

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) Film too close to alveolar processes so that patient cannot close Cotton roll between teeth and biteblock Image elongation (bisecting) (apices projected of film) too much occlusal edges (bisecting)	Place film farther away from teeth Cotton rolls should be used only the arch opposing the arch being radiographed Increase vertical angulation Film should extend only 1/4 – 1/8 inch beyond teeth
Missing crowns of teeth	Image foreshortening (bisecting) (Crowns projected off film) Not enough film extending beyond incisal /occlusal edges (bisecting)	Decrease vertical angulation Film should extend 1/4-1/8inch beyond teeth
Overlapped interproximal contacts	Incorrect horizontal angulation Incorrect film placement	Beam should be directed through the contacts perpendicular to the film 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 Incorrect beam alignment	Center film over teeth to be imaged 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 Eyeglasses left in place	Patient should remove dental appliances prior to film exposure 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 Patient movement Tubehead movement (less likely)	Patient should be asked to remain as still as possible during exposure 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
Fogged film (gray, very little contrast)	Exposure to light	
	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
	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) Check wattage of bulb; no greater than 15 W if illumination is direct. 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
"Frosty" film (clear areas appear hazy or grainy)	Use of deteriorated film	Check expiration date Evaluate film storage area for temperature and humidity
	Use of exhausted chemicals	Run a check film and replenish or replace solutions as needed
	Inadequate fixing	
	Too little time	Check time and adjust if necessary
	Incorrect temperature (automatic processors)	Check temperature and adjust if necessary
	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 Too little time Dirty or malfunctioning rollers (automatic processor) Contaminated wash solution Inadequate fixing Exhausted solution	Check time and adjust if necessary Inspect rollers and clean or repair if necessary Evaluate and change if necessary Do a check film an replenish or replace if necessary
Green or unprocessed areas on films	Contaminated solution or rollers. Inadequate processing Overlapping films in automatic processor	Evaluate solution and inspect rollers 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 From saliva From disinfectant spray	Switch to plastic film packets Avoid spraying paper film packets
Finger print Black marks on film (Spiders, lighting, woolly, worms)	Improper film handling Static electricity	Handle film by edges only Open films slowly Consider humidifier if problem is persistent Avoid 100% ryion or polyester Cloting, or use antistatic spray on clothing
Irregular clear or white lines or defects	Scratched emulsion 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 Films on upper portion or rack inadequately processed	Film bending Solutions too low Solutions not stirred (manual processing)	Curve film gently but do not crease Replenish as needed Sir solutions before processing
Streaks on films	Inadequately washing Too little time Not enough volume or rate of flow Contaminated wash water Dirty rollers in automatic processor	Check time and adjust if necessary Check levels and rate of flow Examine solutions; change if necessary nspect rollers; clean if necessary Run a cleaning film through Remove rollers and wash