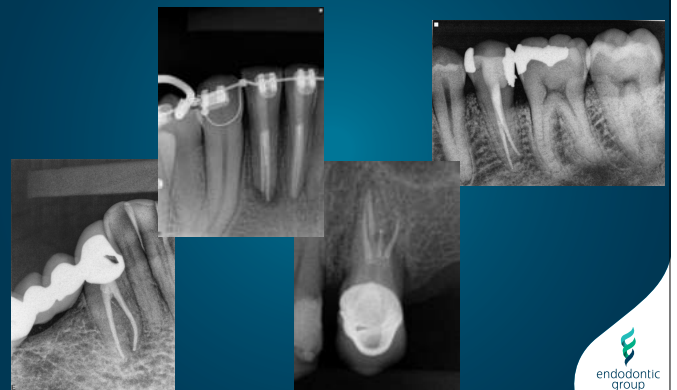
1st & 2nd Molars Referred

Maxilla			Mandible		
n	≥4rc	GDP find all rcs	n	≥4rc	GDP find all rcs
193	87%	5%	185	33%	40%

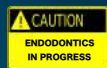
LITERATURE

- Stropko 1999
 - 1732 Mx molars
 - Initially 73% 1st molars & 50% 2nd molars
 - With DOM 93% 1st molars & 63% 2nd molars
- In all molars if 4 canals are not found...you probably should refer.

UNFORTUNATELY ITS NOT JUST MOLARS!



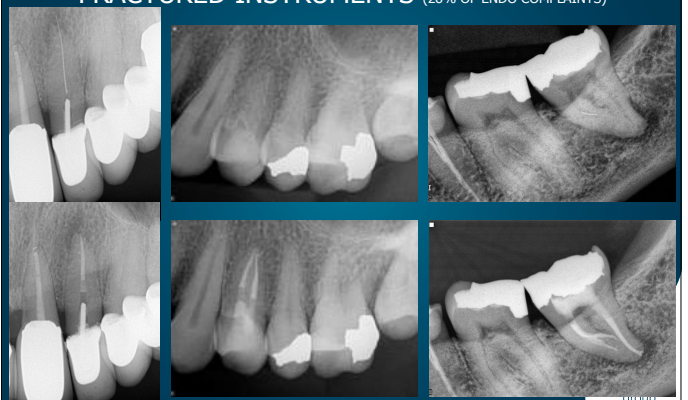
RISK MINIMISATION



- Careful pre-op assessment (patient & tooth)
- Check all steps with radiographs
- Refer if -
 - Difficult patient or tooth
 - Unable to locate all canals
 - Final obturation inadequate
 - Having trouble at any stage.

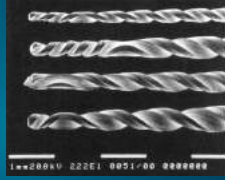


FRACTURED INSTRUMENTS (28% OF ENDO COMPLAINTS)

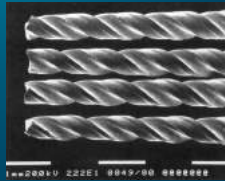


HOW DO THEY FRACTURE?

Normally a combination of both



Torsional



Cyclic fatigue



WHAT ABOUT THE TORQUE LIMIT?



Torque needed to turn inst here

>

Torque needed to # inst here

Torque limit - manufacturers best guess at what will minimise (NOT prevent) instrument # while still allowing the instrument to turn.



SMALL INSTRUMENTS



- high resistance to cyclic fatigue - negotiate curves well
- low torsional strength - likely to # if tip binds
- need a smooth path to follow
- use light apical pressure
- regular cleaning & recapitulation - debris increases friction & torsional stress.



LARGE INSTRUMENTS



- high resistance to torsional failure
- low resistance to cyclic fatigue
- can use with a bit more apical pressure
- minimal use around sharp or s-shaped curves
- quick use in curved canals
- progress further into the canal with each use - changes the location of cyclic fatigue stress.



TORSIONAL FAILURE



CYCLIC FATIGUE



RISK MINIMISATION



- Careful pre-op assessment
- Start with small pre-curved hand files - 10K or 10H
- Canal always filled with NaOCl
- Glide path (#15 min)
- Never force rotaries or use around sharp bends
- Be mindful of the modes of failure - what is the appropriate instrument to use in the case?
- Take your time!

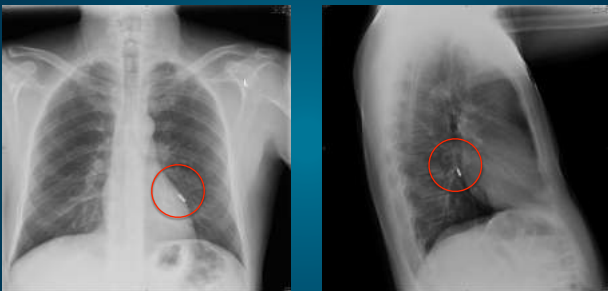


WHAT IF IT HAPPENS?

- Do NOT attempt removal - common consequences:
 - excessive removal of tooth structure
 - making the instrument irretrievable
 - fracturing more instruments
 - perforations
- Medicate & temporise the tooth
- Get a PA to record it
- Let the patient know
- Arrange referral, refund \$, offer to pay any additional \$.



OTHER INC. INHALED INSTRUMENTS (14% OF ENDO COMPLAINTS)



OTHER INC. INHALED INSTRUMENTS (14% OF ENDO COMPLAINTS)

MAN WINS \$675K SETTLEMENT AFTER DENTIST DROPS TOOL DOWN HIS THROAT

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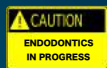


EMBED >> MORE NEWS VIDEOS >

As if going to the dentist isn't painful enough, one suburban man got way more than he bargained for when his dentist dropped a tool down his throat during a routine procedure. (WLS)



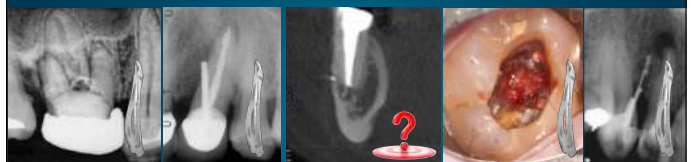
RISK MINIMISATION



RUBBER DAM!!!



PERFORATIONS (9% OF ENDO COMPLAINTS)



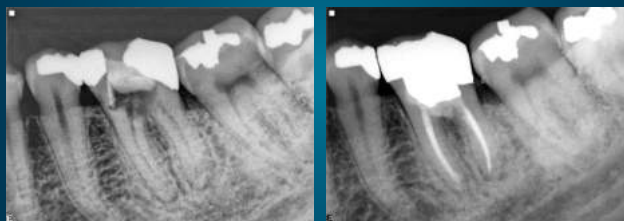
PERFORATIONS (9% OF ENDO COMPLAINTS)



No pocketing or cracks + adequate structure = good prognosis.



PERFORATIONS (9% OF ENDO COMPLAINTS)



Another lesson - always take your own PA!



PERFORATIONS (9% OF ENDO COMPLAINTS)



TRANSPORTATION → STRIP PERF



STRIP PERF - CAUSE



RISK MINIMISATION



- Always take a radiograph first
- Consider a shift view or a bitewing
- Extra care with crowns/heavily filled teeth
- Sometimes rubber dam cuff for initial access
- Ask the endodontist to leave a post space
- Use non-end cutting drills for a pathway (Gates-Glidden)
- If uncertain...**STOP!!!**
- If you perforate -
 - Temp with Cavit
 - Immediate referral for specialist care
 - Tell the patient.



ITS NOT JUST CLINICAL MISTAKES...

- Only 3% who suffer negligence file a claim
- Majority of claims are initiated by patients who haven't suffered negligence!
- Findings repeated consistently worldwide.

Localio & Lawthers, Harvard Medical Study 1991
 Studdert et al. 2000, Utah & Colorado USA

MANAGING EXPECTATIONS

MANAGING EXPECTATIONS

- Let them tell their story
- Find out their expectations
- Why they need treatment
- Appropriate warnings
- Expected outcomes & alternatives.

informed consent

APPROPRIATE WARNINGS

- Tooth, jaw & anywhere gave LA achy for 1-3 days
 - 400mg ibuprofen in 1hr and cont. 5hrly until bed
- Tenderness to biting 1-4 weeks
- No hot/cold sensation
- Can still feel pressure
- Occasional (2-5%) altered sensation - normally resolves in 6-24 months but can be permanent.

EXAMP

Operator: JMS Patient name: Billie C. Date: 10/9/18

- not by Dr X for root 30
 - part of root 4, root 5, various root
 is removed & he have can if signed.

When to expect:
 1-2 weeks
 1-2 days - severe pain
 1-2 weeks - biting
 no hot/cold sensation
 pressure
 2-5% hot/cold sensation
 2-5% altered sensation
 2-5% altered sensation

1-2 weeks
 if prognosis - very good
 the need to return to
 1-2 weeks
 1-2 weeks
 1-2 weeks

EXTRA WARNINGS

- Damage to crown if accessing through it
- May need more treatment in the future (surgery, new crown etc.)
- Make aware of spec. ref as an option
- Calcified canals - might be too hard to locate canals
- Curved canals - risks of instrument breakage
- If tooth cracked & to come out at same visit need warnings for extraction as well.

Conservative access & modern endodontics

MODERN ENDODONTICS



MODERN ENDODONTICS

- Access preparation
- Shaping canals
- Preparation for post & cores.

Dentine conservation

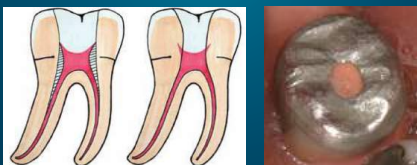
CONVENTIONAL ENDO - ACCESS PREPARATION



Straight line access

MODERN ENDO - ACCESS PREPARATION

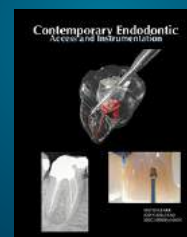
- Areas of improvement
 - vision & illumination - microscopes
 - instrument design - metallurgy & file shape
 - irrigations techniques - PUI.



Orifice directed access

MODERN ENDODONTICS - PERI CERVICAL DENTINE

- Concept developed by David Clark & John Khademi

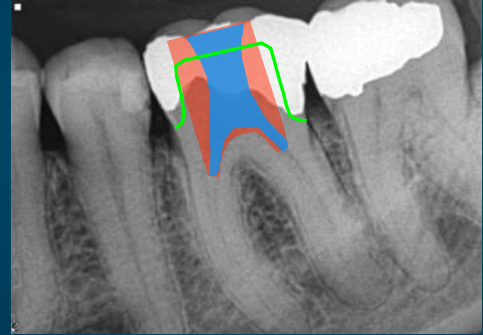


MODERN ENDODONTICS - PERI CERVICAL DENTINE

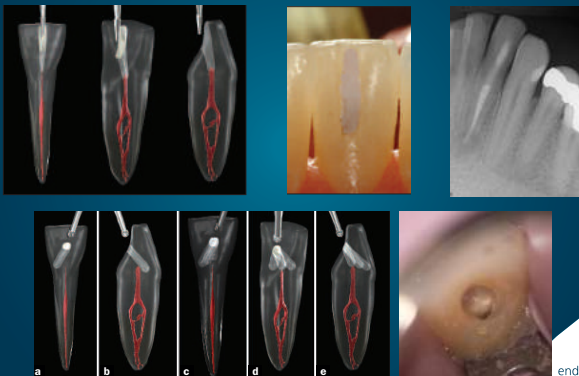
- Most common area for catastrophic restorative failures
- Most common area to be gouged, abused and irreversibly damaged by clinicians
 - wrong burs (short round or cylinder burs)
 - poorly directed &/or over-extended access
 - overzealous use of orifice openers or GG burs.



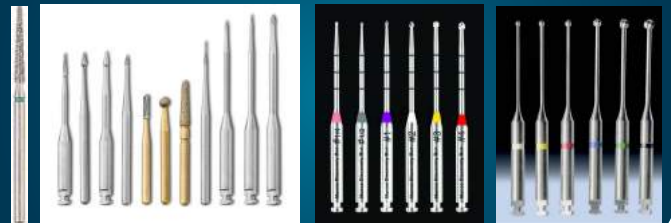
MODERN ENDODONTICS - PERI CERVICAL DENTINE



MODERN ENDODONTICS - PERI CERVICAL DENTINE



MODERN ENDODONTICS - BURS



longer burs = better vision



MODERN ENDODONTICS - CAUTION

Microendodontics?

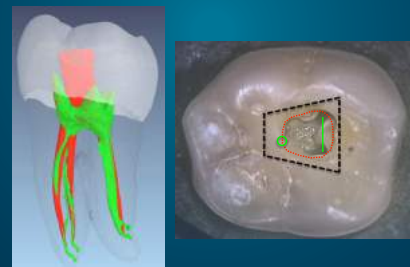
Finding the sweet spot between effective instrumentation and maximal tooth strength

Author: Eric Hartbranson, DDS, MS, FDIIC

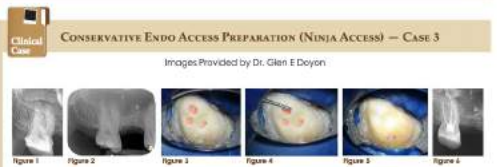
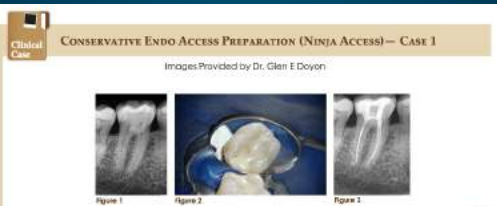


MODERN ENDODONTICS - CAUTION

- Minimise removal of peri-cervical dentine BUT you still need to locate all the canals and clean them well...



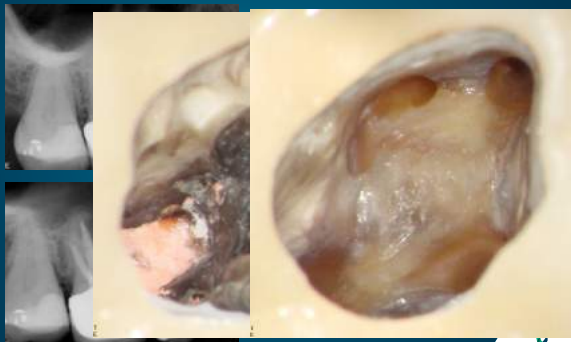
MODERN ENDODONTICS - CAUTION



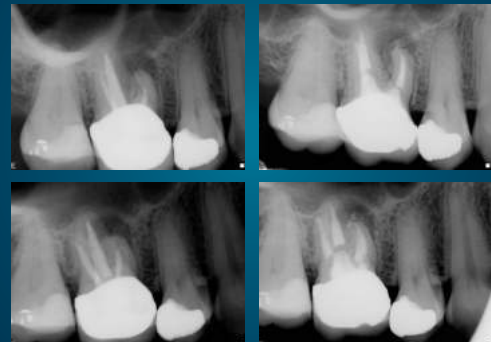
HOW I SEE TEETH COMMONLY FAIL

- Inadequate treatment (poor cleaning)
 - missed canals
 - poorly cleaned canals/pulp chambers
 - procedural errors

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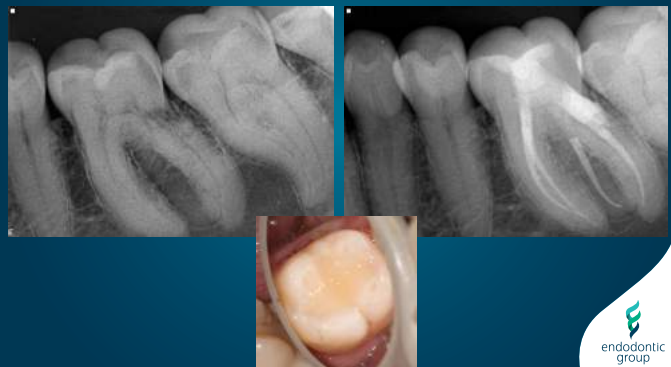
MODERN ENDODONTICS

People will ultimately be unhappy with both a weak clean tooth and a strong infected tooth as neither will give the outcome they are after.

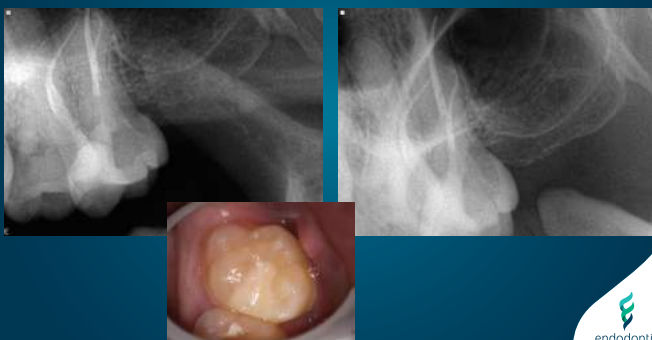
CLINICAL MANAGEMENT

- Need to be given the chance
- Consider where bacteria has come from & where it is hiding
 - Remove caries, restorations & assess any cracks
 - Remove any pulp stones & 3°/2° dentine as needed to access canals and isthmuses
- Anatomy of the pulp chamber will dictate the access
- Orifice directed access
- Placement of a core on completion if practical.

ROSS

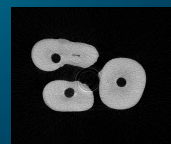


MARTIN



MODERN ENDODONTICS

- Think about why they need endo
- Balance cleaning with maintaining tooth structure
- Smaller accesses require narrow & flexible instruments
- Tip - start small & clean canals as you find them
- If attempting this you need:
 - magnification & illumination
 - time!



TAKE HOME MESSAGES

- Minimise your risk
 - assess the tooth and patient
 - good team & training
 - quality equipment
 - warn of risks before starting tx
 - manage expectations.



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TAKE HOME MESSAGES

- When (not if) an accident happens...
 - advise the patient
 - refund them
 - arrange referral
 - ring and speak with the endodontist
 - show you care about them!



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