Orthodontics records

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**Clinical orthodontic records are used for**

1. Primarily for diagnosis

2. Monitoring of growth and development

3. medico-legal requirement.

Usually the records are study cast, photograph & x-ray

Study models

Impressions showing all the erupted teeth, full depth of the palate and good soft tissue extension are needed. These can be taken in alginate for study models and poured in dental stone or plaster , stone is better. Why ?
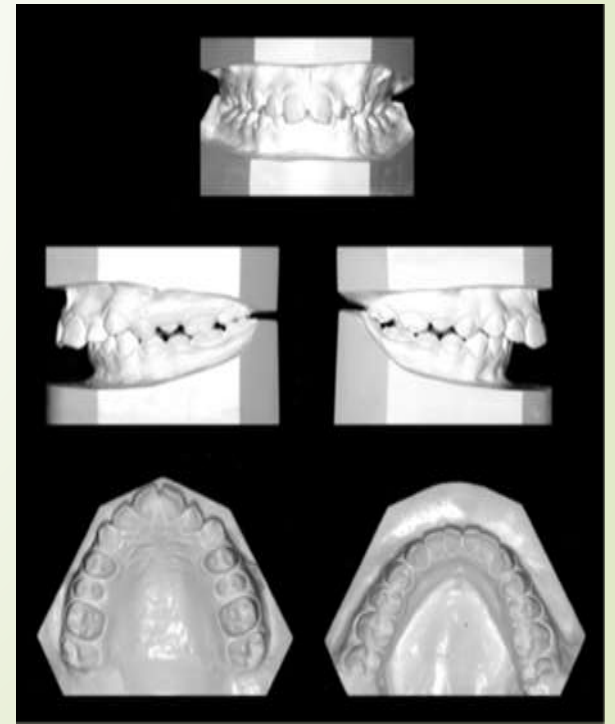
Why we make a study models ?

1. They are invaluable in planning treatment , as they three dimensional records for the patient dentition

2. Occlusion can be seen from the lingual aspect .

3. It help the dentist to monitor the changes in the tooth position during the tooth movements.

4. It help to motivate the patient, as the patient see the progress in his/her teeth

Ideal requirements of orthodontic study model

1. Models should accurately reproduce the teeth and their surrounding soft tissues.

2. Models are to be trimmed so that they are symmetrical and pleasing to the eye and so that an asymmetrical arch form can be readily recognized.

3. Models are to be trimmed in such a way that the dental occlusion shows by setting the models on their backs.

4. Models are to be trimmed such that they replicate the measurements and angles.

5. Models are to have clean, smooth, bubble-free surfaces with sharp angles where the cuts meet.

6. The finished models should have a glossy finish

intraoral scanner: is a device that is used to capture a direct optical impression.

The **scanner** projects a light source onto the area to be scanned. The images are captured by imaging sensors and are processed by **scanning** software, which then produces a 3D surface model

Routine radiographs used in orthodontic assessment

1. Dental panoramic tomograph

Provides a useful information for the presence or absence, position and general health of the teeth and their supporting structures with a relatively low-radiation dose.

2. Occlusal radiographs

They are particularly useful in the maxillary arch, for assessing root form of the incisors, the presence of midline supernumerary teeth and canine position
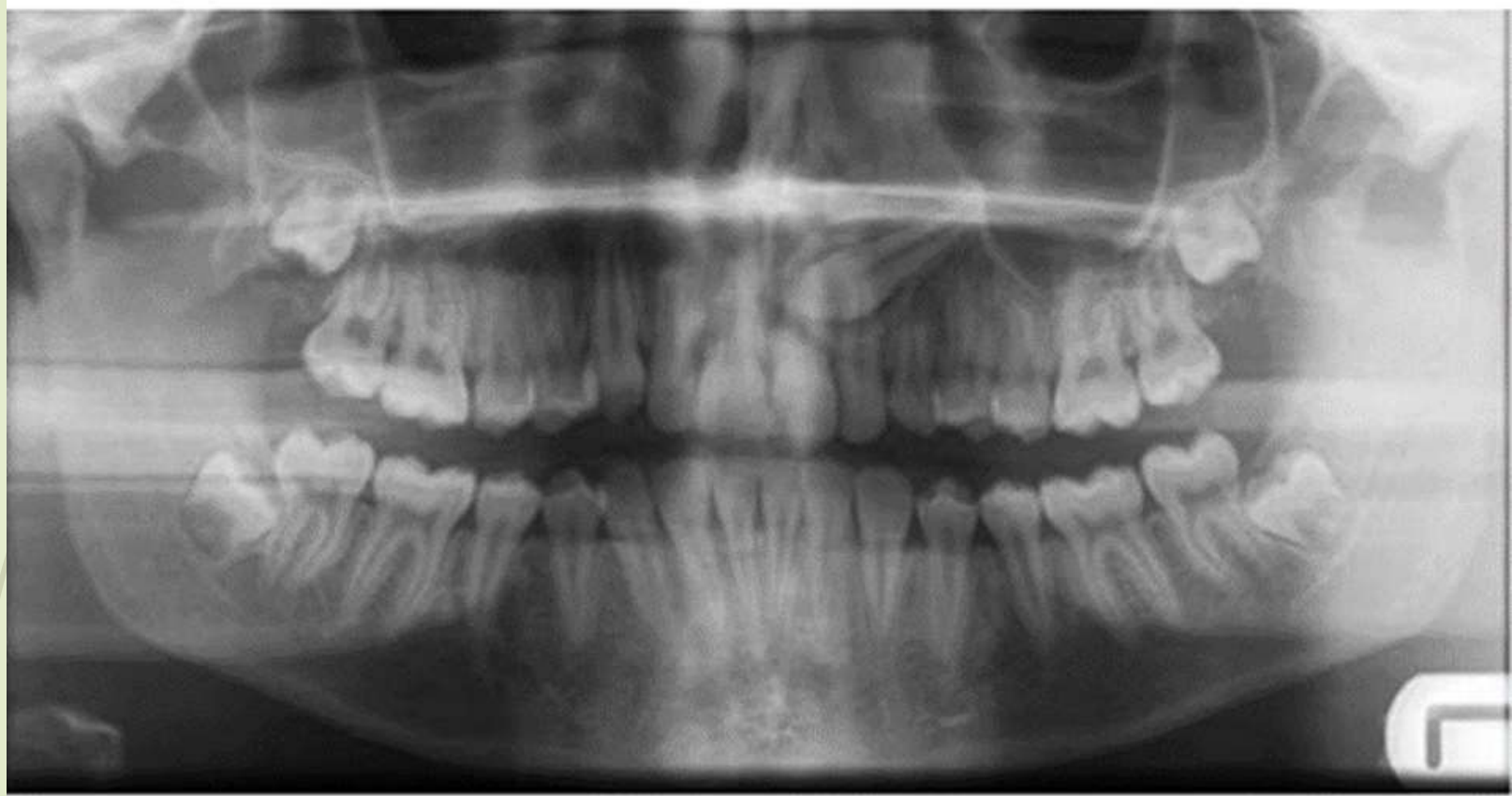
3. Periapical radiographs

Periapical radiographs are also useful for the assessment of local pathology, root form and the presence or position of unerupted teeth. They can also be used for parallax, particularly in identifying the position of maxillary canine teeth.

4. Bitewing radiographs

Bitewings are useful for the accurate detection of caries, the assessment of existing restorations and periodontal status.

5. Cephalometric lateral skull radiograph

A cephalometric lateral skull radiograph is a specialized view of the facial skeleton and cranial base from the lateral aspect, with the head position at a specific distance from the film.

Cone beam computed tomography (CBCT) and 3D imaging

Conventional computed tomography (CT) imaging involves the use of rotating X-ray equipment, combined with a digital computer, to obtain images of the body. Using CT imaging, cross-sectional images of body
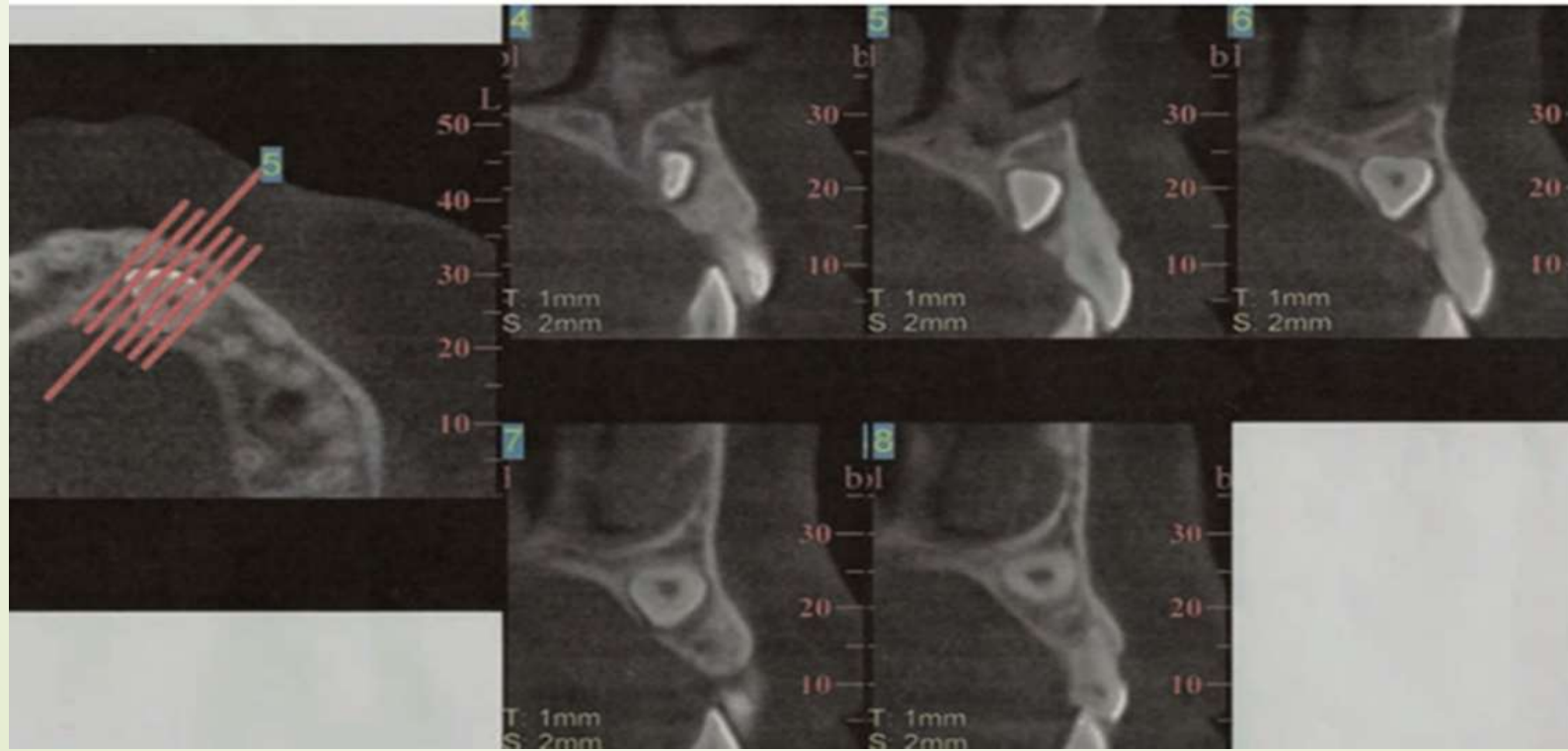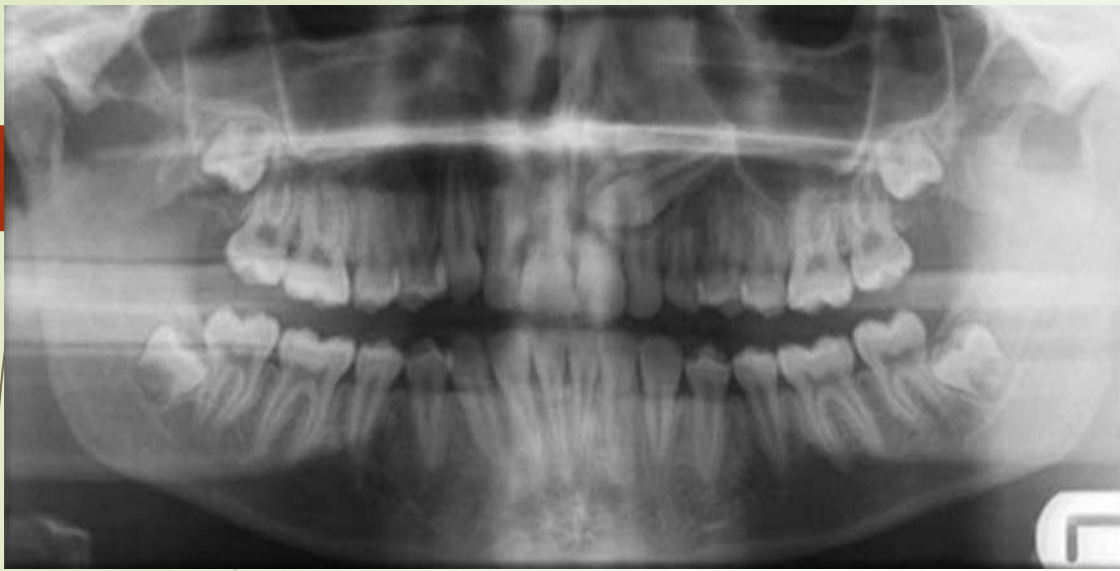
Clinical photographs

Good clinical photographs form an essential part of the clinical record. They provide a baseline record of the presenting malocclusion, and are important in treatment planning **especially in relation to facial and dental aesthetics**, allow monitoring of treatment progress and are useful for teaching.
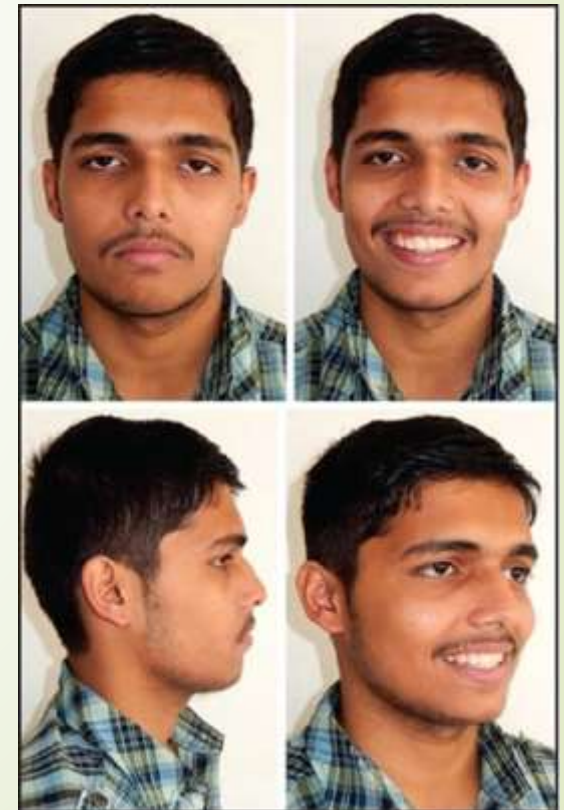
Uses of extra oral photographs :

1. Identifying patients

2. Detecting of facial asymmetry

3. Detection of muscle imbalances

4. Assessment of soft tissue profile

5. Facial analysis and/or photographic analysis.

6. Monitoring of treatment progress

7. Evaluation of craniofacial relationships & proportions before and after treatment.

8. Valuable for longitudinal study of treatment & post retention follow-up

Extraoral, taken against neutral background in natural head posture:

1.Full facial frontal

2.Full facial frontal smiling

3.Facial three-quarters

4.Facial profile.

Uses of intraoral photographs

1. Record the structure and color of enamel.

2. Patient motivation.

3. Monitoring of treatment progress.

4. Recording health or disease of the teeth and soft tissue structures.

5. Study of relationships before, immediately following and several years after treatment, to improve treatment planning.

- Intraoral taken with the occlusal plane horizontal:
Frontal occlusion
Buccal occlusion (left and right)
Maxillary dentition
Mandibular dentition.

Digital photography

Requirement

A. Camera requirements

B. Retractor requirements

A.Camera requirements:

1. Marco lenses : are often used to take photos of things close up things

2. Adjustable focusing (better to use camera with manual focus)

3. For intraoral snap F32 and for extra oral F11 (this is called depth of filed which in the IO photos help to show the anterior and posterior teeth at similar sharpness)

3. Ring flash not point flash

4. Flash behind the patient for EO photos

5. With extra-oral photographs taken in portrait mode and intra-oral photographs taken in landscape mode.

A. Retractor requirements

1. **For anterior shot**: The assistant should hold both retractors pulling them both laterally and also forwards, which is the opposite to the natural instincts of the assistants when retracting.

2. **For the buccal shots**, one retractor is turned through 180°, thus using the smaller end of the larger retractor on the side of interest. The photographer should hold this retractor themselves and, immediately before capturing the image, pull it an extra 4–5 mm both distally and away from the teeth to ensure at least the distal of the first molars is captured. (to avoid discomfort to patient)

3. For both occlusal shots the assistant inserts the small ends of the small retractors under the respective lips and rotates them towards the midline pulling the lips forward, as well as laterally. This is essential to prevent obscuring the teeth with the lips. At the same time the photographer or the patient support the mirror

<u>Digital photography offers many advantages including :</u>

1. rapid turn-around;

2. checkable exposure accuracy;

3. no ageing of photos;

4. dust and scratches are irrelevant;

5. immediate viewing;

6. no film or processing costs;

7. inexpensive storage;

8. easy retrieval;

9. duplication easy;

10.transmission around the world in seconds is entirely feasible.

Digital video

With the advent of digital records, it is easy now to obtain a short segment of digital video as the patient smiles and turns from a frontal to a profile view. The resulting set of images allows a detailed analysis of facial relationships at rest and in function and provides the preferred photographic record set.