

PRACTICAL CLINICAL COURSES
A Service of the Gordon J. Christensen
Career Development Program

V1333
Nonsurgical Removal of: Posts & Broken Instruments

Produced by
ADVANCED ENDODONTICS
Clifford J. Ruddle, DDS (Founder/Director)

Materials Included:
C.E. Instruction Sheet
Product/Supplier Lists
Clinician Responsible
Goals & Objectives
Overview
Supplemental Materials
AGD Post-Test

Gordon J. Christensen
PRACTICAL CLINICAL COURSES

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Clifford J. Ruddle
ADVANCED ENDODONTICS
Sources of Products Discussed in
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Presented by: Clifford J. Ruddle, DDS

ITEM	DESCRIPTION	BRAND / COMPANY
Edge-Ease	X-ray Comfort Cushions	Strong Dental / Schein
Rubber Dam	Handidam (one size)	Aseptico / Dentsply Tulsa Dental
Rubber Dam Frame	Ostby Type - Part no. 547-3539	Hygenic / Schein
Rubber Dam Clamps	Molars (26, 8A), Anteriors (9), Bi's (9)	Ivory or Hu-Friedy / Schein
Hot Pulp Test Tip	For thermal testing	SybronEndo or Schein
Mirror Handle w/Ruler	Item #100-8125	Schein
Stropko Irrigator	Tri-plex syringe adapter	Dr. John Stropko
Metalift	Crown & Bridge Remover	Classic Practice Resources
Endo Access Kit	Assorted Burs & X-Gates	Dentsply Tulsa Dental
Burs...Transmetal	1958 or 2158 FG	Brasseler
...Round Surgical Length	FG 2, 4 Carbide	Brasseler
...Tapered Diamonds	Round End (6856L-014) / Needle (859-010)	Brasseler
IRRIGANTS / DEVICES:		
Irrigating Syringes	3cc, 23 gauge (notched tip)	Monoject / Schein
Navi-Tip	29 gauge (notched tip), 21 mm	Ultradent
NaOCl Warmer	Sm. hotplate for warm water bath	Mr. Coffee
Water Beaker	2651A (3x3) -- For NaOCl syringes	Profex Medical Products
RC Prep or Glyde	Viscous chelator	Schein
Syringe for RC Prep / Glyde	1cc Plastic #0124	Ultradent
Tip for syringe / Stropko Irrigator	White Mac #0661	Ultradent
17% EDTA	Aqueous chelator	Roth International
Calcium Hydroxide	Interappointment dressing	Pulpdent / Schein
Xylol/Chloroform	Clean excess sealer off walls / Remove cements	Schein
HAND INSTRUMENTATION:		
Files / 10, 15	K-Files	Dentsply Maillefer
Files / 20, 25, 30	Flexofiles	Dentsply Maillefer
Files / 35, 40, 50, 60	SureFlex	Dentsply Maillefer
ProTaper Hand Files	Snap-on handles (SX, S1, S2, F1, F2, F3)	Dentsply Tulsa Dental
Bird Beak Plier	For precurving NiTi hand files	Hu-Friedy / Schein
Endo Ring	Blue Ring w/Foam Inserts	Jordco / Schein
Micro Openers & Debridors	All Sizes	Dentsply Maillefer
ROTARY INSTRUMENTATION:		
ProTaper Rotary Files	SX, S1, S2, F1, F2, F3, F4, F5	Dentsply Tulsa Dental
ProTaper Retreatment Files	D1, D2, D3	Dentsply Tulsa Dental
ProFile Orifice Shapers	Sizes 20-50	Dentsply Tulsa Dental
ProFile .04 Tapers	Sizes 35-50	Dentsply Tulsa Dental
X-Gates	Single Instrument (Gates Gliddens 1-4)	Dentsply Tulsa Dental
Gates Glidden Drills	Stainless Steel Sizes 1-6	Dentsply Maillefer

(Continued)

ITEM	DESCRIPTION	BRAND / COMPANY
CROWN & BRIDGE REMOVAL:		
Crown Splitter	Removing restorative segments	SybronEndo
K.Y. Pliers	Grasping Instrument	G.C. America / Schein
Wynman Crown Gripper	Grasping Instrument	Miltex Instrument / Schein
Crown-a-matic	Percussive Instrument	Peerless / Schein
Coronaflex	Percussive Instrument	KaVo America
Metalift	Passive/Active Instrument	Classic Practice Resources
Kline Crown Remover	Passive/Active Instrument	Brasseler
Richwil	Accessory Device	Almore / Schein
Rand	Accessory Device	J.R.Rand / Schein
CANAL OBSTRUCTIONS:		
Stieglitz Forceps	Silver point removers	Hu-Friedy / Schein
Spinal Tap Needle	18, 20, 22 g., 2 1/2", SS-1529 Blunt	Ranfac
Instrument Removal System (iRS)	Remove silver points, carriers or files	Dentsply Tulsa Dental
Ruddle Post Removal System	Post Remover Kit	SybronEndo
Roto-Pro Burs (Variety of sizes)	Rotosonic Scalers for Post Removal	Ellman
Gyro-Tip	For Fiber Post Removal	Ultradent
PASTE REMOVAL:		
Endosolv E	Eugenate Based Paste	Endoco
Endosolv R	Resin Based Paste	Endoco
PERFORATION REPAIRS:		
ProRoot (MTA)	Mineral Trioxide Aggregate	Dentsply Tulsa Dental
SuperEba	Resin cement	Harry J. Bosworth / Schein
Calcium Sulfate	Medical Grade	Life Core Biomedical
CollaCote	Absorbable collagen dressing	Sulzer Dental
West Perf Repair Instruments	West 1-2, West 3-4	SybronEndo
Spinal Tap Needle	18 g. for delivering ProRoot	Ranfac
Dovgan Carriers	ProRoot (MTA) Carrier	Quality Aspirators
ADHESION DENTISTRY:		
Curing Light	Demetron or Pro-Lite	SybronEndo or Maillefer
Focu Tips	For narrowing light beam	SmartPractice
Tubulicid Red	For cleaning enamel & dentin	Global Dental
Etch-37	Etchant 37% Phosphoric Acid	Bisco
Tooth Conditioner Gel	Etching gel in syringe	Caulk / Schein
Microbrush	Etching & bonding	Schein
Benda Brush	Applicator brush	Centrix / Schein
OBTURATION:		
Gutta Percha	Fine-Medium / Medium or ProTaper Matching	Dentsply Tulsa Dental
Pulp Canal Sealer - EWT	Powder & Liquid	Kerr / Schein
5004 Touch 'N Heat	Heat Source 0.5mm plugger tip	Kerr / Schein
Pluggers	Sizes 8-12 Posterior	Schilder / Dentsply Maillefer
Calamus Flow	Gutta Percha Delivery System for backpacking	Dentsply Tulsa Dental
Calcium Hydroxide	Interappointment dressing	Pulpdent Corp / Schein

(Continued)

ITEM	DESCRIPTION	BRAND / COMPANY
EQUIPMENT:		
EndoActivator System	Sonic Handpiece Driver & Activator Tips	Dentsply Tulsa Dental
Slowspeed Electric H.P.	Gear Reduction / DTC Motor	Dentsply Tulsa Dental
Slowspeed Electric or Air	Gear Reduction	KaVo America
Ultrasonic Unit (Piezoelectric)	P5 Ultrasonic Generator	Dentsply Tulsa Dental
Ultrasonic Instruments	ProUltra ENDO 1-5, ENDO 6-8, SINE 1-6	Dentsply Tulsa Dental
File Adapter	FA11 (file holder)	SybronEndo
Electronic Apex Locator	Root ZX	J. Morita
Microscope	A variety of choices	Zeiss
Dental Mobile Cart	Customized Endodontic Cart	ASI Medical
Digital Xray System	Digital Radiography	Schick Technologies
Dental Anatomy Website	Patient Education Tool	ToothAtlas.com

For any questions regarding the products and/or techniques presented, please contact:

ADVANCED ENDODONTICS • CLIFFORD J. RUDDLE DDS
122 S. Patterson Avenue, Ste. 206, Santa Barbara, CA 93111 • (800) 753-3636 • www.endoruddle.com

Clifford J. Ruddle
ADVANCED ENDODONTICS
Sources of Suppliers Discussed in
V1333 Nonsurgical Removal of: Posts & Broken Instruments
Presented by: Clifford J. Ruddle, DDS

COMPANY	TOLL FREE	FAX	PHONE	WEBSITE
Advanced Endodontics	800-753-3636	805-965-8253	805-964-8838	endoruddle.com
Aseptico	800-426-5913	360-668-8722	425-487-3157	aseptico.com
ASI Medical	800-566-9953	303-766-8584	303-766-3646	asimedical.net
Bisco	800-247-3368	800-959-9550	847-534-6000	bisco.com
Brasseler	800-841-4522	888-610-1937	912-927-8671	brasselerusa.com
C. K. Dental Specialties	800-675-2537	714-639-6991	714-639-6990	ckdental.net
CareCredit	800-859-9975	800-333-3196	--	carecredit.com
Classic Practice Resources	800-928-9289	888-841-5384	225-928-0799	metalift.com
Dentco	800-454-9244	914-948-1711	914-682-6600	dentcorp.com
Dentsply Maillefer	800-924-7393	800-924-7389	--	maillefer.com
Dentsply Tulsa Dental Spec.	800-662-1202	918-493-6599	918-493-6598	tulsadental.com
Designs for Vision	800-727-6407	631-585-3404	631-585-3300	designsforvision.com
Ellman International	800-835-5355	516-569-0054	516-594-3333	ellman.com
Endoco	800-388-7868	866-683-6679	901-683-6677	endoco.com
Global Dental Products	--	516-785-7885	516-221-8844	gdpdental.com
Global Surgical	800-767-8726	636-861-2969	636-861-3388	globalsurgical.com
Hu-Friedy	800-483-7433	800-729-1299	877-321-4333	hu-friedy.com
J. Morita USA	888-566-7482	949-465-1095	949-581-9600	jmoritausa.com
KaVo America	800-323-8029	847-550-6825	847-550-6800	kavo.com
Life Core Biomedical	800-348-4368	952-368-3411	952-368-4300	lifecore.com
Link Ergonomics	800-424-5465	417-206-4622	417-206-4600	linkdental.com
Marquis Dental	800-359-3206	303-344-5232	303-344-5222	perio-aid.net
Moyco Precision Abrasives	800-331-8837	215-362-3809	215-855-4300	moycotech.com
Mr. Coffee	800-672-6333	--	--	mrcoffee.com
Profex Medical Products	800-325-0196	901-454-9850	901-452-7485	profexmed.com
Quality Aspirators	800-858-2121	972-298-6592	972-298-2669	qualityaspirators.com
Ranfac	800-272-6322	508-584-8588	508-588-4400	ranfac.com
Roth International Ltd.	800-445-0572	312-733-7398	312-733-1478	rothendo.com
Henry Schein	800-372-4346	800-732-7023	775-327-3200	henryschein.com
Schick Technologies	877-724-4254	718-482-2030	718-937-5765	schicktech.com
SmartPractice	800-522-0800	800-522-8329	602-225-0595	smartpractice.com
Stropko, Dr. John	--	480-563-7881	480-515-4933	stropko.com
SybronEndo	800-346-3636	714-516-7936	714-516-7979	sybronendo.com
ToothAtlas.com	--	650-854-2568	650-233-0200	eHuman.com
Ultradent	800-552-5512	800-842-9024	801-572-4200	ultradent.com
Zeiss	800-442-4020	925-557-4101	925-557-4100	zeiss.com
Zimmer Dental	800-854-7019	760-431-7811	760-431-9515	zimmerdental.com

PROGRAM

V1333 Nonsurgical Removal of: Posts & Broken Instruments

CLINICIAN RESPONSIBLE

Clifford J. Ruddle, DDS

Founder & Director, Advanced Endodontics

GOALS & OBJECTIVES

At the completion of this video presentation, participants should be able to accomplish the following:

1. Understand the importance of well-angulated radiographs.
2. Integrate the technologies, instruments, and materials utilized for successful retreatment.
3. List the various post types and configurations commonly encountered.
4. Identify the techniques to efficiently remove previously placed core materials.
5. Differentiate the safest and most predictably successful methods for eliminating posts.
6. Describe the etiology of and terminology associated with a broken instrument.
7. List the factors influencing instrument breakage and the factors influencing removal.
8. Describe the patient communication required to manage a procedural upset.
9. Contrast the methods and identify the techniques to safely remove broken instruments.
10. Understand the endodontic possibilities of nonsurgical retreatment.

OVERVIEW

Despite endodontic treatment efforts, failures do occur, and subsequent *retreatment* is, at times, required. This video shows how to efficiently remove commonly placed core materials and safely remove various post types successfully. The effective retrieval of broken instrument segments separated deeply and around curvatures is also shown, along with viewing ultrasonics and the post and instrument removal systems in action. Emphasis is further placed on how to appropriately handle procedural upsets, the importance of communication and teamwork, and how to treatment plan for success.

Techniques in this video are demonstrated utilizing 3D graphics and animations, in plastic models, on extracted teeth, and on patients. All procedures have been performed to optimally transfer knowledge and maximize the learning experience.

SUPPLEMENTAL MATERIALS

V1333 Nonsurgical Removal of: Posts & Broken Instruments

1. Altshul JH, Marshall G, Morgan LA, Baumgertner JC: Comparison of dentinal crack incidence and of post removal time resulting from post removal by ultrasonic or mechanical force. *J Endod* 23:11, pp. 683-686, 1997.
2. Chenail BL, Teplitsky PE: Orthograde ultrasonic retrieval of root canal obstructions, *J Endod* 13: 186-190, 1987.
3. Fors UG, Berg JO: Endodontic treatment of root canals obstructed by foreign objects, *Int Endodont J* 19:2, 1986.
4. Gluskin AH, Ahmad I, Herrero DB: The aesthetic post and core: unifying radicular form and structure, *Pract Proced Aesthet Dent* 14:4, pp. 313-322, 2002.
5. Gluskin AH, Ruddle CJ, Zinman EJ: Thermal injury through intraradicular heat transfer using ultrasonic devices, *J Am Dent Assoc* 136:9, pp. 1286-1293, 2005.
6. Hulsmann M: Removal of fractured instruments using a combined automated/ultrasonic technique, *J Endod* 20:3, 1994.
7. Machtou P, Sarfati P, Cohen AG: Post removal prior to retreatment, *J Endod* 15:11, 1989.
8. Masserann J: The extraction of instruments broken in the radicular canal: A new technique, *Acta Odont Stomatol* 47:265-274, 1959. Paris
9. Masserann J: The extraction of posts broken deeply in the roots, *Acta Odont Stomatol* 75:329-342, 1966. Paris
10. Nagai O, Tani N, Kayaba Y, Kodama S, Osada T: Ultrasonic removal of broken instruments in root canals, *Int Endodont J* 19:298, 1986.
11. Ruddle CJ: Nonsurgical endodontic retreatment. *J Calif Dent Assoc* 32:6, pp. 474-484, 2004.
12. Ruddle CJ: Nonsurgical retreatment, *J Endod* 30:12, pp. 827-845, 2004.
13. Ruddle CJ. Broken instrument removal, *Endod Prac* 6:1, pp. 13-22, 2003.
14. Stamos DE, Gutmann JL: Survey of endodontic retreatment methods used to remove intraradicular posts, *J Endod* 19:7, 1993.
15. Yoshida T, Gomyo S, Itoh T, Shibata T, Sekine I: An experimental study of the removal of cemented dowel-retained cast cores by ultrasonic vibration, *J Endod* 23:4, 1997.

POST-TEST

V1333 Nonsurgical Removal of: Posts & Broken Instruments

1. Surgery is limited in its ability to:
 - a. predictably eliminate pulp, bacteria and related irritants from the root canal.
 - b. adequately seal the apical foramen.
 - c. meet the patient's needs and expectations.
 - d. none of the above.

2. Categories of post types include:
 - a. non-active versus active.
 - b. parallel versus tapered.
 - c. metallic versus non-metallic.
 - d. all of the above.

3. The preferred tool for removing pulp chamber core materials is the:
 - a. #2 or #4 diamond round bur.
 - b. appropriately sized Roto-Pro bur.
 - c. appropriately sized ProUltra ENDO tip.
 - d. appropriately sized gates glidden drill.

4. Once straightline access is achieved and the post fully exposed, experience suggests that most posts can be removed utilizing ultrasonic vibration in:
 - a. 5 minutes.
 - b. 10 minutes.
 - c. 15 minutes.
 - d. 20 minutes.

5. The Post Removal System Kit is:
 - a. appropriate to use on any post type.
 - b. usually indicated when ultrasonic efforts prove unsuccessful.
 - c. comprised of the tools/devices necessary to place and remove posts.
 - d. all of the above.

6. A separated instrument can usually be removed if:
 - a. the head of the broken file lies in the straightaway portions of the canal.
 - b. the clinician has the appropriate armamentarium.
 - c. the clinician uses a microscope.
 - d. none of the above.

7. Two clinical factors influencing instrument breakage include:
 - a. method of use and regular use.
 - b. overall use and best judgment.
 - c. method of use and multiple use.
 - d. none of the above.

POST-TEST (CONT'D)

V1333 Nonsurgical Removal of: Posts & Broken Instruments

8. The safest technique for establishing radicular access to a broken instrument is utilizing:
- a. highspeed, long-shank, and small-sized burs.
 - b. ultrasonic instrumentation techniques.
 - c. a series of gates gliddens.
 - d. the instrument removal system.
9. When removing a broken instrument, ultrasonic work is usually performed:
- a. dry.
 - b. in conjunction with a continuous water source.
 - c. with a light water mist, depending on the case.
 - d. at any power setting with which the clinician is comfortable.
10. The "hedstroem displacement technique" for retrieving a separated file is only appropriate when:
- a. the separated file is coronally positioned.
 - b. all other retrieval options have failed.
 - c. the clinician is operating without magnification.
 - d. none of the above.

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