Recognizing and Correcting Technical errors on Panoramic Radiographs

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Patient Positioning Errors.

1. Horizontal face positioning
   - If the patient’s head is positioned too far forward, the images of the anterior teeth will appear narrow and fuzzy.
   - If the patient’s head is positioned too far back, the images of the anterior teeth will appear broad and will progressively be out of focus.

2. Vertical face errors.
   - The patient’s head should be tilted downward so that the ala – tragus line is minus 5 degrees, positioning the anterior portion of the occlusal plane lower than the posterior. This will result in the occlusal planes of the teeth having a "smile line".
   - In other words, the ala of the nose should be slightly inferior to the height of the tragus.
   - If the tragus is positioned above the tragus, the hard palate will appear as a thick, opaque, horizontal opacity above / over the apices of the maxillary anterior teeth and premolars. The "smile line" will also be lost.
   - Ascertained (ensure) that the chin is resting on the chin rest. Particularly, patients who have had a pan taken previously tend to elevate the chin and bend the neck.
   - If the ala of the nose is much below the tragus, the maxillary anterior teeth will appear elongated and the mandibular anterior teeth will appear foreshortened.

3. Midsagital plane positioning errors
   - Images of structures furthest from the film will be magnified whereas, on the opposite side, images will be decreased / normal in size. By turning the head one side is closer to the equivalent of the focal trough and the focal object distance is decreased producing magnification.
4. **Tongue positioning errors / Pharyngeal air spaces**

The tongue must be placed against the roof of the mouth (palate) in the **swallowing positioning** to eliminate the pharyngeal air space. Ask the patient to elevate the tongue in the swallowing pattern and to maintain the position of the tongue for the **entire** duration of the exposure.

The oral pharyngeal air space results in a horizontal lucency that appears over the images of the apices of the maxillary anterior teeth and often the premolars as well and thus interfering with the interpretation of periapical pathology.

5. **Spinal chord errors**

If the patient does not sit with the neck straight, the vertebra will throw (cast) a vertical, midline opacity. Older patients may not be able to sit up straight. If you are interested in the anatomy / pathology in the anterior region of the face, it may be preferable to take an occlusal radiograph for patients who are bent over (with age).

6. **Lead apron.**

Ensure that the apron is positioned high in the front of the neck to give the thyroid some protection but low enough posteriorly not to create an opaque artifact. Long and short lead aprons designed for taking panoramic radiographs are available. Thyroid collars are not used when taking panoramic radiographs.

7. **Static electricity**

When the weather is very dry, and one slides the X-ray film rapidly between the intensifying screens, static electricity is seen on the film. It appears as black lines that look like lightning.

8. **Powder on gloves**

When loading or unloading the film in the cassette in the dark room or daylight loader, it is customary to use gloves. If using powdered gloves, first wash the hands to remove the powder. Powder from the gloves looks similar to static electricity but the lines are shorter or little dots appear. Older textbooks do not differentiate between static electricity and powder from the gloves.

9. **Locking the drum.**

With some panoramic machines the drum that holds the cassette has to be locked when loading or unloading the cassette. The drum must not be in the locked position when the machine is working as the drum will remain locked or only a partial panoramic image will be obtained.