X – RAY DEPARTMENT

Lecture 11. **د. ســناء القصــاب**

LOCALIZATION TECHNIQUES

Basic Concepts

PURPOSE AND USE

relationships. The denial radiograph, however, does not depict the buccal lingual relationship, or depth, of an object. There are limes when it is necessary to establish the buccal-lingual position of a structure, such as a foreign object or impacted tooth, within the jaws. Localization techniques can be used to obtain this three-dimensional information. Localization techniques may be used to locate the following:

- foreign bodies
- unerupted teeth
- retained roots
- root positions
- salivary stones
- jaw fractures.
- broken needles and instruments
- filling materials

Radiographs depict a varied array of three-dimensional structures on a two-dimensional film surface. The localization of an object, such as an impacted tooth, or the need for the clinician to know if there is expansion of the buccal (facial) or lingual cortices requires that additional radiographs be taken. In the case of expansion, the radiographer need only take an additional occlusal radiograph, If the clinician has access to computed tomography (CT) imaging, then additional information in the third plane is available at multiple levels

There is a simple technique called the *buccal object rule or SLOB rule*, which allows the dentist to determine the position of an object from two films taken at slightly different angles. Simply put, the SLOB

If the tubehead is shifted distally for the secosnd view and the object moves mesially (opposite), then the object is on the buccal. Conversely, if the tubehead is shifted distally in the second view and the object moves distally (same), then the object is on the lingual. An analogy would be to imagine yourself driving on a road, during a full moon, and passing a line of telephone poles. As you drive forward, the poles near to you flash past in the opposite direction, while the moon out your driver's window "appears" to move along with you in relation to the poles. The poles nearer to you would be "buccal," the moon "lingual."

Two basic techniques are used :o localize objects: the buccal object rule and the right-.mgie technique. *Buccal Object Rule.* The buccal object rule is a rule governing the orientation of structures portrayed in two radiographs exposed at different angulations. One periapical or bite-wing film is exposed using propet technique and angulation. A second periapical or bite-wing film is then exposed after changing the direction of the x-ray beam; a different horizontal or vertical angulation is used. For example, a different *horizontal angulation* is used when trying to locate *vertically aligned* images (e.g., root canals), whereas a different *vertical angulation* is used when trying to locate a *horizontally aligned* image, such as the mandibular canal. After the two films have been exposed and processed, the radiographs are compared with each other.

When the dental structure or object seen in the *dirci:twi as the shift of the PID,* the structure or object two radiographs. One periapical film is exposed using the proper technique and angulation to show the position of the object in the superior-inferior and anterior-posterior relationships. Next, an occlusal film is exposed directing the central ray at a right angle, or perpendicular (90 degrees), to the film. The occlusal film shows the object in the buccal-lingual and anterior-posterior relationships. After the two films have been exposed and processed, the radiographs are compared with each other to locate the object in three dimensions. This technique is primarily used for locating objects in the mandible.

Step-by-Step Procedures

Step-by-step procedures for localization techniques include patient and equipment preparations and film placements and comparisons.

PATIENT AND EQUIPMENT PREPARATIONS

Prior to exposing localization films, infection control procedures must be carried out. In addition, patient and equipment preparations must be completed.

• "he occlusal technique is a method used to examine large ai. s of the upper or lower jaw. The film is so named because the patient "occludes" or bites on the film.

• Size 4 incraoral film is used in the occlusal technique.

• The occlusal radiograph is preferred when the area of interest is larger than a periapical film or when the placement of periapical films is too difficult for the patient.

• Uses for occlusal radiographs include the following:

• localization of roots, impacted teeth, unerupted teeth, foreign bodies, or salivary stones

• evaluation of the size of lesions, the boundaries of the maxillary sinus, or jaw fractures

• examination of patients who cannot open their mouths

• measurement of changes in the size and shape of the jaws

• The principles of the occlusal technique are:

• the film is positioned with the white side facing the arch being exposed the film is placed in the mouth between the occlusal surfaces of the teeth the film is stabilized when the patient gently bites on the surface of the film

• Prior to film exposure using the occlusal technique, the dental radiographer must complete .infection control procedures, prepare the treatment area and supplies, seat the patient, explain the radiographic procedures to be performed, make the proper chair and headrest adjustments.

• A localization technique is a method used to locate the technique can be used to determine the buccal-lingual relationship of an object or to locate foreign bodies, impacted and unerupted teeth, retained roots, root positions, salivary stones, jaw fractures, broken needles and insiru-

• The buccal object rule. a rule for the orientation of structures seen in two radiographs exposed at different angles, can be used as a localization technique.