

# X – RAY DEPARTMENT

## Lecture 7.

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### Artifact (technical and processing errors)

| Error   | Possible causes (s)   | Correction (s)  |
|---|---|---|
| Missing apices of teeth                                   | Teeth not in contact with biteblock (paralleling)<br>Film too close to alveolar processes so that patient cannot close<br>Cotton roll between teeth and biteblock<br>Image elongation (bisecting) (apices projected of film)<br>too much occlusal edges (bisecting) | Place film farther away from teeth<br><br>Cotton rolls should be used only the arch opposing the arch being radiographed<br>Increase vertical angulation<br><br>Film should extend only 1/4 – 1/8 inch beyond teeth |
| Missing crowns of teeth                                   | Image foreshortening (bisecting) (Crowns projected off film)<br>Not enough film extending beyond incisal /occlusal edges (bisecting)  | Decrease vertical angulation<br><br>Film should extend 1/4-1/8inch beyond teeth   |
| Overlapped interproximal contacts                         | Incorrect horizontal angulation<br>Incorrect film placement   | Beam should be directed through the contacts perpendicular to the film<br>Film should be placed so that it lies parallel with the lingual surface of the teeth  |
| All teeth of interest not imaged partial image (cone cut) | Incorrect film placement<br>Incorrect beam alignment  | Center film over teeth to be imaged<br><br>Beam must over the film in both the horizontal and vertical dimensions   |
| Image elongation  | Incorrect vertical angulation bisecting   | Increase vertical angulation  |
| Image foreshortening                                      | Incorrect vertical angulation (bisecting)   | Decrease vertical angulation  |
| Image distortion  | Bent film (paralleling)   | Ask patient to close gently against biteblock so that the film does not bend against the palate or floor of the mouth   |
| Light film with "tire tracks" or "cobblestones"           | Reversed film   | All – white side of film should be placed against the teeth   |
| Radiopaque artifacts                                      | Dental appliances left in place<br>Eyeglasses left in place   | Patient should remove dental appliances prior to film exposure<br>Patient should remove eyeglasses prior to film exposure   |
| Dark, double image  | Film exposed twice  | Take films in organized manner; keep exposed and unexposed films separate   |
| Blurred image   | Movement<br>Patient movement<br><br>Tubehead movement (less likely)   | Patient should be asked to remain as still as possible during exposure<br>Tubehead should be as stationary as possible during exposure  |

## Common processing problems, their causes, and their solutions

| Problem   | Possible   | Correlation  |
|---|--|--|
| Light film (assuming proper exposure and film not reversed) | Under development                                      |  |
|   | Too little time  | Check time and adjust necessary  |
|   | Temperature too low                                    | Check temperature and adjust if necessary  |
|   | Exhausted or contaminated developer                    | Do a check film and replenish or replace solution if necessary   |
| Dark film (assuming proper exposure)                        | Diluted developer                                      | Do a check film and replenish or replace solution if necessary   |
|   | Overfixed  | Check to see that films are not allowed to stay in fixer for prolonged period of time  |
|   | Overdevelopment  |  |
|   | Too much time  | Check time and adjust if necessary   |
|   | Temperature too high                                   | Check temperature and adjust if necessary  |
|   | Developer too strong                                   | Do a check film and replace solution if necessary  |
|   | Exposure to light                                      |  |
| Fogged film (gray, very little contrast)                    | Light leaks in the darkroom or daylight loader         | Evaluate darkroom or daylight loader for light leaks   |
|   | Film packet opened prematurely                         | Be sure films are not opened in an unsafe area   |
|   | Exposure to radiation                                  | Evaluate area where films are stored or kept during the radiographic procedure   |
|   | White light leaks                                      | Check darkroom or daylight loader for light leaks  |
| "Frosty" film (clear areas appear hazy or grainy)           | Improper safelighting                                  |  |
|   | Defective filter                                       | Inspect filters for cracks or defects. Orange filters not safe for extraoral films; deep red filters are needed for extraoral films  |
|   | Improper filter  |  |
|   | Illumination too intense                               | Check distance of safelight from work (4 ft or more)<br>Check wattage of bulb; no greater than 15 W if illumination is direct.<br>Daylight loaders should not be placed under bright light when films are loaded |
|   | Exposure to radiation                                  | Evaluate area where films are stored or kept during the radiographic procedure   |
|   | Use of deteriorated film                               | Check expiration date<br>Evaluate film storage area for temperature and humidity<br>Run a check film and replenish or replace solutions as needed  |
| "Frosty" film (clear areas appear hazy or grainy)           | Use of exhausted chemicals                             |  |
|   | Inadequate fixing                                      |  |
|   | Too little time  | Check time and adjust if necessary   |
|   | Incorrect temperature (automatic processors)           | Check temperature and adjust if necessary  |
| "Frosty" film (clear areas appear hazy or grainy)           | Exhausted solution                                     | Do a check film and replenish or replace solution as necessary   |
|   | Inadequately washing                                   |  |
|   | Too little time  | Check time and adjust if necessary   |
|   | Dirty or malfunctioning rollers (automatic processors) | Inspect rollers and clean or repair if necessary   |

## Common processing problems, their causes, and their solutions continued

| Problem  | Possible cause (s)  | Correction (s)  |
|--|---|---|
| Yellow or brown (appear over time)                                     | Inadequate washing<br>Too little time<br>Dirty or malfunctioning rollers (automatic processor)<br>Contaminated wash solution<br>Inadequate fixing<br>Exhausted solution | Check time and adjust if necessary<br>Inspect rollers and clean or repair if necessary<br><br>Evaluate and change if necessary<br><br>Do a check film an replenish or replace if necessary                            |
| Green or unprocessed areas on films                                    | Contaminated solution or rollers. Inadequate processing<br>Overlapping films in automatic processor   | Evaluate solution and inspect rollers<br><br>Allow enough time to pass before feeding in next film; allow enough space between films  |
| Black spots on film  | Developer contamination on film before processing   | Keep work space clean and dry   |
| White spots on film  | Fixer contamination on film before processing   | Keep work space clean and dry   |
| Water marks on film  | Moisture contamination<br>From saliva<br>From disinfectant spray  | Switch to plastic film packets<br>Avoid spraying paper film packets   |
| Finger print<br>Black marks on film (Spiders, lighting, woolly, worms) | Improper film handling<br>Static electricity  | Handle film by edges only<br>Open films slowly<br>Consider humidifier if problem is persistent<br>Avoid 100% ryion or polyester<br>Cloting, or use antistatic spray on clothing                                       |
| Irregular clear or white lines or defects                              | Scratched emulsion<br>Scratched while film is wet   | Place and remove films on hanger carefully  |
| Black crescent   | Film crimping   | Handle film carefully by the edges only   |
| Black line<br>Films on upper portion or rack inadequately processed    | Film bending<br>Solutions too low<br>Solutions not stirred (manual processing)  | Curve film gently but do not crease<br>Replenish as needed<br>Sir solutions before processing   |
| Streaks on films   | Inadequately washing<br>Too little time<br>Not enough volume or rate of flow<br>Contaminated wash water<br><br>Dirty rollers in automatic processor                     | Check time and adjust if necessary<br>Check levels and rate of flow<br><br>Examine solutions; change if necessary<br><br>nspect rollers; clean if necessary<br>Run a cleaning film through<br>Remove rollers and wash |