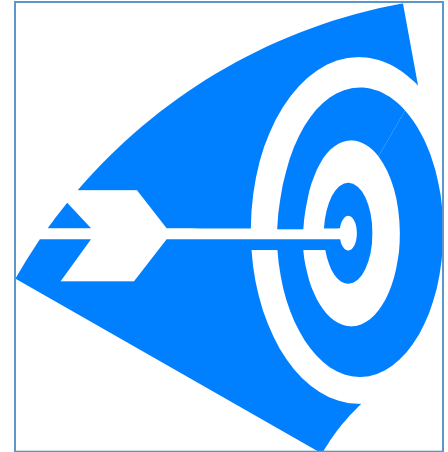


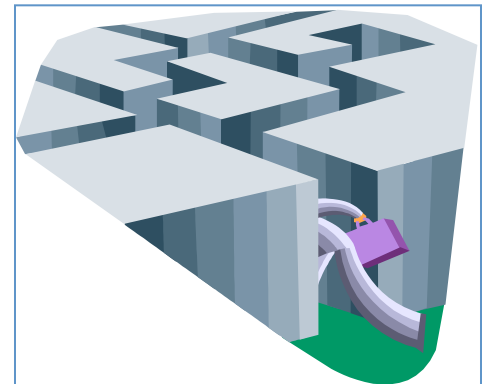
Diagnosis and Treatment in Endodontics 30 Aug 2011

Diagnosis in Endodontics

90% → **clear-cut**



10% → **Difficult**



Detective work

1. Information gathering
2. Identify irrelevant information
3. Keep relevant information only
4. Assessment
5. Conclusion / diagnosis

CHIEF COMPLAINT ?

Listen to
your
patient



CHIEF COMPLAINT

The first clue in finding the etiology and the location of the suspected endodontic problem

CHIEF

COMPLAINT

Listen to your
patient

if the patient on the right
has cold sensitivity then the
sensation must be from #8
and not #7 because #7 is
already necrotic (PARL)



Endodontics clinic chart



Kornberg School of Dentistry
Temple University

Undergraduate Endodontics Clinic Chart

Endodontics

Medical History <input type="checkbox"/> Contributory <input type="checkbox"/> NonContrib.	Student Name _____	_____		
	Student I.D. # _____	Last _____	First _____	MI _____
	Edno Reg. Date _____	Patient # _____		
	Class of _____	Tooth # _____		

SUBJECTIVE FINDINGS	OBJECTIVE FINDINGS	PREVIOUS HISTORY	ETIOLOGY
<input type="checkbox"/> None <input type="checkbox"/> Previous History of Pain <input type="checkbox"/> Spontaneous Pain <input type="checkbox"/> Pain to Heat <input type="checkbox"/> Pain to Cold <input type="checkbox"/> Pain to Mastication <input type="checkbox"/> Referred Pain <input type="checkbox"/> Pain Relieved by Heat or Cold <input type="checkbox"/> Other (Specify) _____	<input type="checkbox"/> None <input type="checkbox"/> Intraoral Swelling <input type="checkbox"/> Extraoral Swelling <input type="checkbox"/> Sinus Tract <input type="checkbox"/> Tooth Discoloration <input type="checkbox"/> Lymphadenopathy <input type="checkbox"/> Fractured Crown <input type="checkbox"/> Caries <input type="checkbox"/> Other (Specify) _____	<input type="checkbox"/> None <input type="checkbox"/> Deep Caries <input type="checkbox"/> Carious Exposure <input type="checkbox"/> Mechanical Exposure <input type="checkbox"/> Pulp Cap (direct) <input type="checkbox"/> Pulp Cap (indirect) <input type="checkbox"/> Traumatic Injury <input type="checkbox"/> Pulpotomy <input type="checkbox"/> Other (Specify) _____	<input type="checkbox"/> Caries <input type="checkbox"/> Trauma <input type="checkbox"/> Periodontal Lesion <input type="checkbox"/> Dentistogenic <input type="checkbox"/> Operative Exposure <input type="checkbox"/> Pulp Cap (indirect) <input type="checkbox"/> Elective Endodontics <input type="checkbox"/> Other (Specify) _____

RADIOGRAPHIC FINDINGS		DIAGNOSTIC TESTS							
<input type="checkbox"/> Normal <input type="checkbox"/> Periapical Radiolucency <input type="checkbox"/> Lateral Rarefaction <input type="checkbox"/> Crown Fracture <input type="checkbox"/> Root Fracture <input type="checkbox"/> Internal Resorption <input type="checkbox"/> External Resorption		NR = NO RESPONSE A = ABNORMAL				N= NORMAL *Per Instructor's Request			
<input type="checkbox"/> Fractured Instrument <input type="checkbox"/> Open Apex <input type="checkbox"/> Dilaceration of Root <input type="checkbox"/> Caries <input type="checkbox"/> Previous RCT <input type="checkbox"/> Calcification of Pulp <input type="checkbox"/> Other (Specify) _____		Tooth No.	Electr. Pulp. Test No.-NR	Cold NR-N-A	Heat* NR-N-A+	Perc. N-A	Palp N-A	Perio Inv.mm.	Mobility 0-1-2-3

R.P. = POINT OF REFERENCE			
Root Canal	Length	P.R.	Final Inst. Sz.

*Re-evaluation: _____
Date _____ Status _____

APPT. DATES	CLINIC PROCEDURE *Requires Radiograph	INSTR.
	1) Review of Medical History	
	2) * Review Diagnosis and Pretx. Radiograph	
	3) Preparation of Access Opening	
	4) * Exact Measurement of Root Canal	
	5) * Mechanical Instrumentation of Root Canal	
	6) * Fitting of Trial Master Cone	
	7) * Partial Condensation	
	8) * Final Fill	
	9) Treatment Record (Review)	
	10) (*) Root Canal Post Preparation (post space)	

DIAGNOSIS (CHOOSE AT LEAST ONE FROM EACH COLUMN)		Fee \$ _____ Paid <input type="checkbox"/> Billed <input type="checkbox"/> Date: _____
Pulpal Status	Periapical Status	
<input type="checkbox"/> Normal <input type="checkbox"/> Reversible Pulpitis <input type="checkbox"/> Irreversible Pulpitis <input type="checkbox"/> Necrotic Pulp <input type="checkbox"/> Previous RCT/Emerg. Tx (Date _____)	<input type="checkbox"/> Normal Peridontium <input type="checkbox"/> Asymptomatic (Chronic) Apical Periodontitis <input type="checkbox"/> Symptomatic (Acute) Apical Periodontitis <input type="checkbox"/> Acute Apical Abscess <input type="checkbox"/> Chronic (Suppurative) Apical Abscess/fistula <input type="checkbox"/> Condensing Osteitis	

Tooth Treatment Planned for R.C. Tx. <input type="checkbox"/>
ADDITIONAL INFORMATION (Biopsy and Other Findings)

SUBJECTIVE FINDINGS	OBJECTIVE FINDINGS	PREVIOUS HISTORY	ETIOLOGY
<input type="checkbox"/> None <input type="checkbox"/> Previous History of Pain <input type="checkbox"/> Spontaneous Pain <input type="checkbox"/> Pain to Heat <input type="checkbox"/> Pain to Cold <input type="checkbox"/> Pain to Mastication <input type="checkbox"/> Referred Pain <input type="checkbox"/> Pain Relieved by Heat or Cold <input type="checkbox"/> Other (Specify) _____	<input type="checkbox"/> None <input type="checkbox"/> Intraoral Swelling <input type="checkbox"/> Extraoral Swelling <input type="checkbox"/> Sinus Tract <input type="checkbox"/> Tooth Discoloration <input type="checkbox"/> Lymphadenopathy <input type="checkbox"/> Fractured Crown <input type="checkbox"/> Caries <input type="checkbox"/> Other (Specify) _____	<input type="checkbox"/> None <input type="checkbox"/> Deep Caries <input type="checkbox"/> Carious Exposure <input type="checkbox"/> Mechanical Exposure <input type="checkbox"/> Pulp Cap (direct) <input type="checkbox"/> Pulp Cap (indirect) <input type="checkbox"/> Traumatic Injury <input type="checkbox"/> Pulpotomy <input type="checkbox"/> Other (Specify) _____	<input type="checkbox"/> Caries <input type="checkbox"/> Trauma <input type="checkbox"/> Periodontic Lesion <input type="checkbox"/> Dentistogenic <input type="checkbox"/> Operative Exposure <input type="checkbox"/> Pulp Cap (indirect) <input type="checkbox"/> Elective Endodontics <input type="checkbox"/> Other (Specify) _____

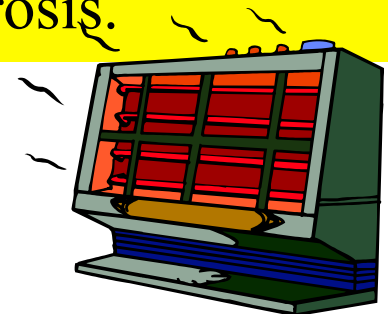
SUBJECTIVE FINDINGS

PAIN OR DISCOMFORT

1. Location
2. Intensity=
 2. 1-10 scale, or if they took any medication for this pain
3. Duration
4. Stimulus=
 4. What stimulus is provoking pain?? Pain only when they bite (cracked tooth) or cold sensitivity (vital tooth)☺
5. Relief
6. Spontaneity

LIDS RS

Many times you have accumulation of gas and fluid in an abscess, so the patient is telling you that cold gets rid of it and heat makes it worse (this is a more serious situation). Probably leading to necrosis.



OBJECTIVE FINDINGS

Extraoral examination

Intraoral examination

- Soft tissue

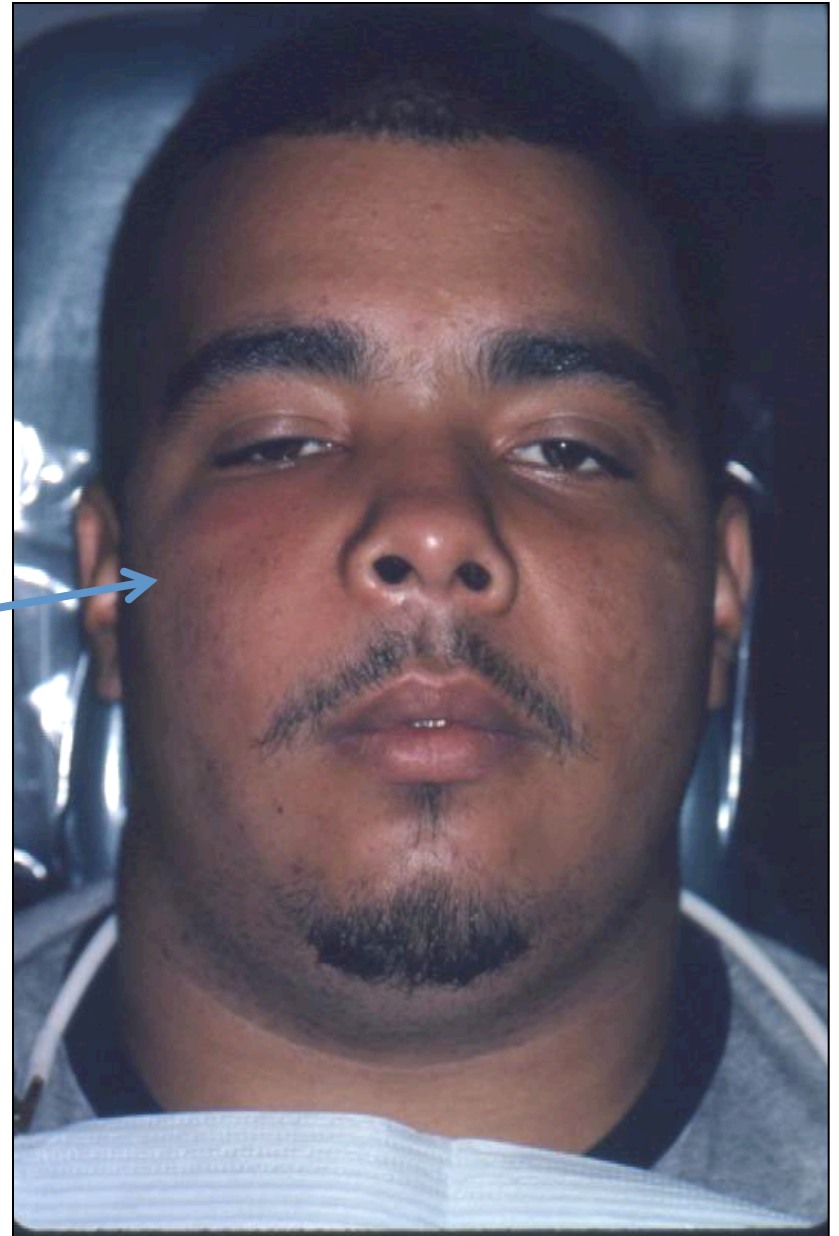
- Dentition

- Periodontal status

Pay attention to detail



EXTRAORAL
SWELLING



Intraoral swelling



CHIEF COMPLAINT

SUBJECTIVE FINDINGS

OBJECTIVE FINDINGS

CLINICAL

TESTS



Endodontics clinic chart

DIAGNOSTIC TESTS

NR = NO RESPONSE

N= NORMAL

A = ABNORMAL

***Per Instructor's Request**

Tooth No.	Electr. Pulp. Test No.-NR	Cold NR-N-A	Heat* NR-N-A+	Perc. N-A	Palp N-A	Perio Inv.mm.	Mobility 0-1-2-3

[illegible]

CLINICAL TESTS

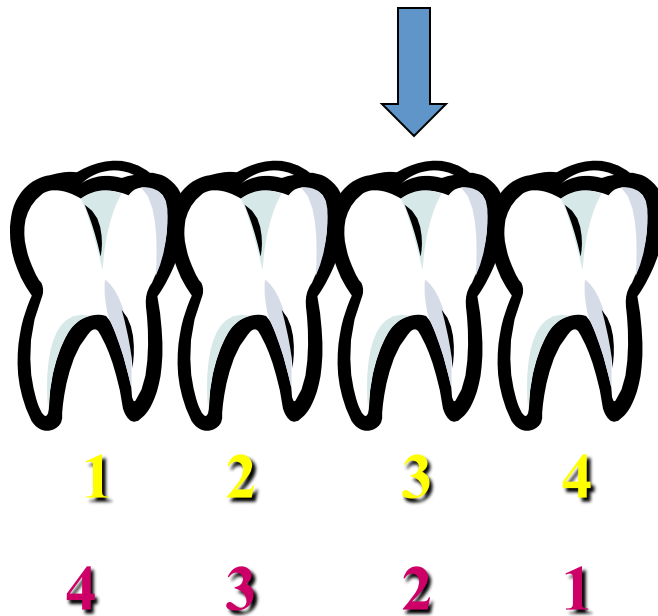
So you percussion test these tooth twice in opposite order to locate tooth

Use to determine PDL INVOLVEMENT

1. Periradicular tests

Percussion

Palpation



CLINICAL TESTS

1. Periradicular tests

2. Pulp vitality tests

The appropriate test

Cold

Heat

Electric Pulp Testing

CLINICAL TESTS

1. Periradicular tests

2. Pulp vitality tests

Cold

Do not use cue tip!!!
Use cotton on forcep.

No pain or lingering pain

Lingering pain=when pulp is inflamed the threshold for pain is very low so it fires even after stimulus is removed.



Warm gutta percha shown here or have them drink warm water.

CLINICAL TESTS

1. Periradicular tests

2. Pulp vitality tests

Cold

Heat



CLINICAL TESTS

1. Periradicular tests

2. Pulp vitality tests

Cold

Heat

Electric Pulp Testing

Toothpaste used as
conducting agent.



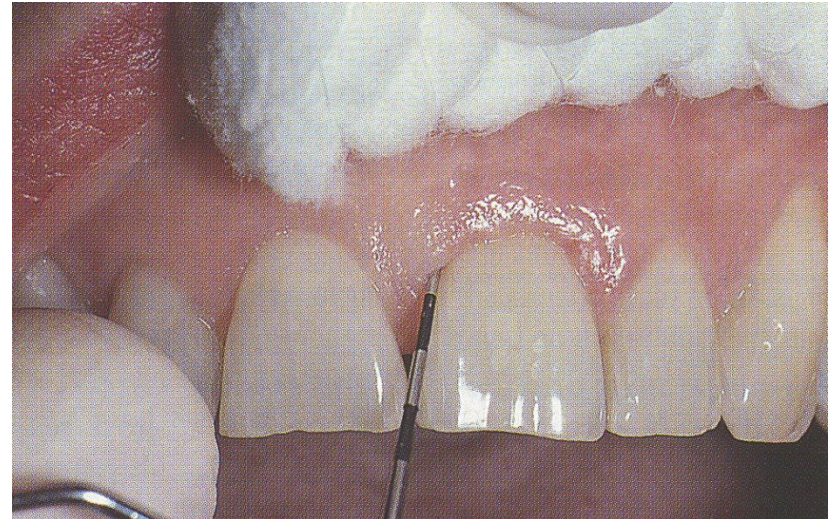
CLINICAL TESTS

1. Periradicular tests
2. Pulp vitality tests
3. **Periodontal evaluation**

Mobility

Gums

Probing



SPECIAL CLINICAL TESTS

Caries removal

Selective anesthesia

Transillumination

CHIEF COMPLAINT

SUBJECTIVE FINDINGS

OBJECTIVE FINDINGS

CLINICAL TESTS

Radiograph evaluation

Endodontics clinic chart

Kornberg School of Dentistry Temple University		Undergraduate Endodontics Clinic Chart		Endodontics																																																																																																															
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RADIOGRAPHIC FINDINGS

- | | |
|--|--|
| <input type="checkbox"/> Normal | <input type="checkbox"/> Fractured Instrument |
| <input type="checkbox"/> Periapical Radiolucency | <input type="checkbox"/> Open Apex |
| <input type="checkbox"/> Lateral Rarefaction | <input type="checkbox"/> Dilaceration of Root |
| <input type="checkbox"/> Crown Fracture | <input type="checkbox"/> Caries |
| <input type="checkbox"/> Root Fracture | <input type="checkbox"/> Previous RCT |
| <input type="checkbox"/> Internal Resorption | <input type="checkbox"/> Calcification of Pulp |
| <input type="checkbox"/> External Resorption | <input type="checkbox"/> Other (Specify) |

Radiograph evaluation

1. Crown
2. Pulp chamber and canals
3. Periodontium and Bone

Always have a normal X ray image of the tooth in your mind so you can compare them mentally.

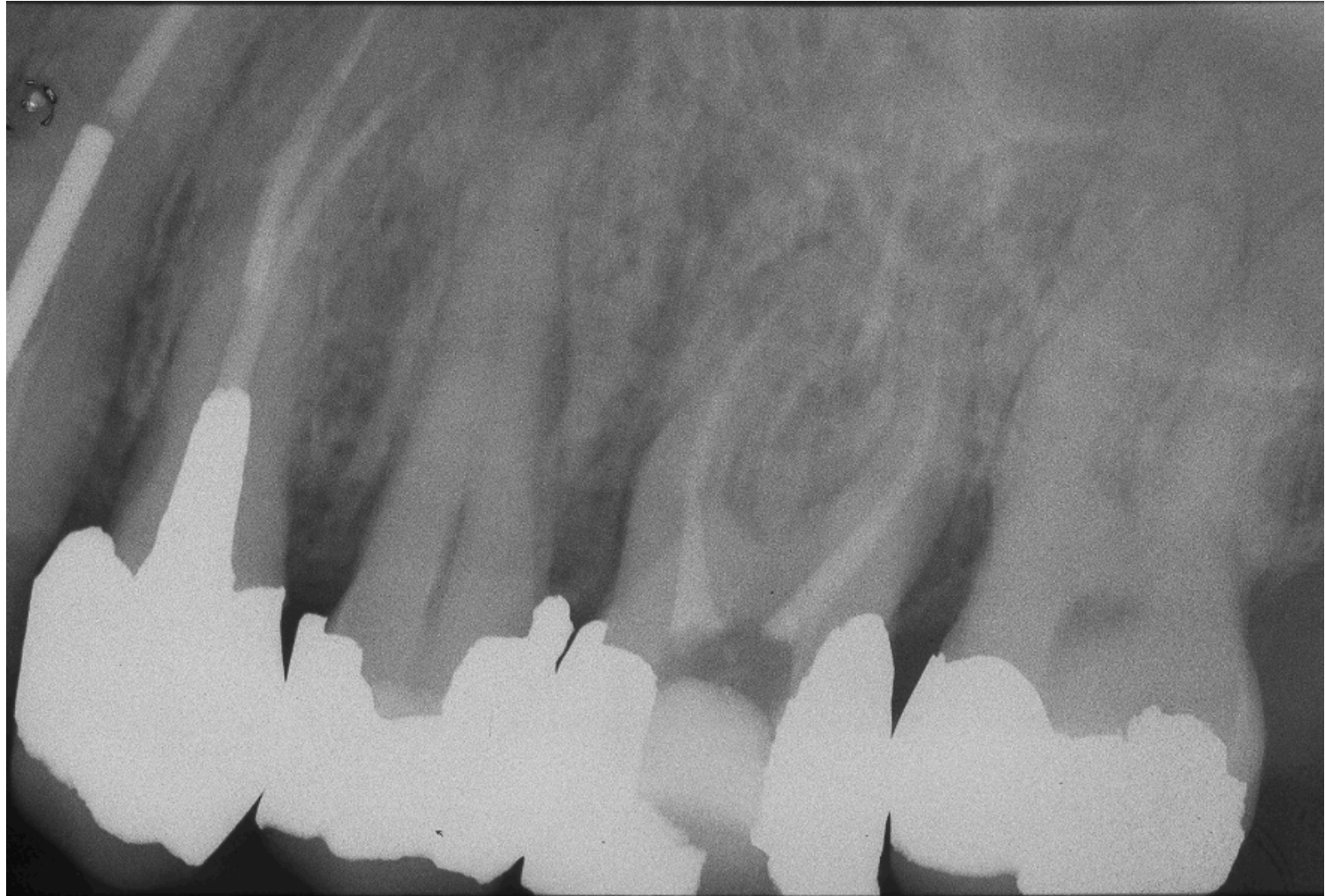
Radiograph evaluation

Crown



Radiograph evaluation

Crown



Radiograph evaluation

Pulp chamber and canals

Size

Curvature

Obliteration

Pathosis

Radiograph evaluation

Pulp chamber and canals

Size

**Obliterated
canals,
Response
to trauma!!**



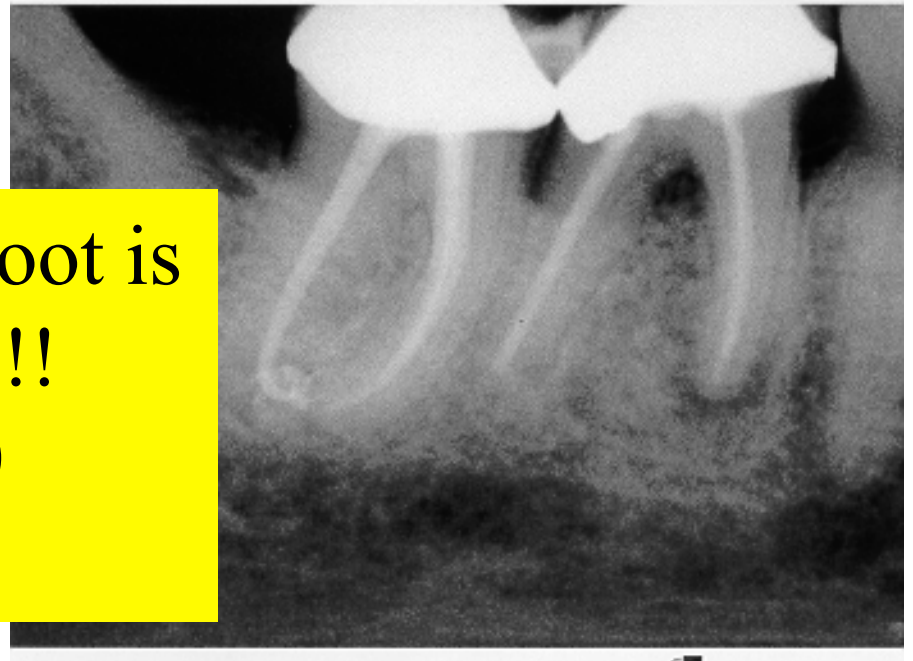
Radiograph evaluation

Pulp chamber
and canals

Size

Curvature

Distal root is
curved!!!
Like 90
degrees



Radiograph evaluation

Pulp chamber
and canals

Size

Curvature



Radiograph evaluation

Pulp chamber and canals

Size

Curvature

Obliteration

Pulp stones!



Radiograph evaluation

Pulp chamber
and canals

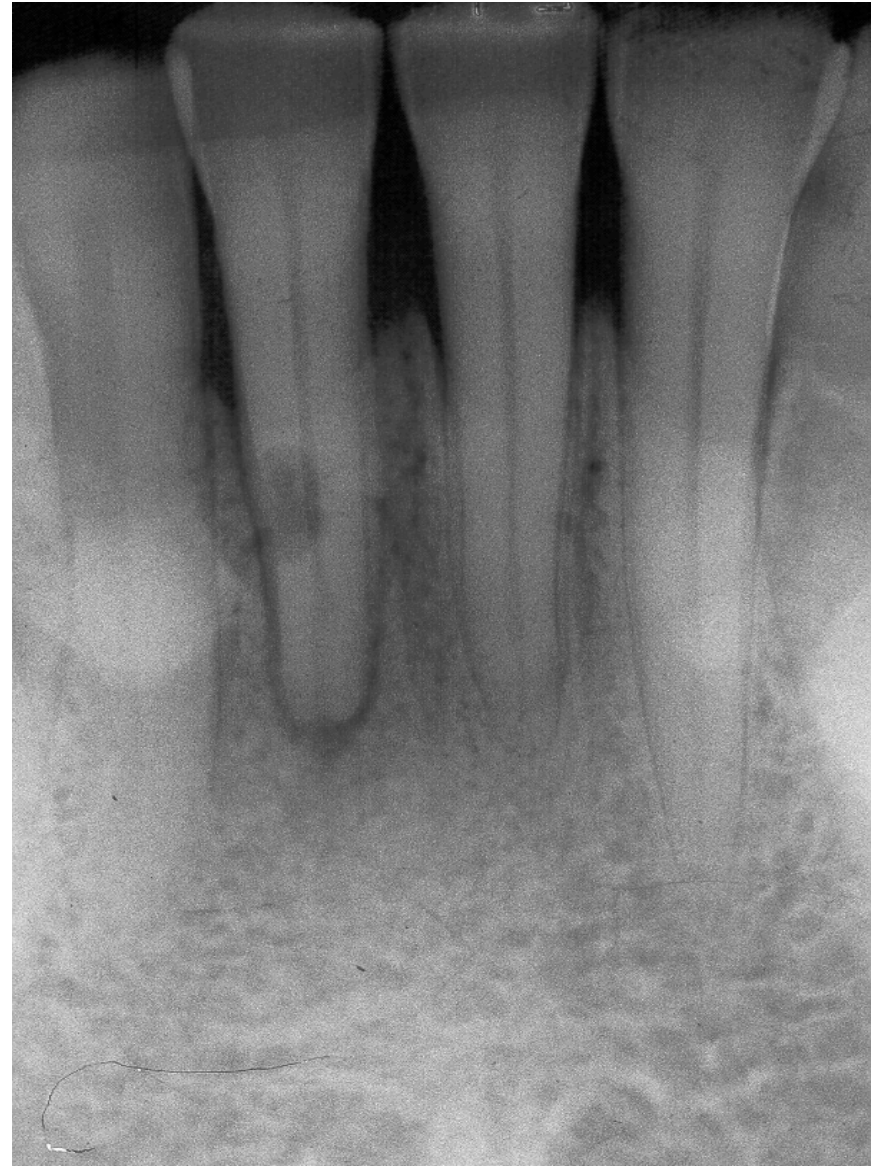
Size

Curvature

Obliteration

Pathosis

Resorption of root tip
apices. Because eventually
patient can lose the tooth.



Radiograph evaluation

Periodontium

Loss of lamina dura

Radiolucency (vital / nonvital)

Radiopacity

Radiograph evaluation

Periodontium

Large resorption from
ortho tx or trauma.



Radiograph evaluation

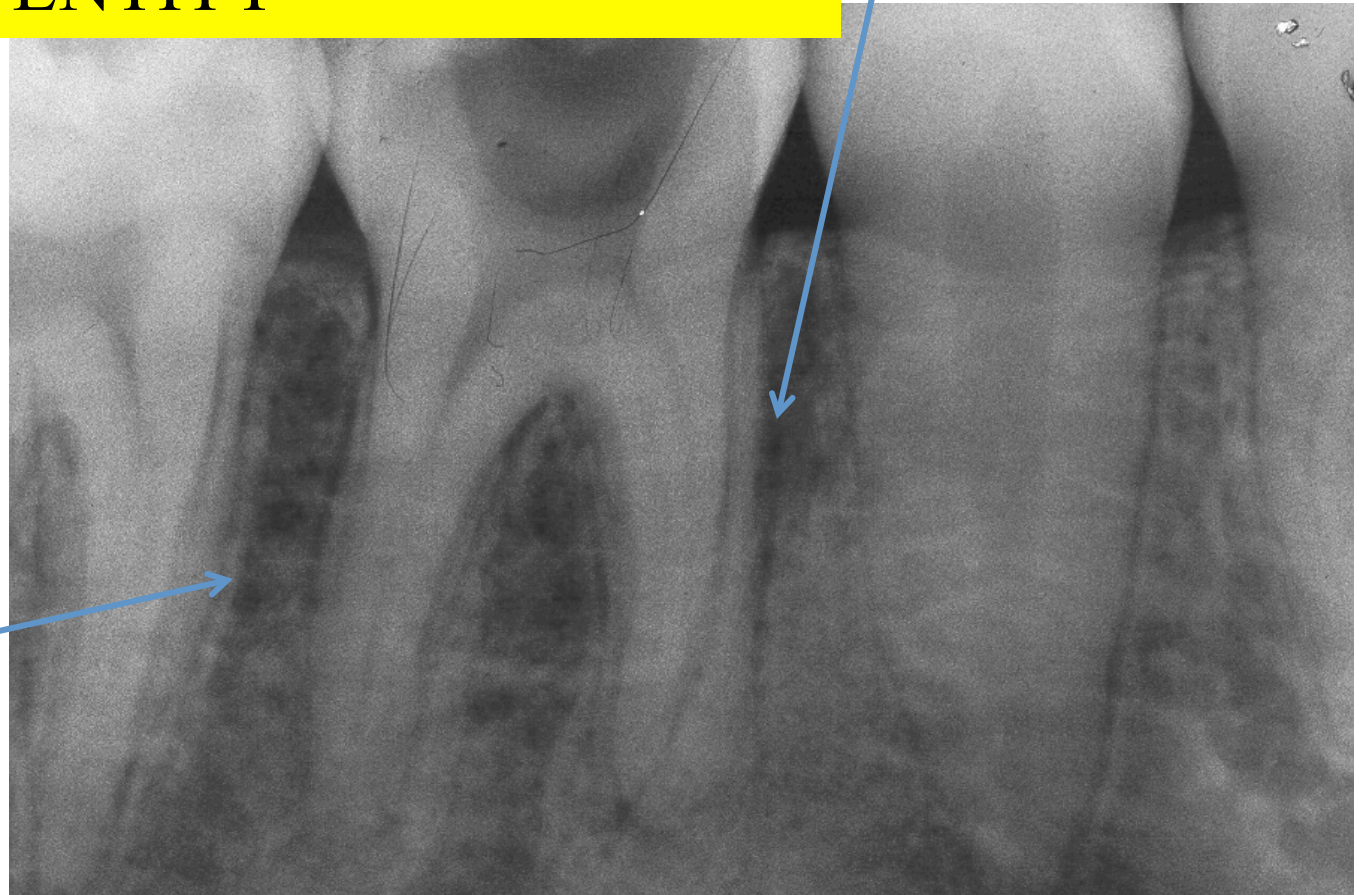
LAMINA DURA is a
RADIOGRAPHIC
ENTITY

**Loss of the
lamina dura**

Periradicular

Loss of
lamina
dura

**lamina
dura**



Radiograph evaluation

Periradicular

Radiolucency

Radiopacity

(vital / nonvital)

Got to test the teeth!



Radiograph evaluation

Periradicular
Radiolucency
Radiopacity
(vital / nonvital)



IS PATHOLOGY PRESENT ?





IS PATHOLOGY PRESENT ?

Yes

IS IT FROM DENTAL OR FROM NON
DENTAL
ORIGIN ?

Sinus infection is the most common thing that mimics tooth pain.

ANALYSIS OF DATA

Medical history

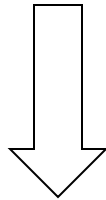
Subjective findings

Objective findings

Clinical tests

Clinical findings

X-ray analysis



NO DIAGNOSIS



NO TREATMENT

Indicators of a difficult diagnosis

1. Can not localize the pain
2. Can not identified local dental cause
3. Pain is not related to particular stimulus
4. Suspected tooth shows no clear etiology
5. Many teeth seems to be involved

NO DIAGNOSIS → **NO TREATMENT**

ANALYSIS OF DATA

Medical history

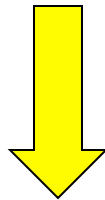
Subjective findings

Objective findings

Clinical tests

Clinical findings

X-ray analysis



DIAGNOSIS



Be brave make a diagnosis

DIAGNOSTIC CLASSIFICATION SYSTEMS

ETIOLOGY

HISTOPATHOLOGIC

TREATMENT

PULPAL DIAGNOSIS

PERIRADICULAR DIAGNOSIS

Endodontics clinic chart

DIAGNOSIS (CHOOSE AT LEAST ONE FROM EACH COLUMN)

Pulpal Status

- ☐ Normal
☐ Reversible Pulpitis
☐ Irreversible Pulpitis
☐ Necrotic Pulp
☐ Previous RCT/Emerg. Tx (Date _____)

Periapical Status

- ☐ Normal Peridontium
☐ Asymptomatic (Chronic) Apical Periodontitis
☐ Symptomatic (Acute) Apical Periodontitis
☐ Acute Apical Abscess
☐ Chronic (Suppurative) Apical Abscess/fistula
☐ Condensing Osteitis

Kornberg School of Dentistry
Temple University

**Undergraduate
Endodontics Clinic Chart**

Endodontics

Medical History
☐ Contributory
☐ Non-Contributory

Student Name _____
 Student I.D. # _____
 Edjo Reg. Date _____
 Class of _____ Tooth # _____

Last _____ First _____ MI _____
 Dated 4/1 _____

SUBJECTIVE FINDINGS	OBJECTIVE FINDINGS	PREVIOUS HISTORY	ETIOLOGY
<input type="checkbox"/> None <input type="checkbox"/> Previous History of Pain <input type="checkbox"/> Spontaneous Pain <input type="checkbox"/> Pain to Heat <input type="checkbox"/> Pain to Cold <input type="checkbox"/> Pain to Manipulation <input type="checkbox"/> Referred Pain <input type="checkbox"/> Pain Relieved by Heat or Cold <input type="checkbox"/> Other (Specify) _____	<input type="checkbox"/> None <input type="checkbox"/> Increased Swelling <input type="checkbox"/> External Swelling <input type="checkbox"/> Bruise Tissue <input type="checkbox"/> Tooth Discoloration <input type="checkbox"/> Lymphadenopathy <input type="checkbox"/> Fractured Crown <input type="checkbox"/> Caries <input type="checkbox"/> Other (Specify) _____	<input type="checkbox"/> None <input type="checkbox"/> Deep Caries <input type="checkbox"/> Carious Exposure <input type="checkbox"/> Mechanical Exposure <input type="checkbox"/> Pulp Cap (Direct) <input type="checkbox"/> Pulp Cap (Indirect) <input type="checkbox"/> Traumatic Injury <input type="checkbox"/> Proximity <input type="checkbox"/> Other (Specify) _____	<input type="checkbox"/> Caries <input type="checkbox"/> Trauma <input type="checkbox"/> Periodontitis Lesion <input type="checkbox"/> Overextension <input type="checkbox"/> Operative Exposure <input type="checkbox"/> Pulp Cap (Direct) <input type="checkbox"/> Chronic Endodontics <input type="checkbox"/> Other (Specify) _____

RADIOGRAPHIC FINDINGS		DIAGNOSTIC TESTS	
A. - NO RESPONSE		B. - RESPONSE	
<input type="checkbox"/> Normal <input type="checkbox"/> Periapical Radiolucency <input type="checkbox"/> Lateral Radiolucency <input type="checkbox"/> Crown Fracture <input type="checkbox"/> Root Fracture <input type="checkbox"/> Internal Resorption <input type="checkbox"/> External Resorption	<input type="checkbox"/> Fractured Instrument <input type="checkbox"/> Open Apex <input type="checkbox"/> Displacement of Root <input type="checkbox"/> Caries <input type="checkbox"/> Previous RCT <input type="checkbox"/> Gunk/Obstruction of Pulp <input type="checkbox"/> Other (Specify) _____	<input type="checkbox"/> None <input type="checkbox"/> Pain <input type="checkbox"/> Swelling <input type="checkbox"/> Discoloration <input type="checkbox"/> Pain to Heat <input type="checkbox"/> Pain to Cold <input type="checkbox"/> Pain to Manipulation <input type="checkbox"/> Referred Pain <input type="checkbox"/> Pain Relieved by Heat or Cold <input type="checkbox"/> Other (Specify) _____	<input type="checkbox"/> None <input type="checkbox"/> Pain <input type="checkbox"/> Swelling <input type="checkbox"/> Discoloration <input type="checkbox"/> Pain to Heat <input type="checkbox"/> Pain to Cold <input type="checkbox"/> Pain to Manipulation <input type="checkbox"/> Referred Pain <input type="checkbox"/> Pain Relieved by Heat or Cold <input type="checkbox"/> Other (Specify) _____

R.P. = POINT OF REFERENCE		APPT. DATES	CLINIC PROCEDURE	INSTR.
Root Canal	Length	PS	Prep Hist	SC

Re-evaluation: _____
 Date: _____ Status: _____

DIAGNOSIS (CHOOSE AT LEAST ONE FROM EACH COLUMN)

Pulpal Status	Periapical Status
<input type="checkbox"/> Normal <input type="checkbox"/> Reversible Pulpitis <input type="checkbox"/> Irreversible Pulpitis <input type="checkbox"/> Necrotic Pulp <input type="checkbox"/> Previous RCT/Emerg. Tx (Date _____)	<input type="checkbox"/> Normal Peridontium <input type="checkbox"/> Asymptomatic (Chronic) Apical Periodontitis <input type="checkbox"/> Symptomatic (Acute) Apical Periodontitis <input type="checkbox"/> Acute Apical Abscess <input type="checkbox"/> Chronic (Suppurative) Apical Abscess/fistula <input type="checkbox"/> Condensing Osteitis

Both Treatment Plans for R.C. Tx ☐

ADDITIONAL INFORMATION (History and Other Findings)

For S. _____
 Paid ☐
 Blind ☐
 Date _____

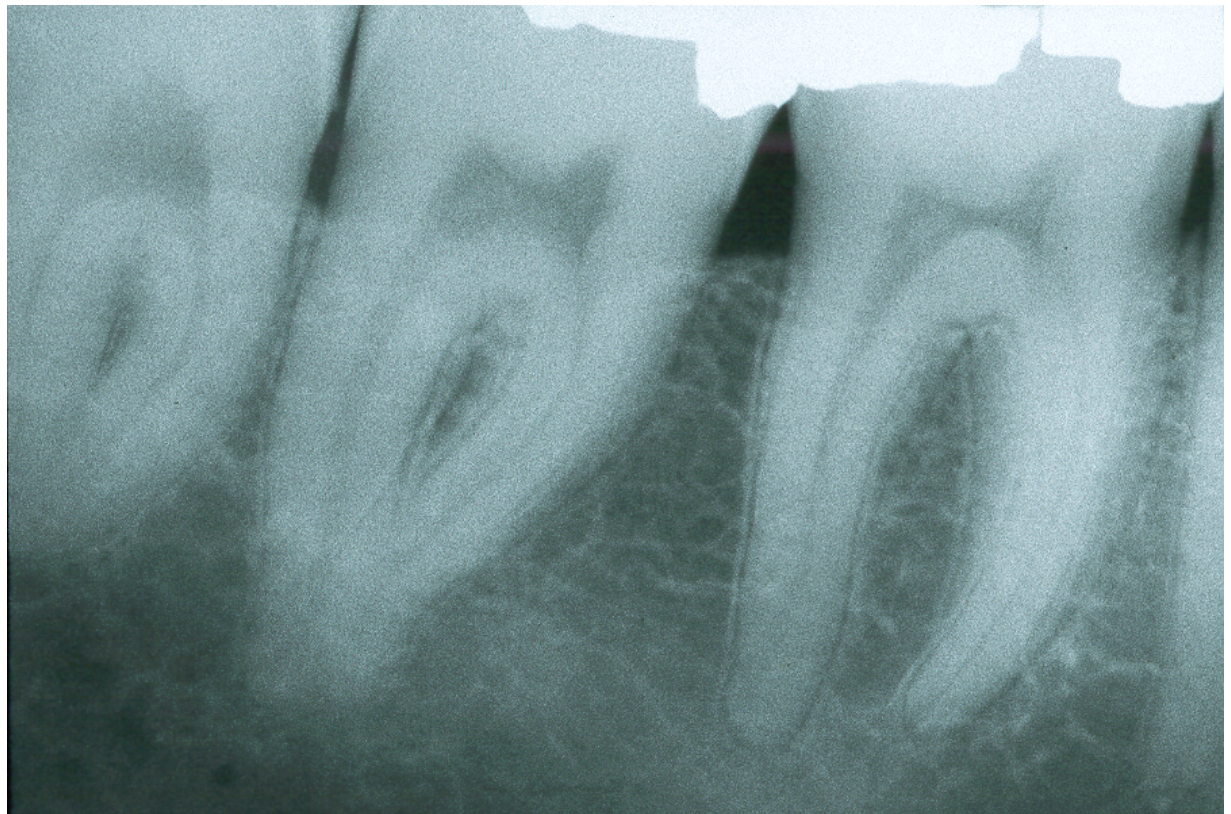
Printed 7/95 3/20/95

PULPAL DIAGNOSIS

1. Normal
2. Reversible pulpitis
 2. Caries removal
3. Irreversible pulpitis
4. Necrotic pulp

PULPAL DIAGNOSIS

1. Normal
2. Reversible pulpitis
3. Irreversible pulpitis
4. Necrotic pulp



PERIRADICULAR DIAGNOSIS

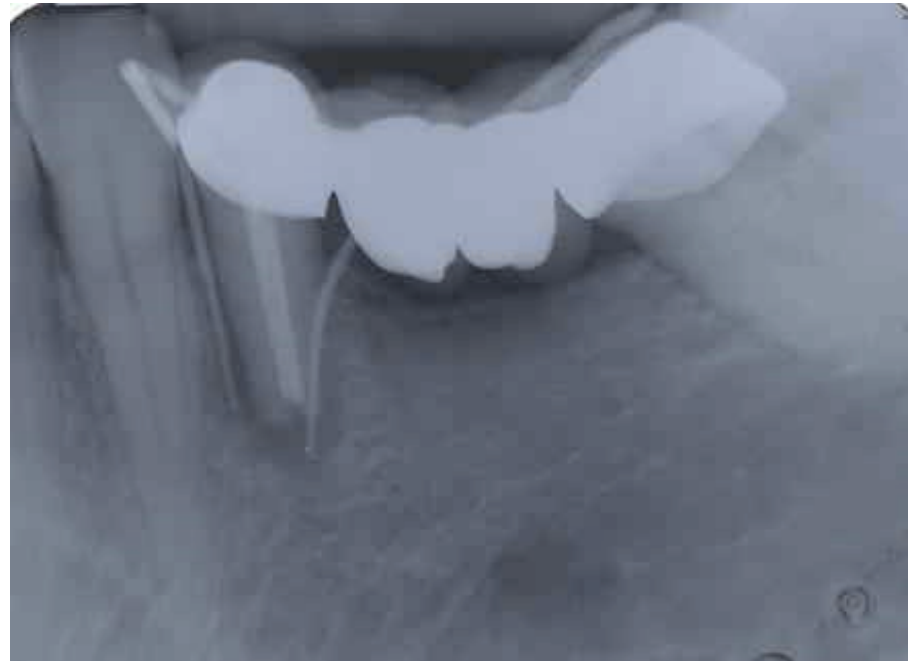
1. Normal Periodontium
2. Asymptomatic Apical periodontitis (Chronic)
3. Symptomatic Apical periodontitis (acute)
4. Acute Apical abscess (Swelling)
5. Chronic apical abscess (sinus tract)
6. Condensing osteitis

PERIRADICULAR DIAGNOSIS



PERIRADICULAR DIAGNOSIS

Trace to determine
which tooth its coming
from



TREATMENT

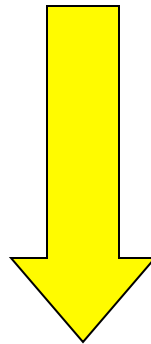
VITAL

OR

NON VITAL

TREATMENT

Reversible pulpitis - Vital



Caries control

TREATMENT

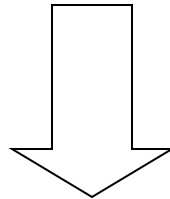
Irreversible pulpitis - Vital

Necrotic pulp - Nonvital

Apical periodontitis

(with sinus tract) - Nonvital

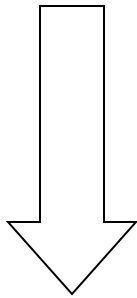
Apical abscess - Nonvital

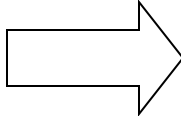


Root canal therapy

TREATMENT PLANNING

Can we perform root canal
therapy ?



In 99%  Yes

TREATMENT PLANNING

Should we perform the root canal therapy ?

1. Is the tooth needed ?
2. Is the tooth restorable ?
3. Can the tooth withstand the designated function ?
4. Periodontal status

Mobility

Pockets

Crown / Root ratio

PROGNOSIS

KNOW !!!!

Success rates of root canal treatment

Overall 80 - 95 %

Vital teeth 90 - 96 % 

Teeth with apical area 75 - 80 % 

Retreatment 60 - 75 % 

Diagnosis and Treatment in Endodontics

DIAGNOSTIC CLASSIFICATION SYSTEMS

ETIOLOGY

Mechanical Irritation

Bacterial Irritation

Periodontal

DIAGNOSTIC CLASSIFICATION SYSTEMS

ETIOLOGY

HISTOPATHOLOGIC

Acute / Chronic Pulpitis

Acute / Chronic abscess