

# Patient Management

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The Radiographic examination techniques must often be modified to reach the specific diagnosis and to overcome the main difficulties that involve:

- **Mandibular third molars**
- **Endodontic**
- **Edentulous alveolar ridge**
- **Children**
- **Gagging reflex**
- **Patients with disabilities.**

# 1. Mandibular Third Molars

The difficulty is the placement of the film posteriorly to record the entire mandibular third molar, (the solution is by using surgical needle holder to hold and position the film in the mouth).

## 2. Problems encountered during endodontic

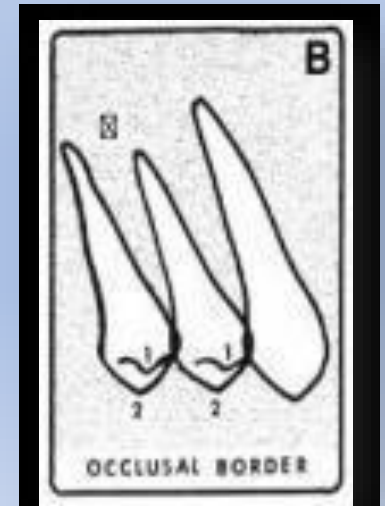
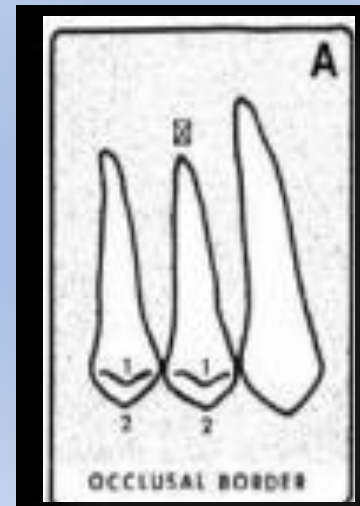
The main difficulties involve:

- Film placement and stabilization when endodontic instruments, rubber dam and clamps are in position. (the solution taping the film packet to one end of a wooden tongue spatula).
- Assessing root canal length. (the solution to calculating the actual length of a root canal by using bisecting technique as follow: **a)** Measure the radiographic tooth length. **b.)** Measure the radiographic instrument. **c)** Measure the actual instrument length. **d)** Use this formula

Actual tooth length = radiographic tooth length\*actual instrument length /radiographic instrument length

- Identification and separation of root canals. (the solution is by localization techniques using Tube shift technique (Clark's rule): in this technique the area in question is anesthetized, a small hypodermic needle is inserted in mucobuccal fold, a radiograph is taken, then use another film and second radiograph is taken with mesial shifted tube. The 2 films are processed and compared. If the object or the root canal in the second radiograph appears more mesialy, that means the its located far (lingualy or palately), while if it is more distally (in relation to the needle) it means it is buccaly positioned, and if it is not move it means that it is close to the needle.

**\*note: to remember the tube shift technique. Keep in your mind the word (SLOB): Same = Lingual, Opposite = Buccal**



### **3. Edentulous patient**

Edentulous patient requires dental radiograph to detect the presence of root tips, impacted teeth and lesions, to establish the exacted position, all the normal anatomic land marks relative to the crest of alveolar ridge should be well known.

### **4. Child patient**

Children are unlikely to be suggested to x-ray until five to six years old, except in cases of trauma and injury usually for upper anterior teeth. To manage a child patient you should:

- a. Describe the x-ray machine to the child**
- b. Show him a radiograph of another child's teeth**
- c. Use conveniently small intraoral films**
- d. Use lead apron**
- e. Exposure factors (ma, kvp , time) must be reduced.**
- f. Extraoral films can be used instead of intraoral.**
- g. Radiographic procedures should not be hurried**
- h. If the child cannot hold or stabilize the film, ask his parent for assistance.**

## 5. Gagging Reflex

**A gag reflex is a protective mechanism of the body that serves to clear the airway from obstruction. In the dental radiography a hypersensitive gag reflex is a common problem. This makes the film placement in the desired position particularly difficult especially in molar regions there are some important hints to reduce gagging reflex, such as:**

- **By-diverting the patient's concentration away from gagging reflex like asking the patient to breathe deeply through the nose or moving his/her arm.**
- **Patient and equipment preparations to limit the time**
- **Exposure sequencing: start with anterior teeth, then the premolar and finally molar.**
- **Film placement and technique: Each film must be placed and exposed as quickly as possible.**
- **Use of extraoral radiograph: In uncontrolled gag reflex**
- **Using topical anesthetic agent**

## 6. Physical Disabilities

- A. Vision impairment: if a patient is blind, using clear verbal explanations and keep the patient informed of what is being done and explain each procedure before performing it.
- B. Hearing impairment: if a person is deaf or hearing impaired, the dental radiographer may ask the caretaker to act as interpreter, or use written instructions.
- C. Mobility impairment: if a person is in a wheelchair and does not have use of the lower limbs, assist the patient in transferring to the dental chair. If a transfer is not possible; we perform the procedure with the patient seated in the wheelchair. If a person does not have use the upper limbs and a holder cannot to stabilize the film placement, ask the caretaker to assist with film holding.

## **7. Developmental Disabilities**

It includes (Autism, cerebral palsy, epilepsy and other neuropathies and mental retardation). A person with a developmental disability may have problems with coordination or comprehension of instruction. If coordination is a problem, mild sedation may be useful. If comprehension is a problem and the patient cannot hold a film, the caretaker may be asked to assist with film holding. In some cases, no intraoral films must be used and change to extraoral films.

## **8. Neuromuscular problems**

Refer to patient inability to remain immobile

- a. Speed is essential in radiographic procedure.
- b. Minimization the exposure interval by using fast films
- c. Using of films holders that can be stabilized by another person
- d. Extraoral films may be useful.
- e. Sedation sometimes is essential.
- f. Radiograph can be performed under anesthesia



# Localization Technique

It's a method used to locate the position of a tooth or object in the jaws.

**Localization technique may be used to locate the followings:**

1. Foreign bodies
2. Impacted teeth
3. Retained roots
4. Salivary stones
5. Root positions
6. Jaw fractures
7. Broken needles and instruments

The radiograph presents as two-dimensional image of a three – dimensional object. There is often a need for determining special relationship. So techniques for doing this are discussed as follows:

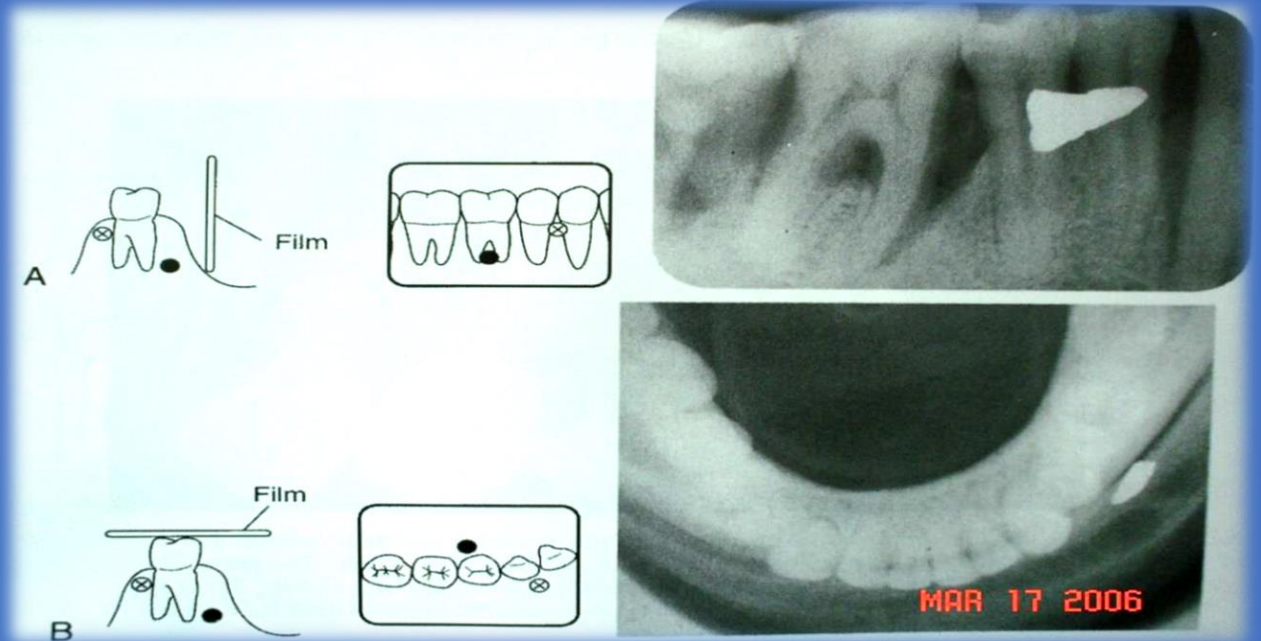
**A. Right angle technique.**

**B. Tube shift technique.**

**C. Use of radio-opaque media**

## Right angle procedure

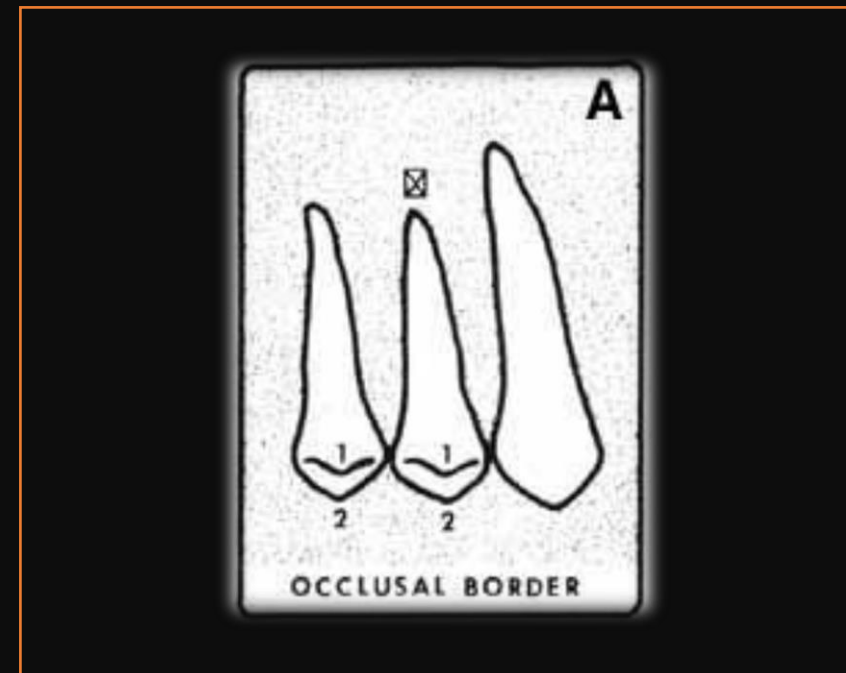
It involves the use of at least 2 films taken at right angles to each other. For example: lateral skull projection demonstrates the anteroposterior areas and posteroanterior projection demonstrates the mediolateral areas so an object could be located



# Tube shift technique

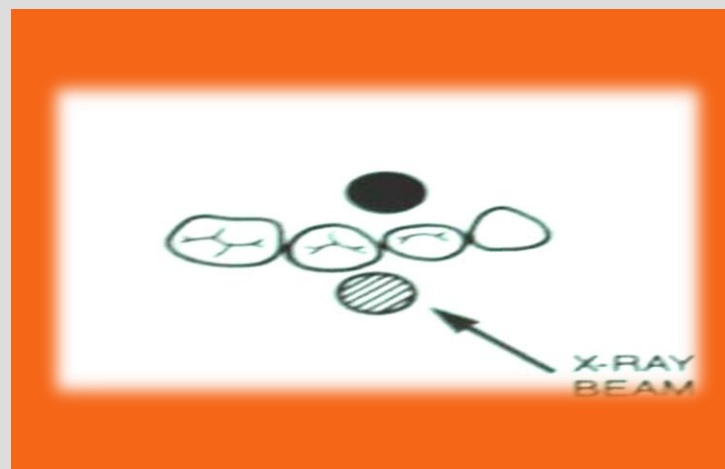
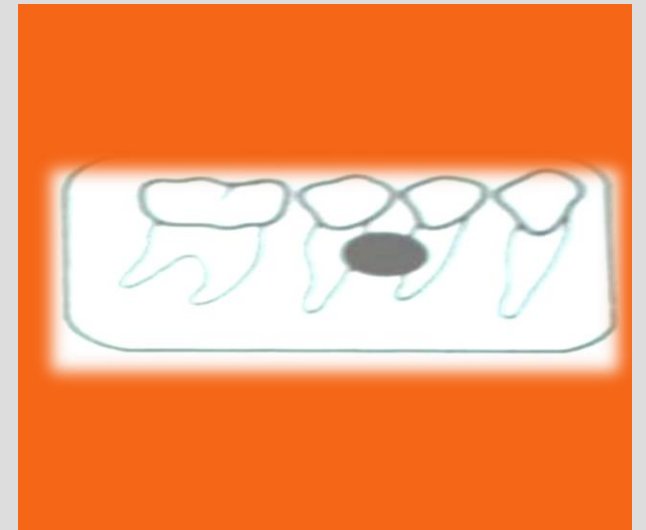
It employs the concepts called Clark's rule. The area in question is anesthetized, a small hypodermic needle is inserted in vertical position in mucobuccal fold near the object in question, a radiograph is taken, then insert another film and second radiograph is taken with mesial shifted tube. The 2 films are processed and compared.

If the object in the second radiograph appears more mesially, that mean the object is located far lingually or palately, while if it is more distally ( in relation to the needle) it means it is buccaly positioned, and if it is not move it means that it is close to the needle.



When the object in question is close to a tooth or surface of a crown so that there is no need for insertion of a needle.


\*note: to remember the tube shift technique, keep in your mind the word (SLOB) Same=lingual, Opposite = Buccal.



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## **Use of radio-opaque media**

Barium sulfate, lipiodol and dionosil can be used to demonstrate cavernous areas with hard and soft structures. After the injection of het radio-opaque media (Mostly lipiodol) in cyst for example, film exposed, processed and viewed to see the extension of the cyst. Radio-opaque media also used in sialogram to demonstrate the salivary glands and their duct.



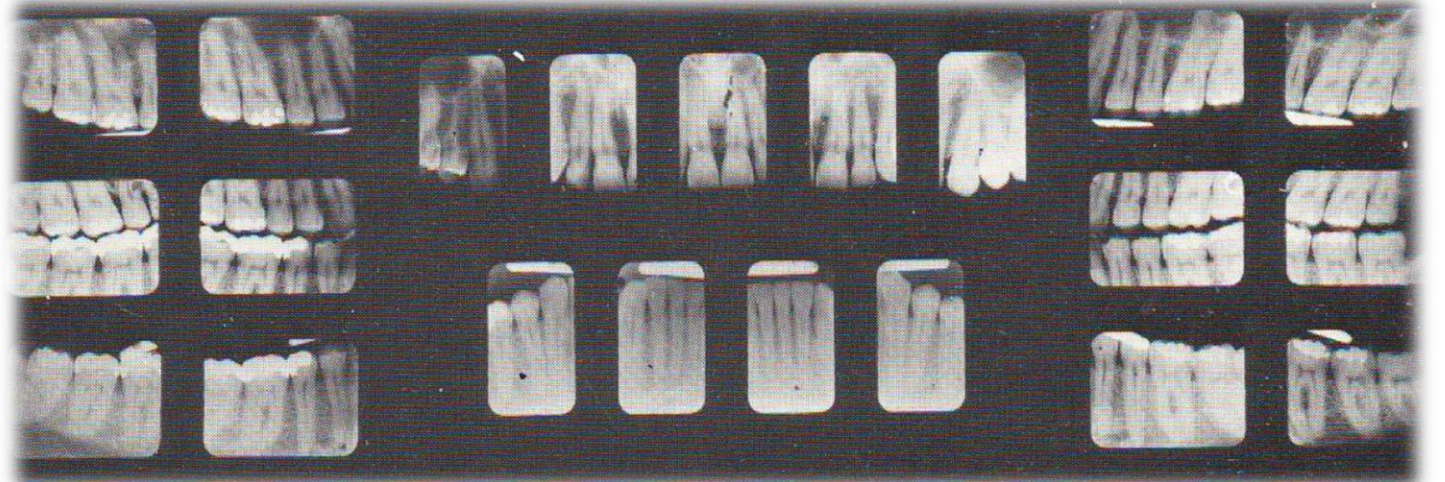
# Radiographic survey

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An examination of a part or an area designed to determine whether any abnormal changes exist within the part or area. It is either routine scanning procedure, or specific purpose survey for example cephalometric films designed to study growth pattern.

**Routine:** for children, adult and edentulous 14 – 17 periapical films with 2 – 4 posterior bite-wing films are necessary for adequate interpretation of oral conditions.

**Alternate:** Lateral Jaw projections, anterior periapical mandibular and maxillary views with bitewing for posterior teeth. For edentulous patients topographic occlusal films could be used instead of periapical films as alternative survey method.



# Contrast Media Used In Radiography



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**Contrast media:** is a radiopaque substance which is introduced into human body to examine certain structures not seen well by conventional means.

It is also used to see vascularity of certain lesions, boundaries, or pathology.

### **Types of Contrast Media According to Imaging Modality:**

1- Radio-Contrast Media (ex. Barium, Iodine)

2- MRI Contrast Media (ex. gadolinium, iron oxide)

3- Ultra Sound Contrast Media (micro gas bubbles smaller than a red blood cell)

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# Ideal Contrast Material

The ideal contrast material should have the following properties:

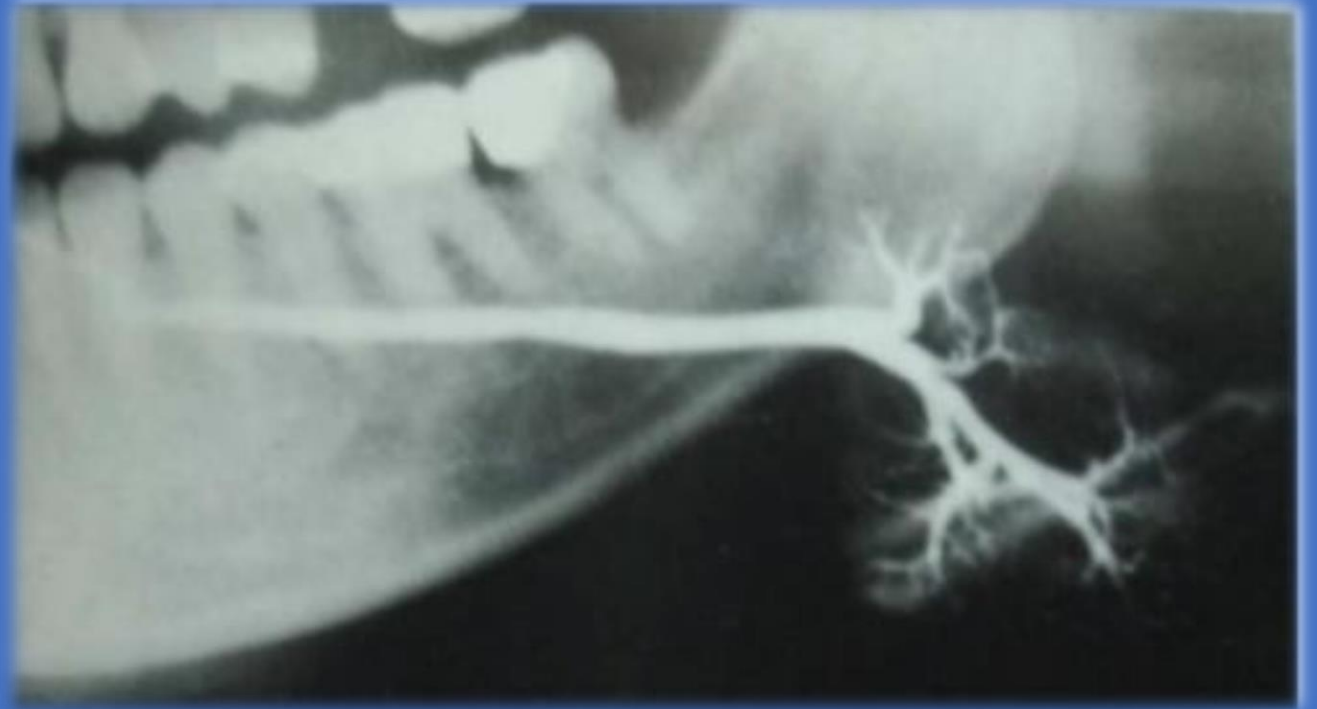
- **Non-toxic**
- **Radiopaque**
- **Minimum side effects**
- **Less viscosity**
- **Low surface tension**
- **Should not cross blood-brain barrier**
- **Similar physiologic properties when compared to blood and saliva.**



**Contrast Medium is injected  
into the salivary gland duct**



**Duct Stone**



**Normal left submandibular gland, the bush in winter appearance**



**Thank You**