
بسم الله الرحمن الرحيم

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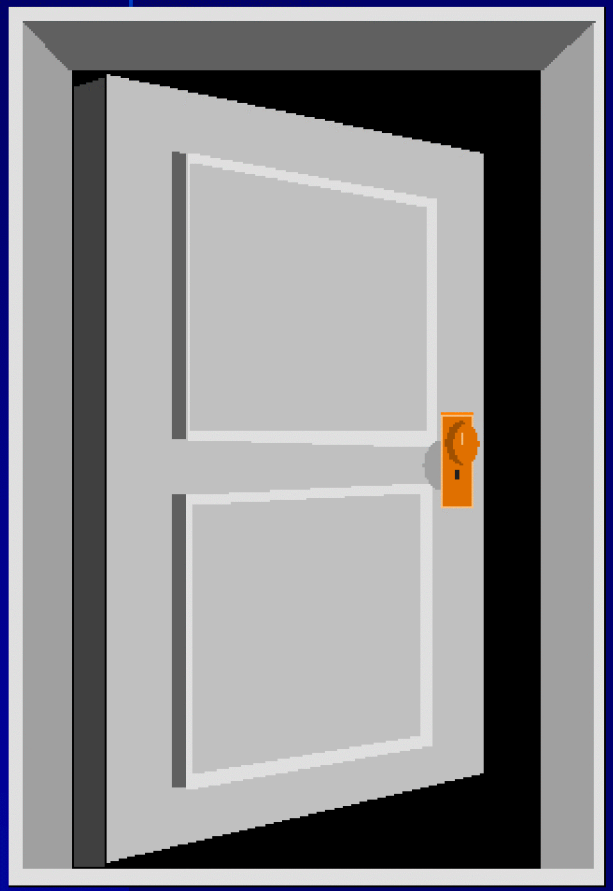
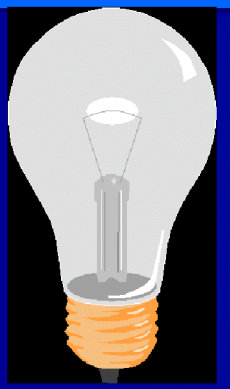
DARKROOM ,PROCESSING & Artifacts REVIEW





Types of Safelights

- Kodak Wratten 6B – brownish red filter
- 7.5 to 15 watt bulb @ 4 feet above counter

- Kodak GBX – brighter (reddish) light is directed upwards
- White walls and dust free

- What type of film was amber filter used for?

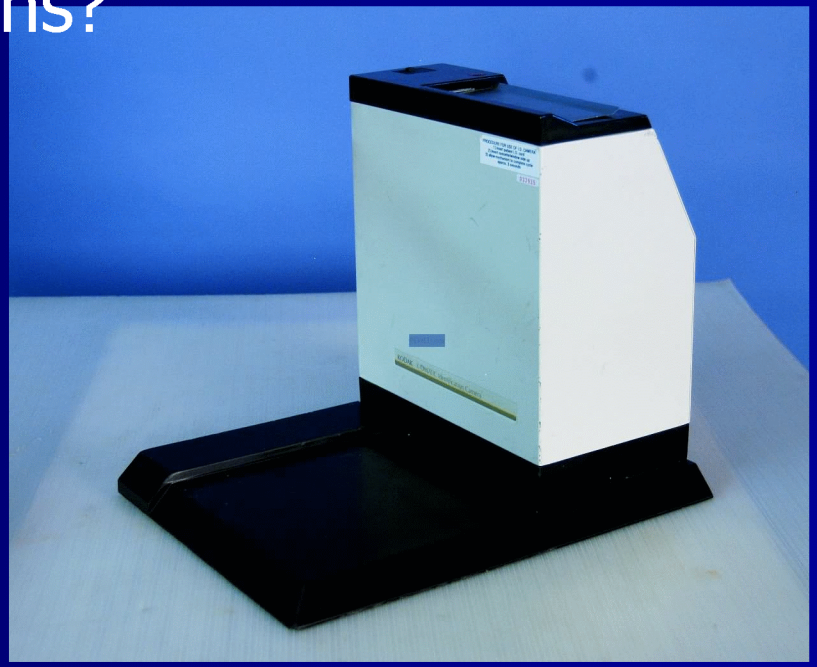
SAFELIGHTS

Safelight distance?

FILM BIN - STORAGE

FILM ID PRINTER

- What information
- Must be present
- For Legal reasons?



PT ID

LEGAL

SHOULD NOT BE WRITTEN ON

Film/IMAGE Identification

- Pt name
- Exam date & time
- Pt x-ray number
- Pt Birthday/DOB
- Rt or Lt marker
- Optional
  - Exam type
  - Dr. Name

Processing Film

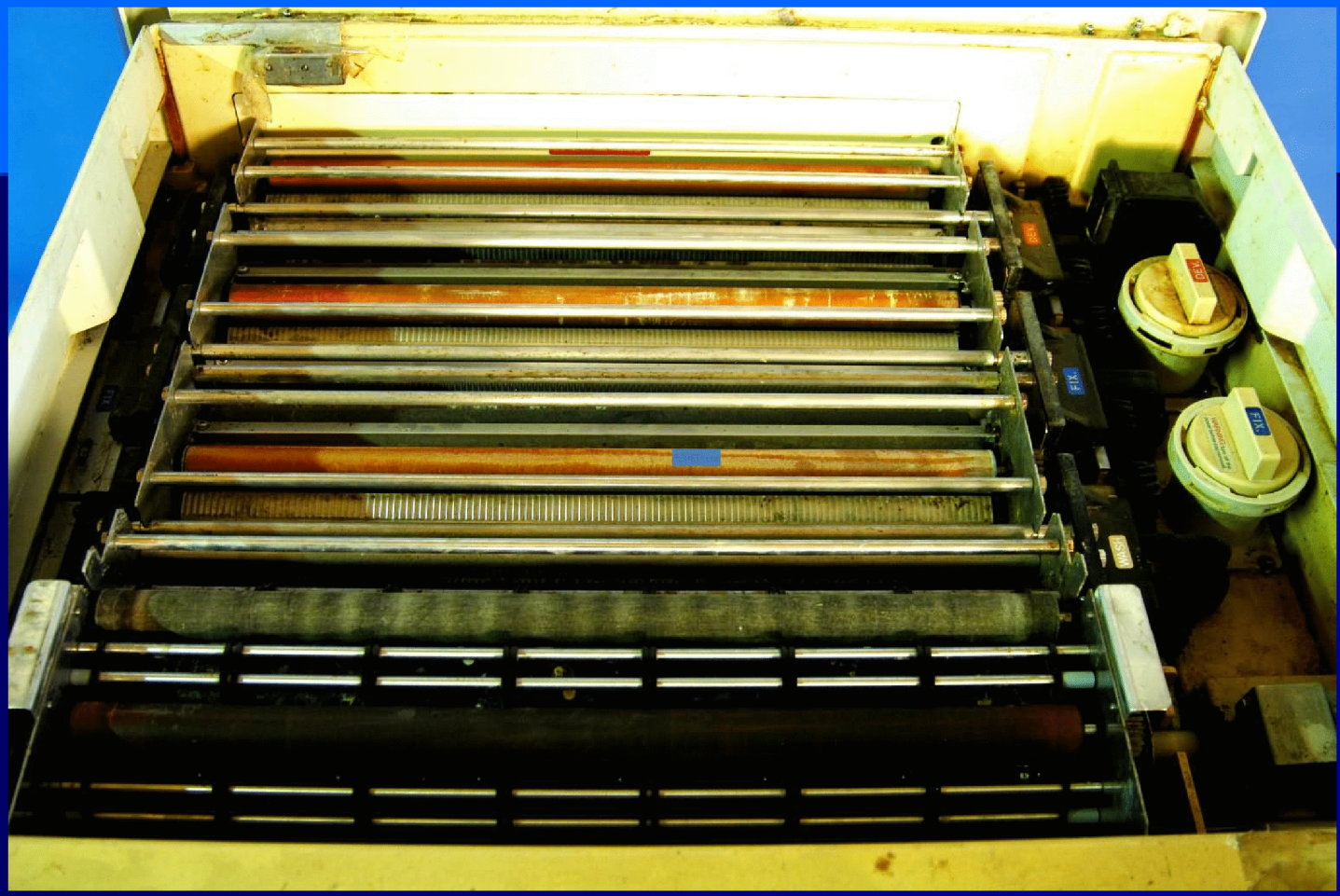
Floor model (LAB)

Table top

No longer in use in clinics

DARKROOM Processor

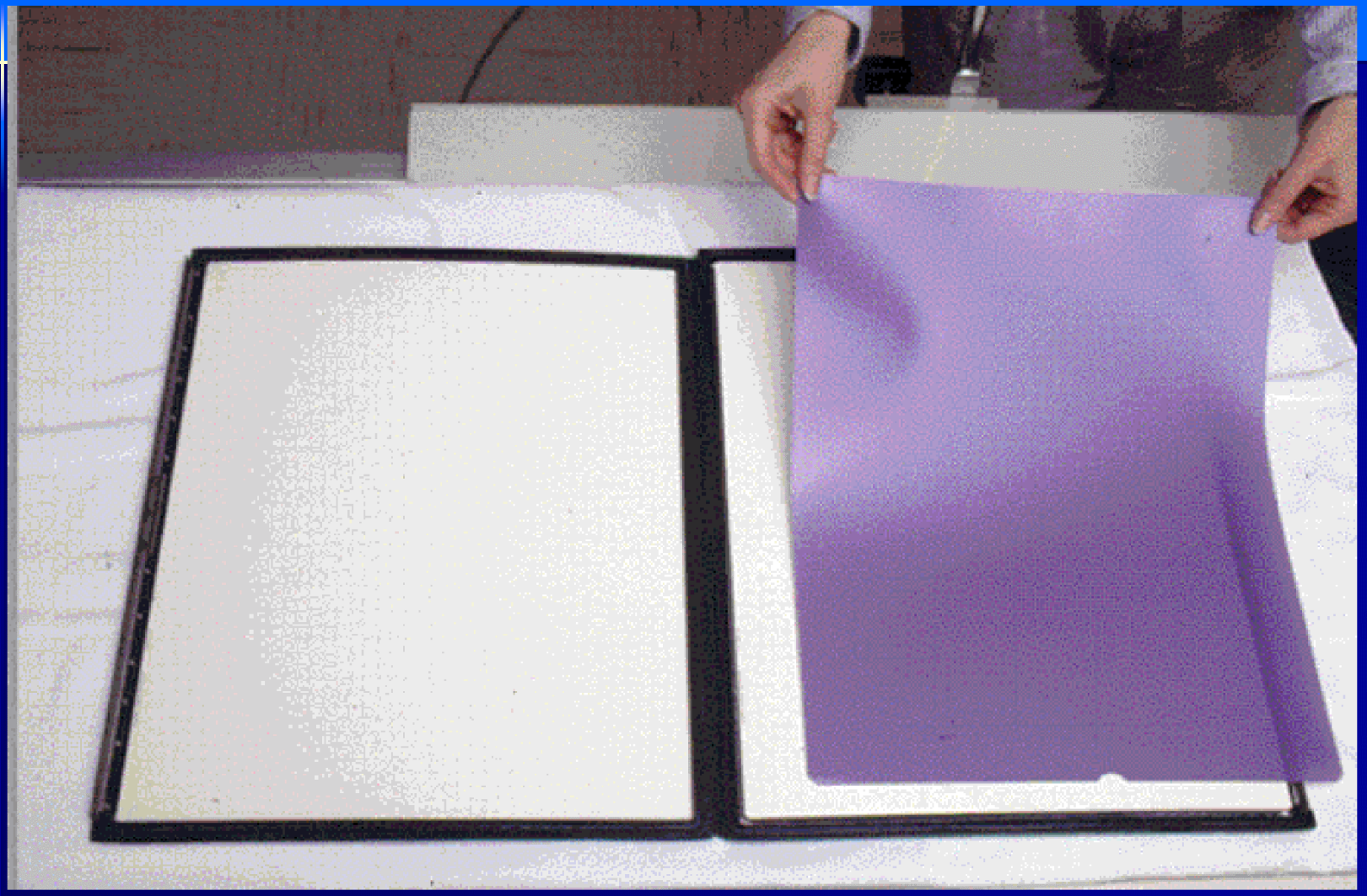
DAYLIGHT Processor

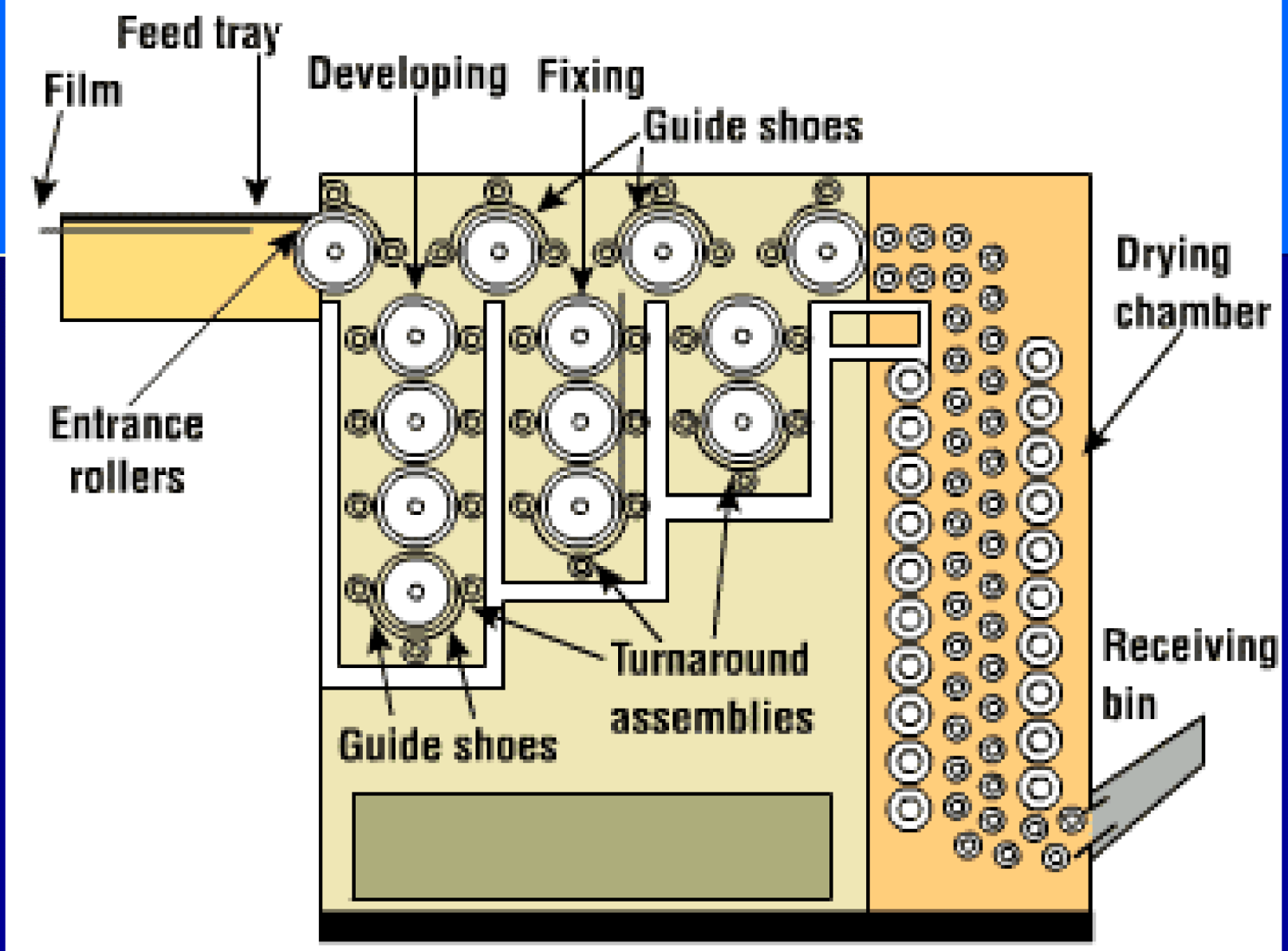


NOTES ON PROCESSING

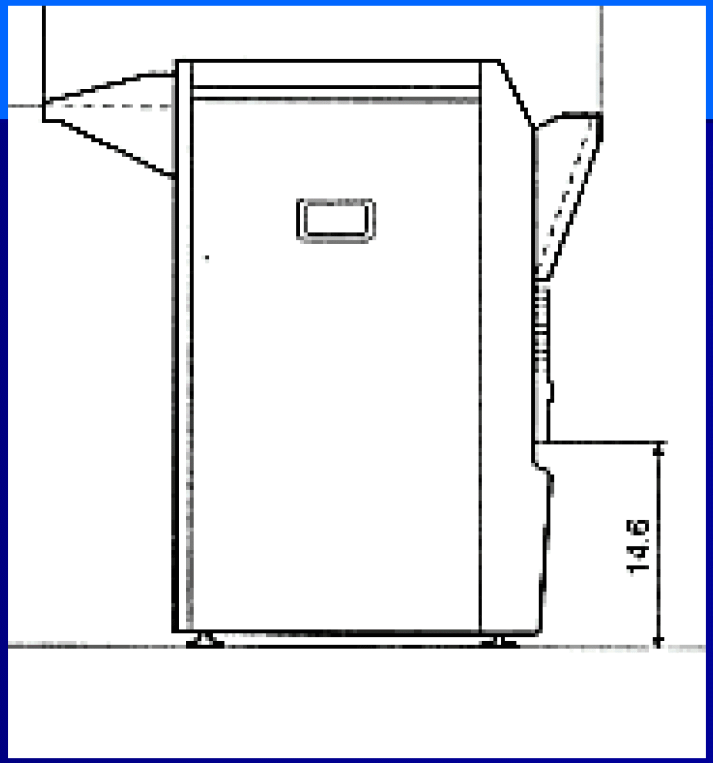
- DEVELOPER
- FIXER
- WASH
- DRY

LOAD CASSETTE





BASIC COMPONENTS OF AUTOMATIC PROCESSOR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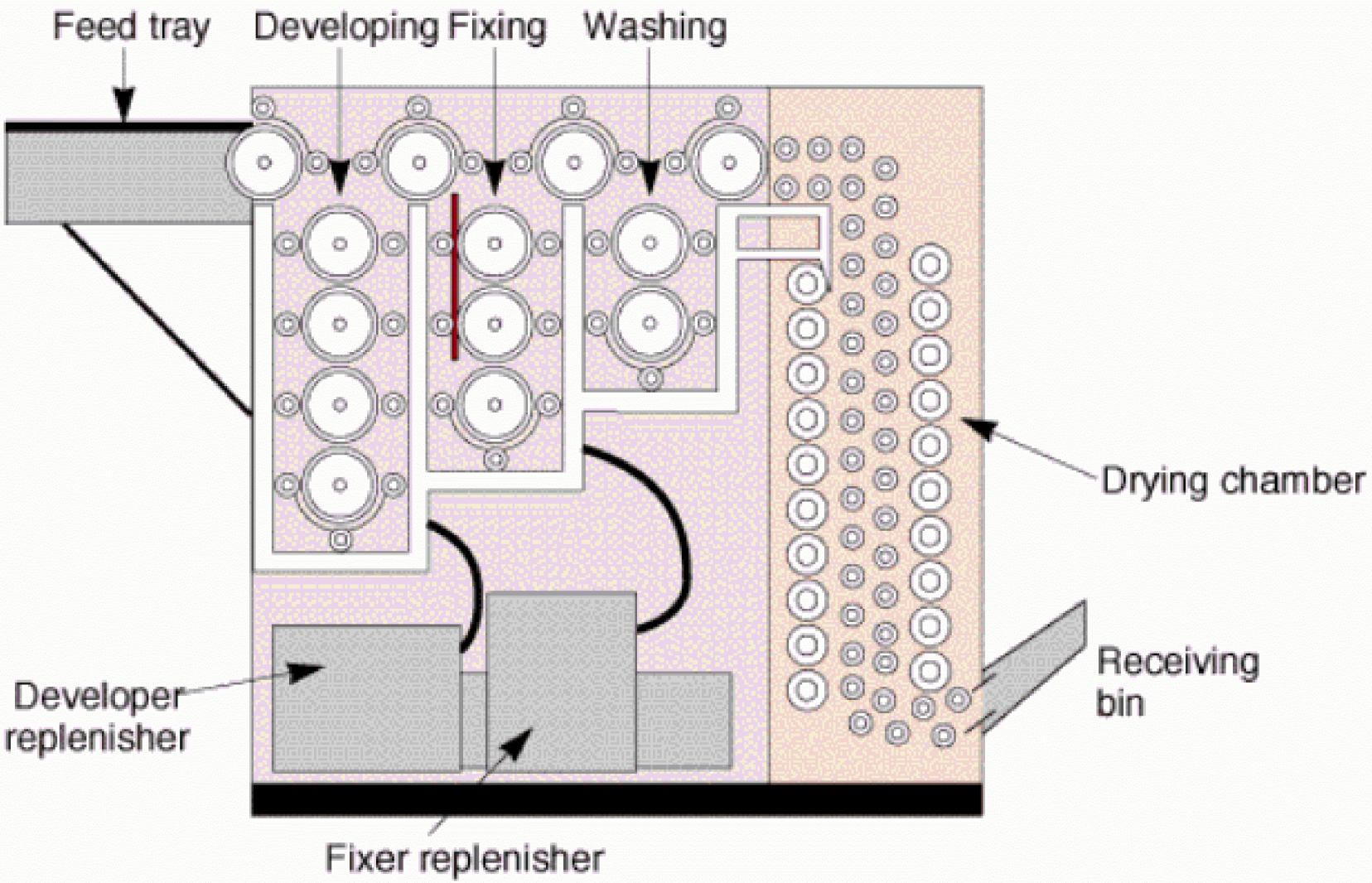


AUTOMATIC PROCESSOR

Film Storage Considerations

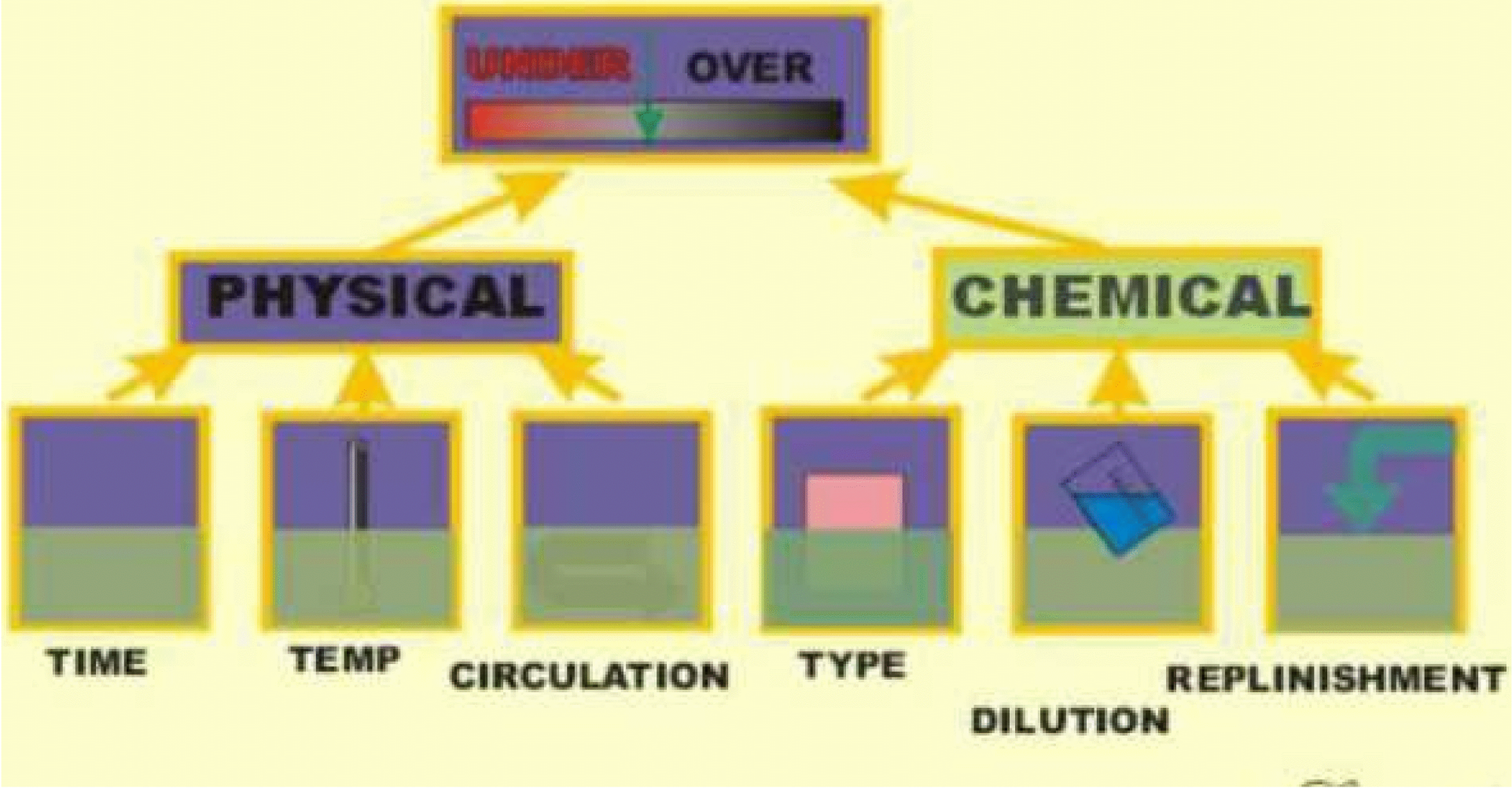
- Temperature
- Humidity
- Light
- Radiation
- Shelf life
- Storage position
- Handling

- Stored on end prevents what type of artifact
- Check expiration

- DEVELOPER
- FIXER
- WASH
- DRY

- WATER - SOLVENT

FACTORS AFFECTING PROCESSING LEVEL



Silver recovery

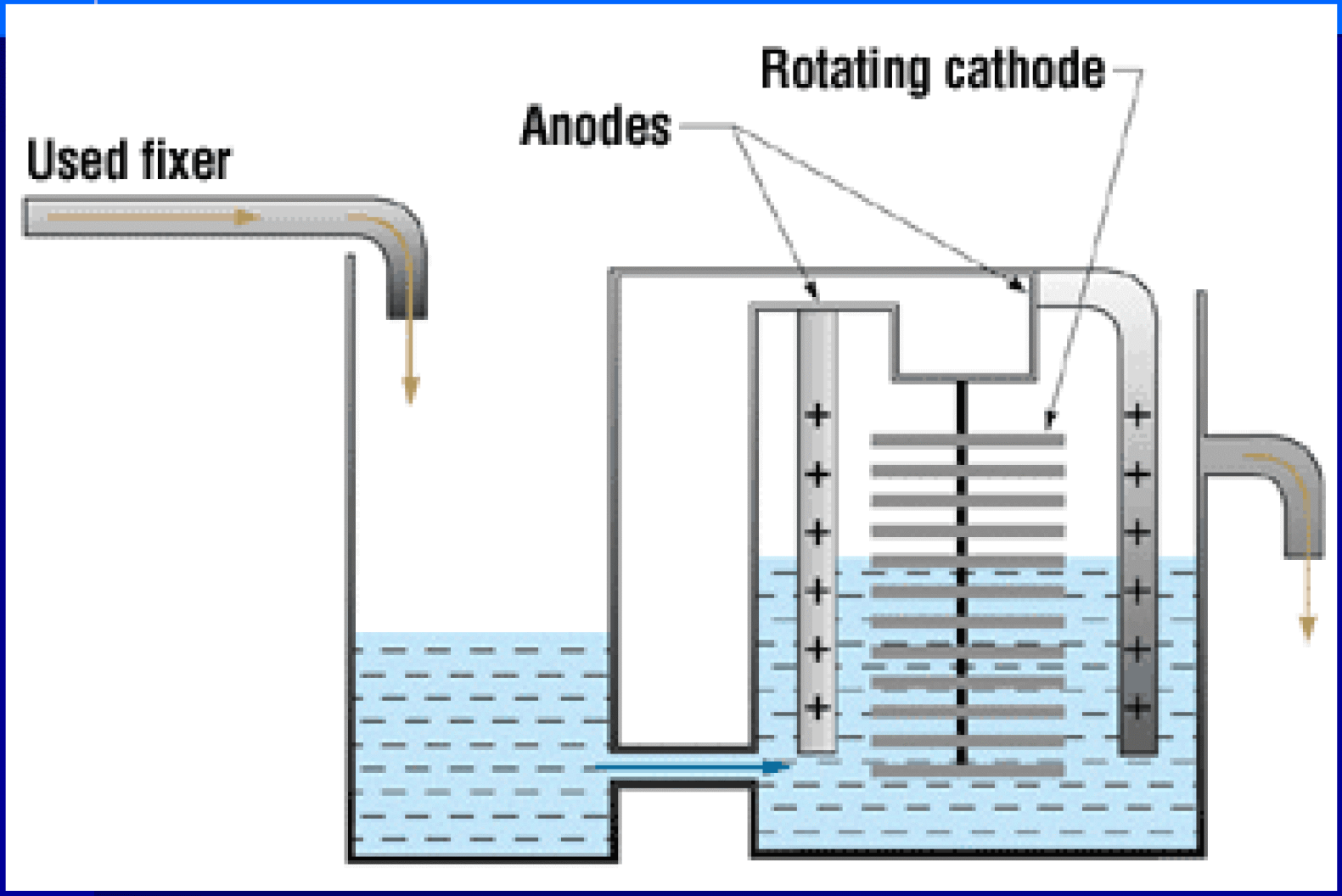
silver recovery- see notes

- A final consideration in film processing is *silver recovery*.
- This term is the process by which silver in the processing chemicals is reclaimed and recycled by a unit, such as the one shown in the illustration.
- This recycling is important for two reasons.
- Silver has economic value in its recycled form and helps recover some of the cost of the unexposed film, which is expensive, in part, because of the silver in it.
- Secondly, federal regulations require that heavy metals like silver be reclaimed from waste solutions before they are disposed of, to prevent pollution of the environment.

Roughly half the silver in the film ends up dissolved in the fixer in the automatic processor. Different kinds of silver recovery units are used to process the used fixer to recover the silver.

List the 3 types of silver recovery systems

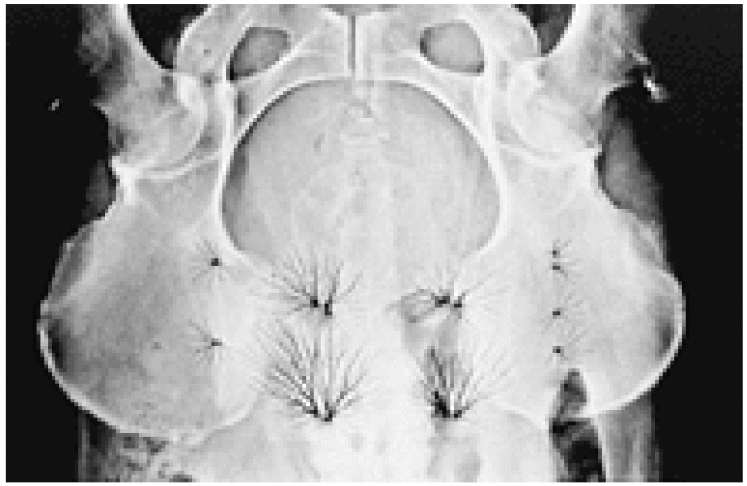
Metallic, Electyolytic & Chemical



Film and Image Artifacts

Guide-shoe marks

Curtain effect



Tree static

Artifacts - Types

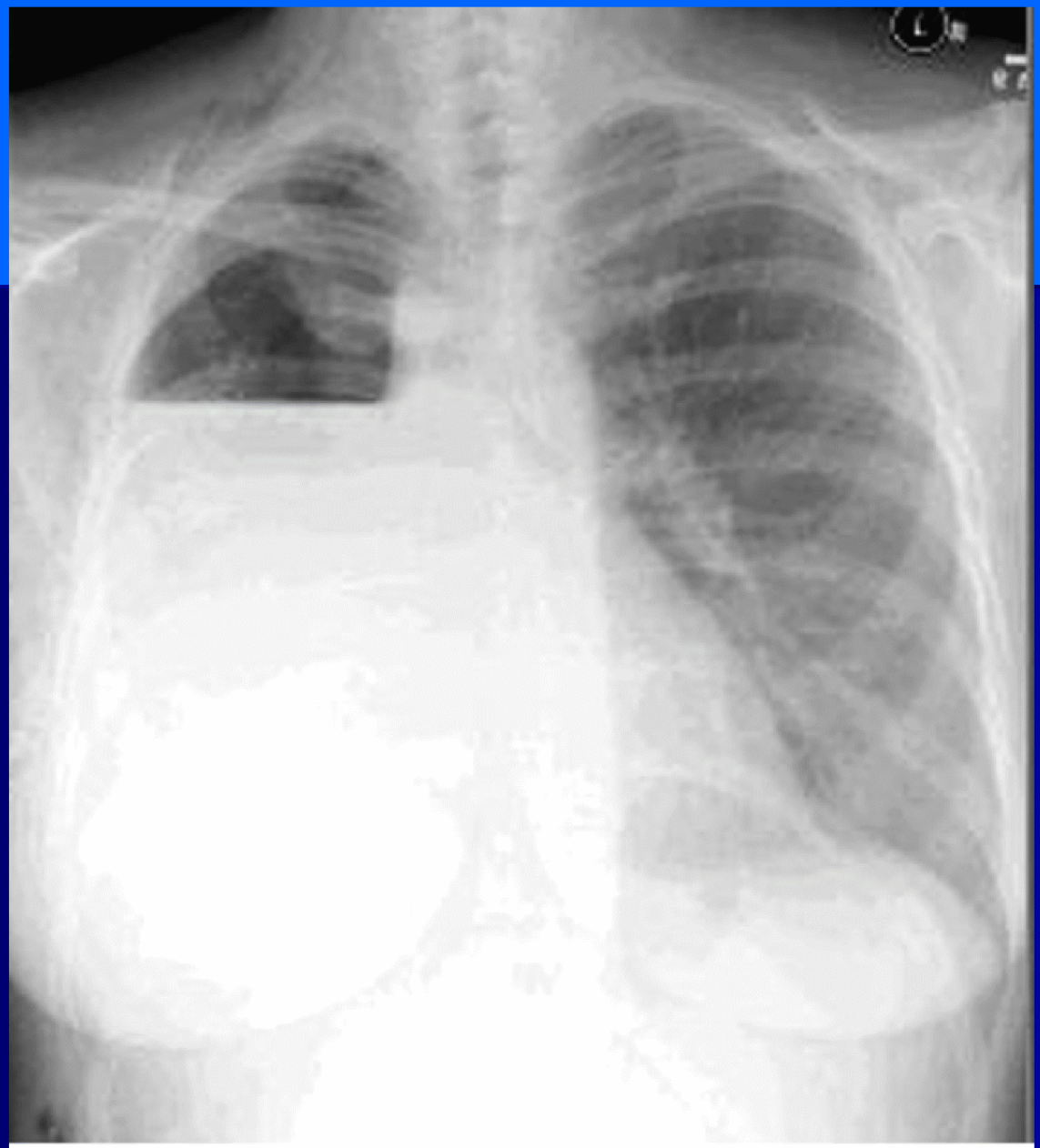
- Processing Artifacts
- Exposure Artifacts
- Handling & Storage Artifacts

Exposure Artifacts

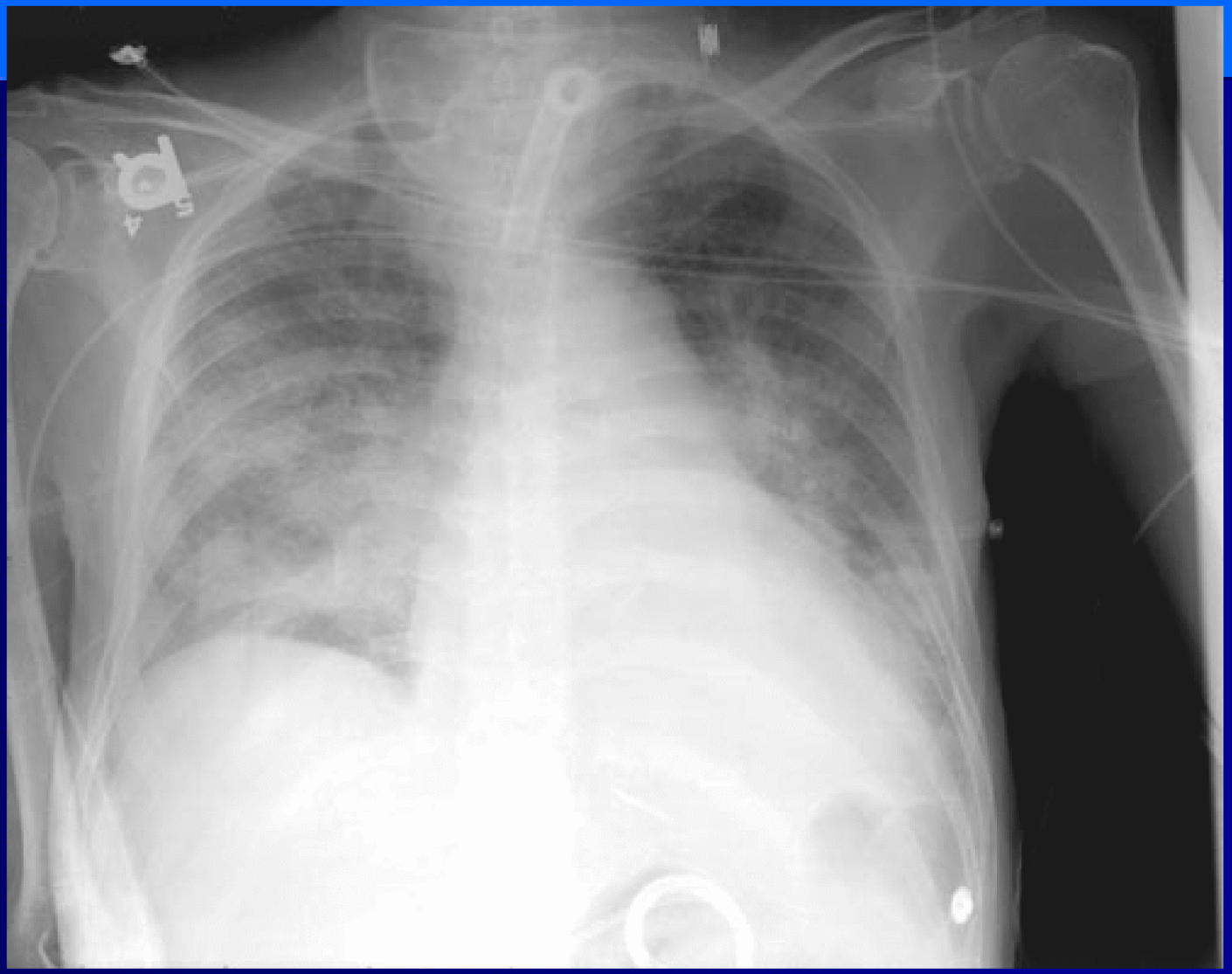
- Motion
- Improper patient position
- Wrong screen-film match
- Poor film/screen contact
- Double exposure
- Warped cassette
- Improper grid position

PATHOLOGY

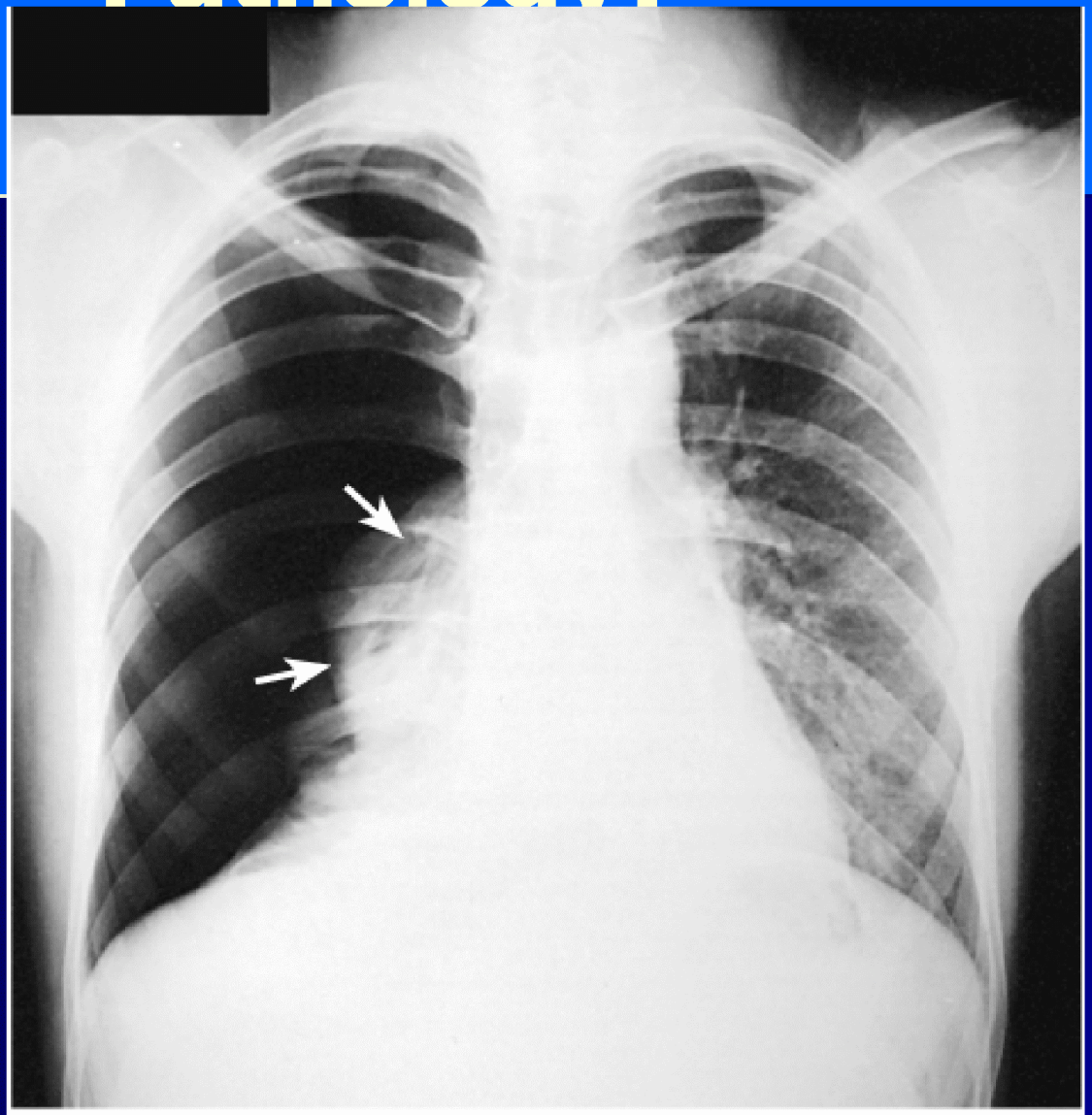
?



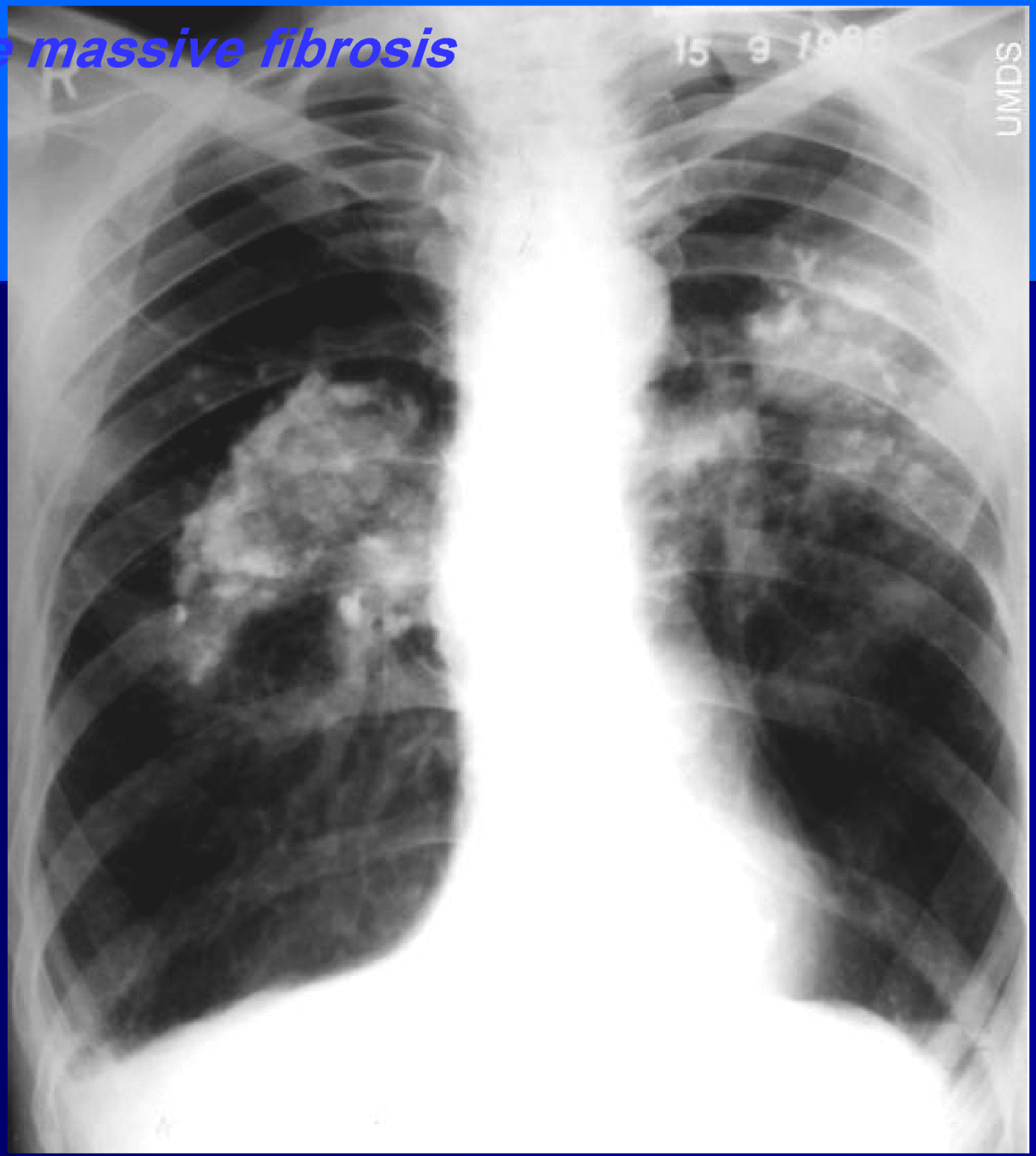
pneumonia



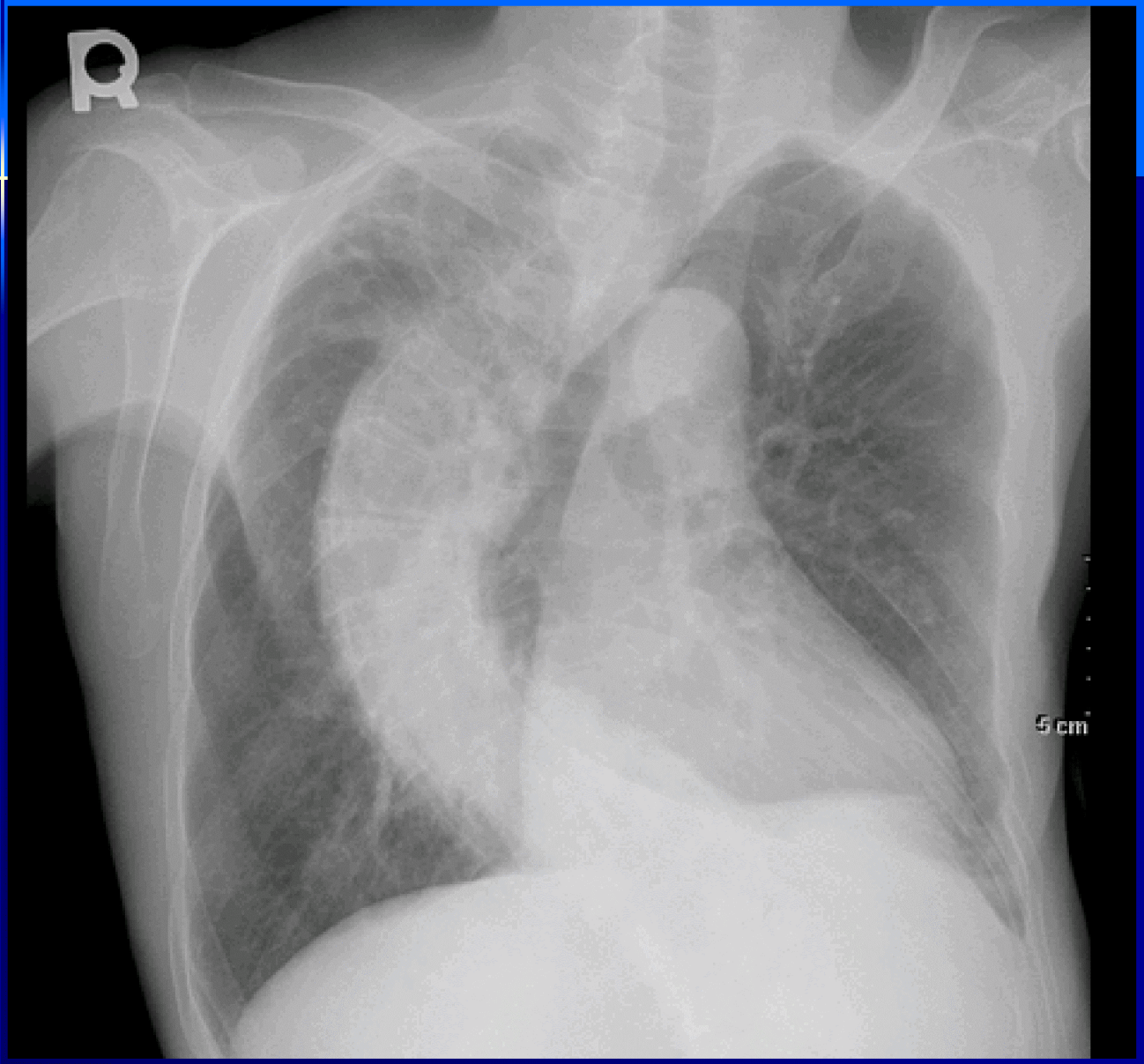
Pathology?



Progressive massive fibrosis



SCOLIOSIS



BLUR CAUSED BY PATIENT MOVEMENT

POOR
DETAIL

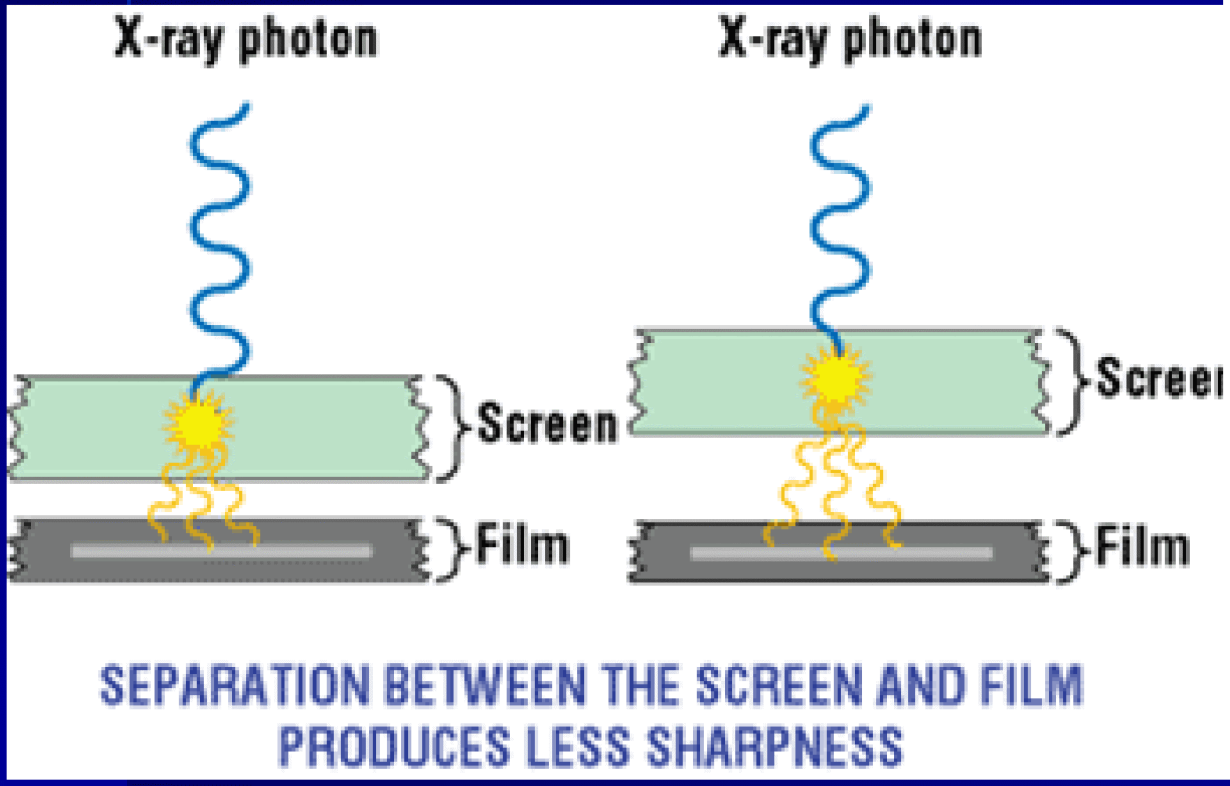
GOOD
DETAIL

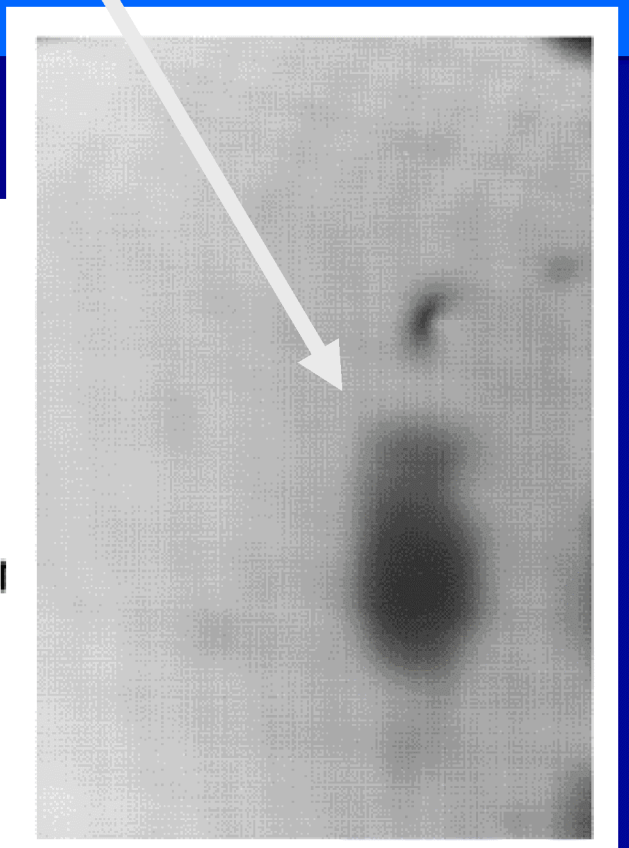
Lack of contact between film and cassette can cause “blurring” of the image

Good film-screen contact

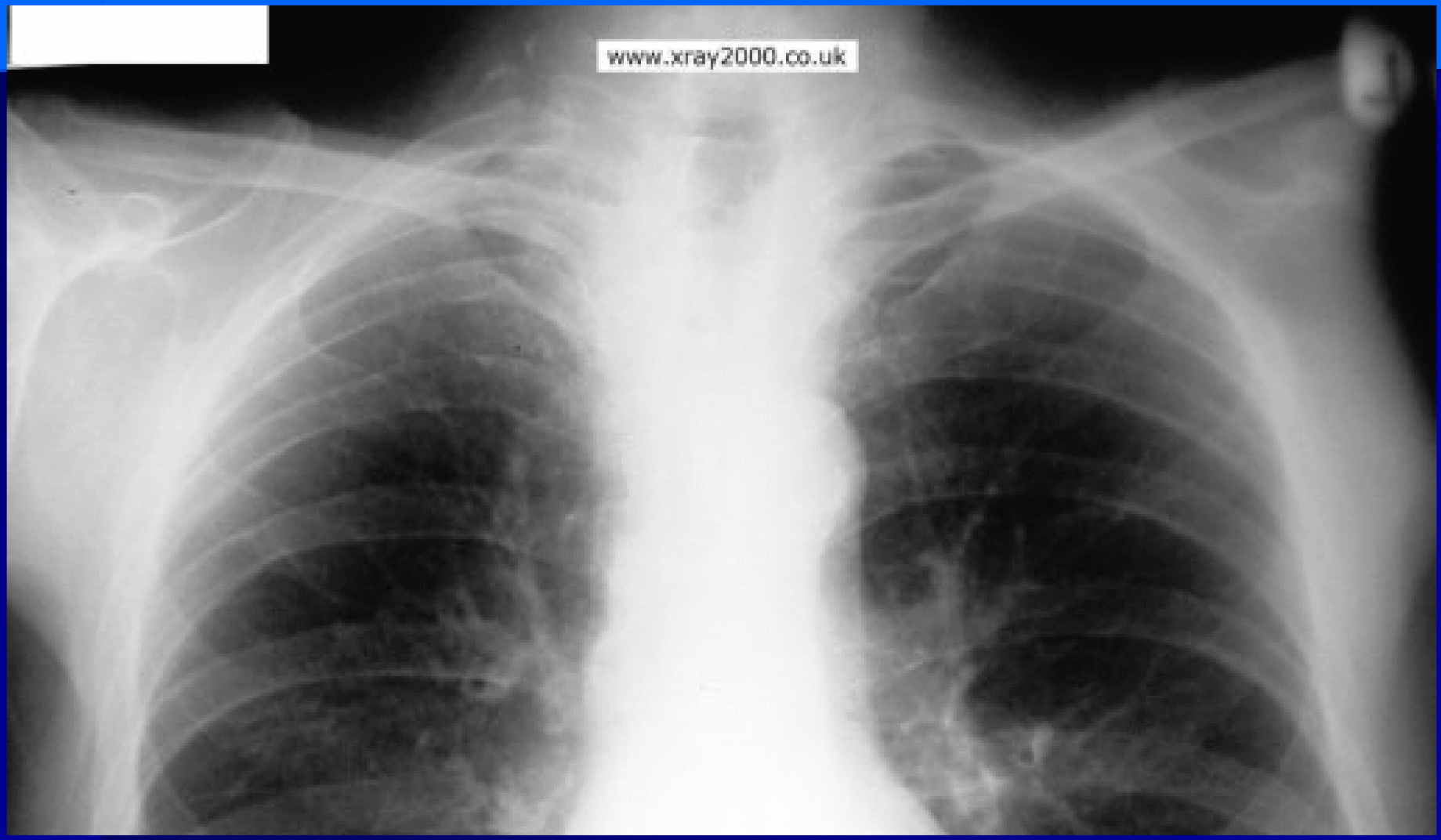
Blur caused by poor film-screen contact

When there is a space between the contact of the film to the intensifying screens, a larger amount of light is allowed to reach the film – causing "more density" on fim





POOR SCREEN CONTACT



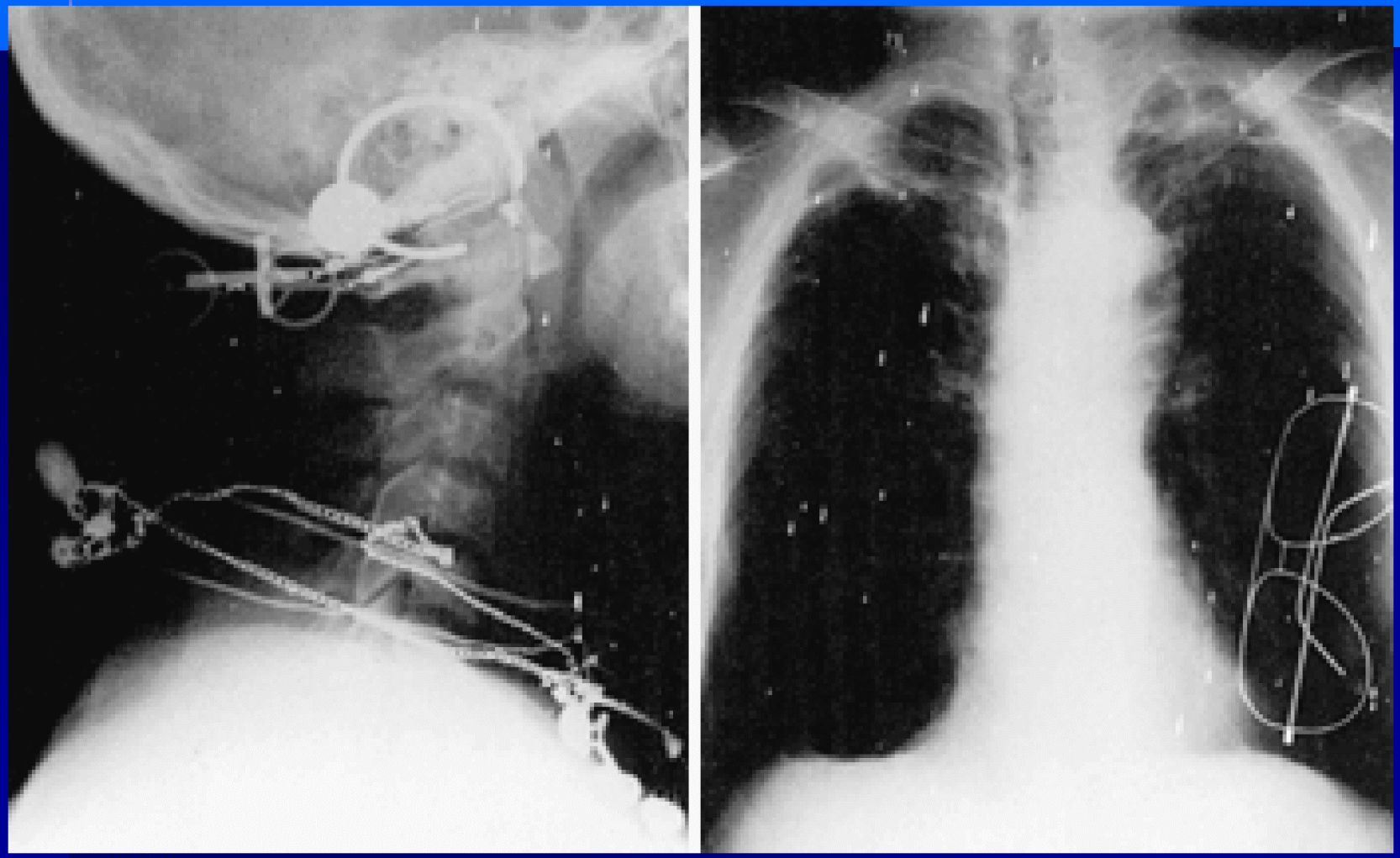
Patient motion

Blurring of image due to patient movement during exposure.

SHARPNESS

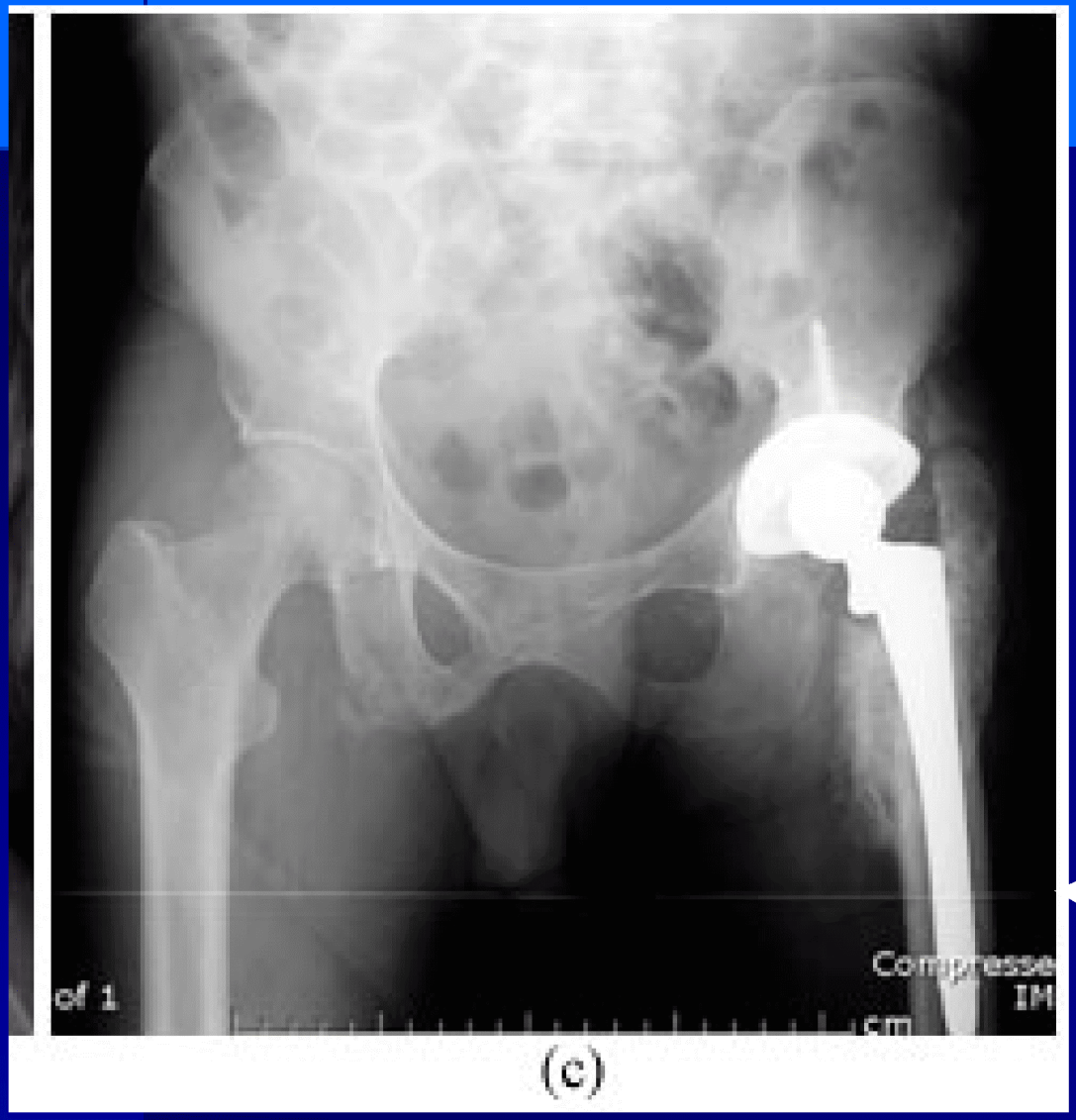
UNSHARPNESS
(FOCAL SPOT)

Artifact

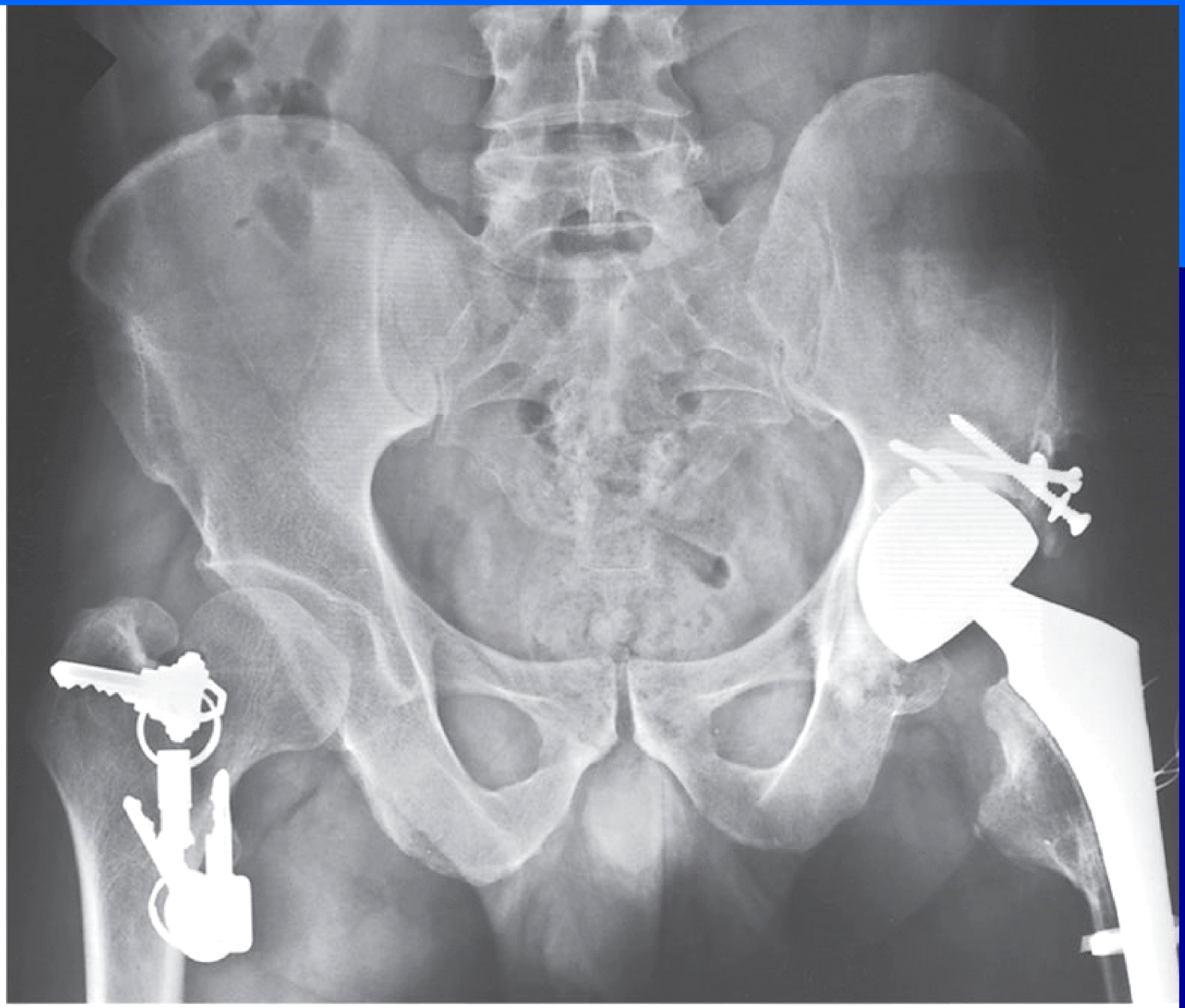


CR image – NEW IMAGE

- Line caused from dirt collected in a CR Reader



(c)



B

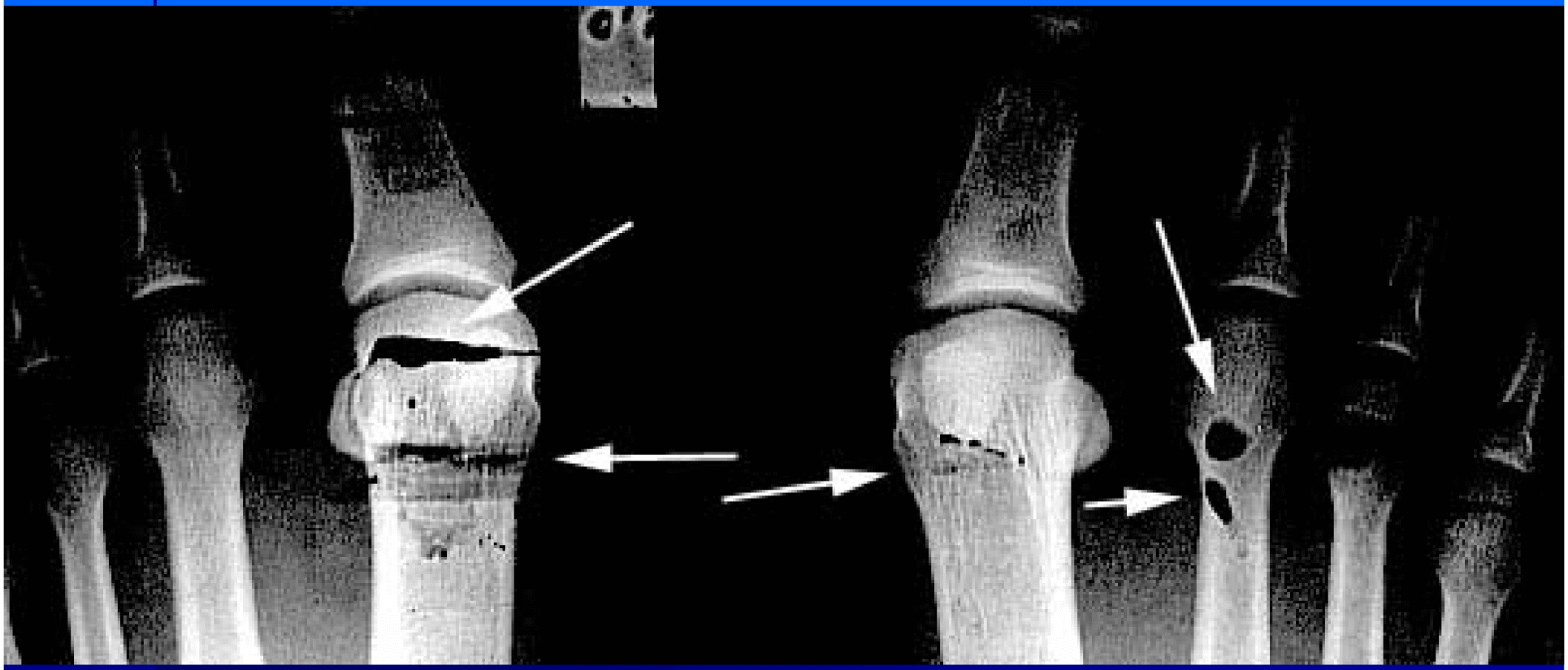
Patient swallowed batteries

What size are they?

cast

Processing Artifacts

- Emulsion pickoff
- Chemical fog
- Guide-shoe marks
- Water marks
- Chemical spots
- Guide-shoe & roller scratches



Developer Spots

Water spot

Discolored film due to hypo (fixer) retention.

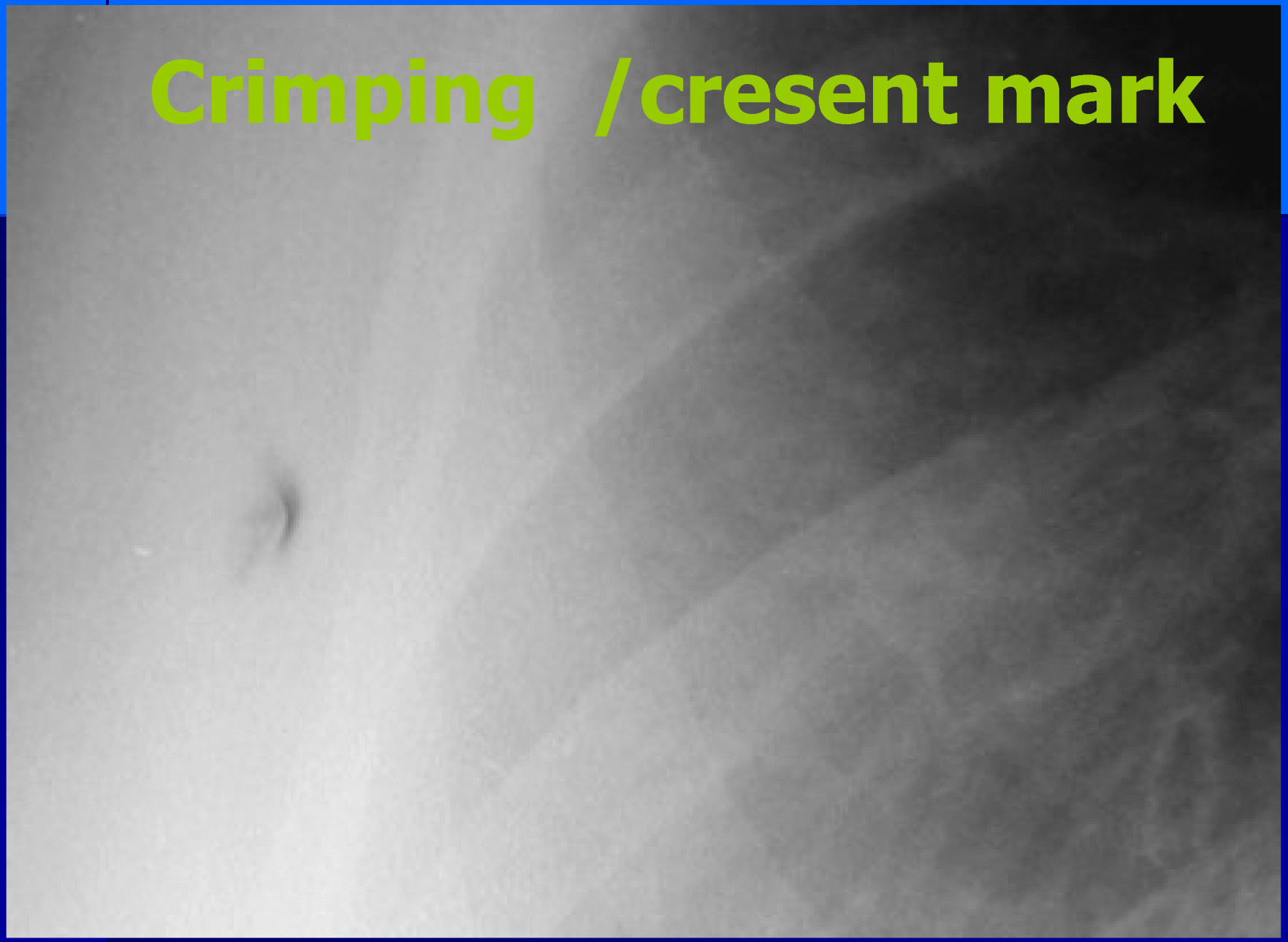
Chemicals not washed off – over time will turn film brown

Scratch marks from rollers in automatic processor.

Handling & Storage Artifacts

- Light fog
- Radiation fog
- Static
- Kink marks
- Scratches
- Dirty cassettes

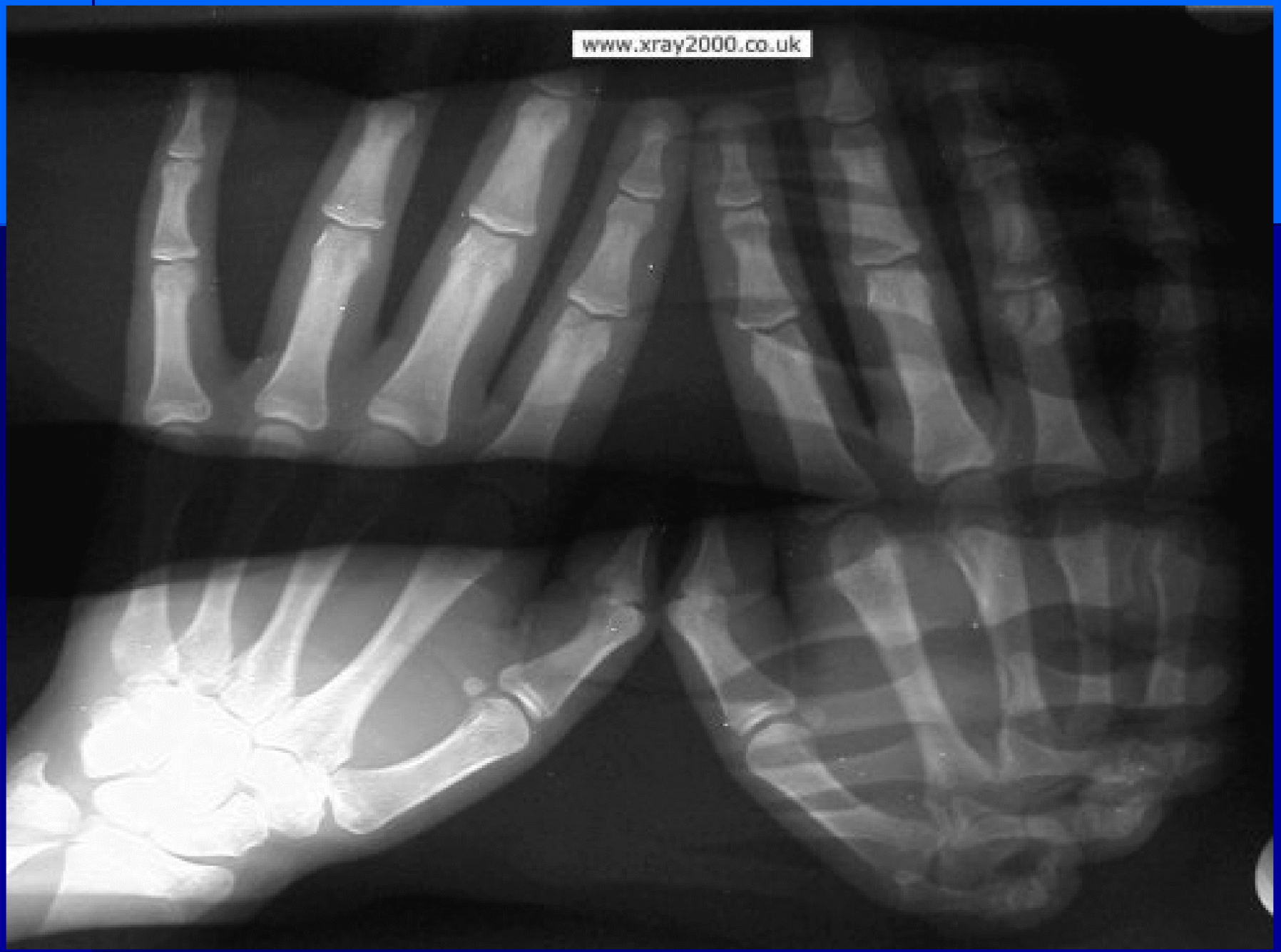
Crimping /cresent mark

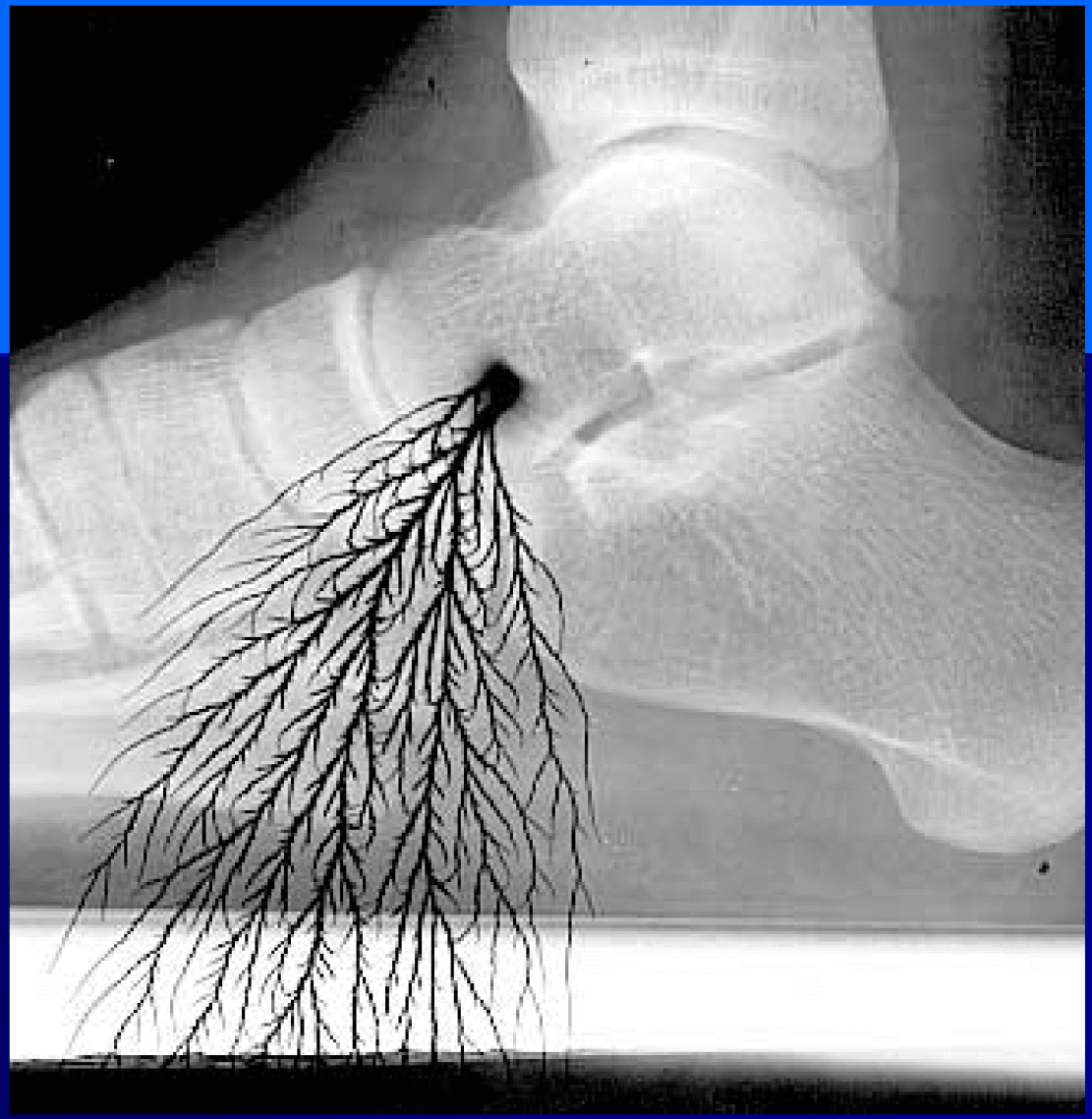


Double Exposure

2 exposures made on top of each other –

from poor handling of cassettes


www.xray2000.co.uk



Type and cause?

Dirt on screen mimicking a foreign object.

Scratch marks from improper handling.

Light fog

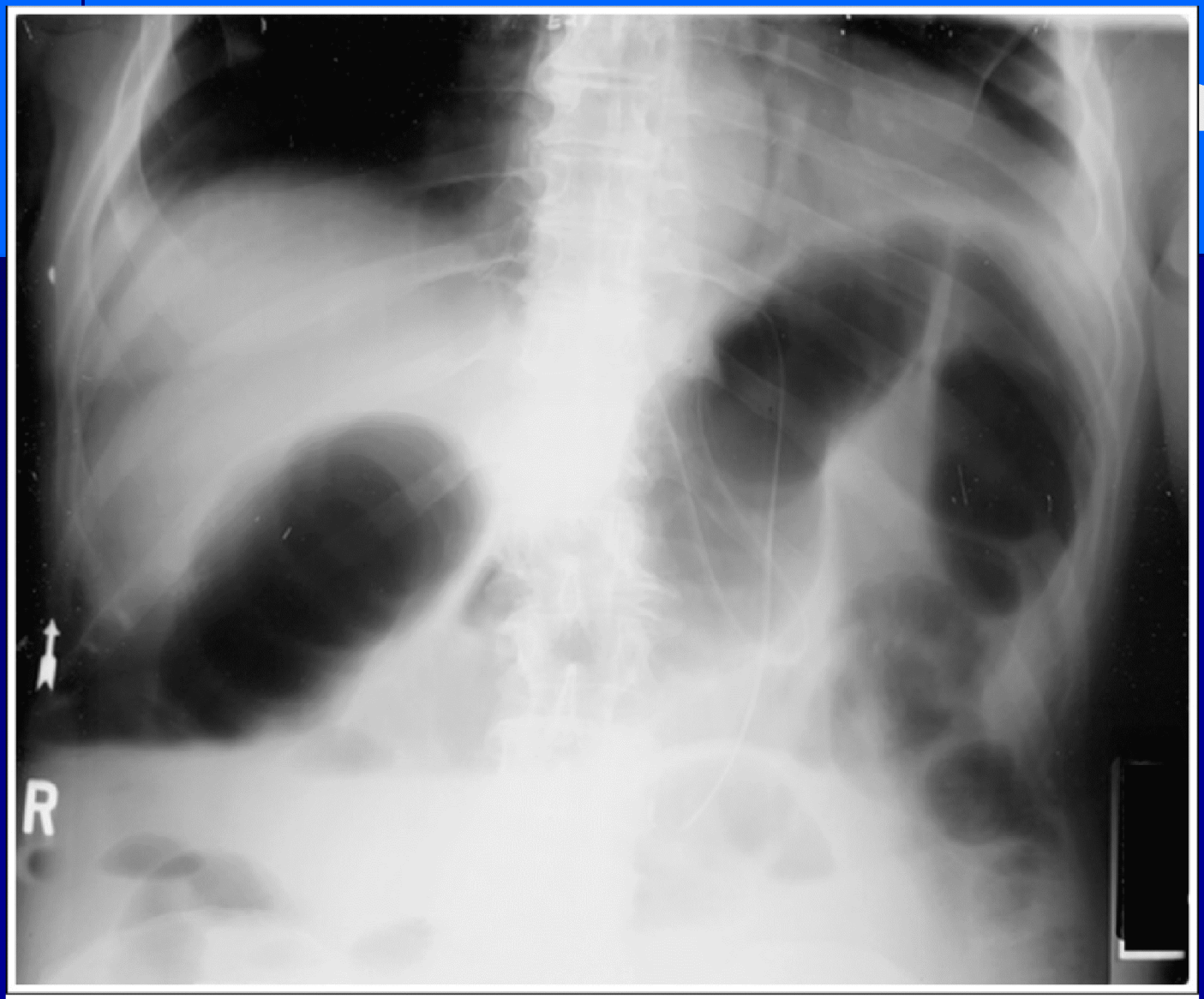
Vs

Radiation fog

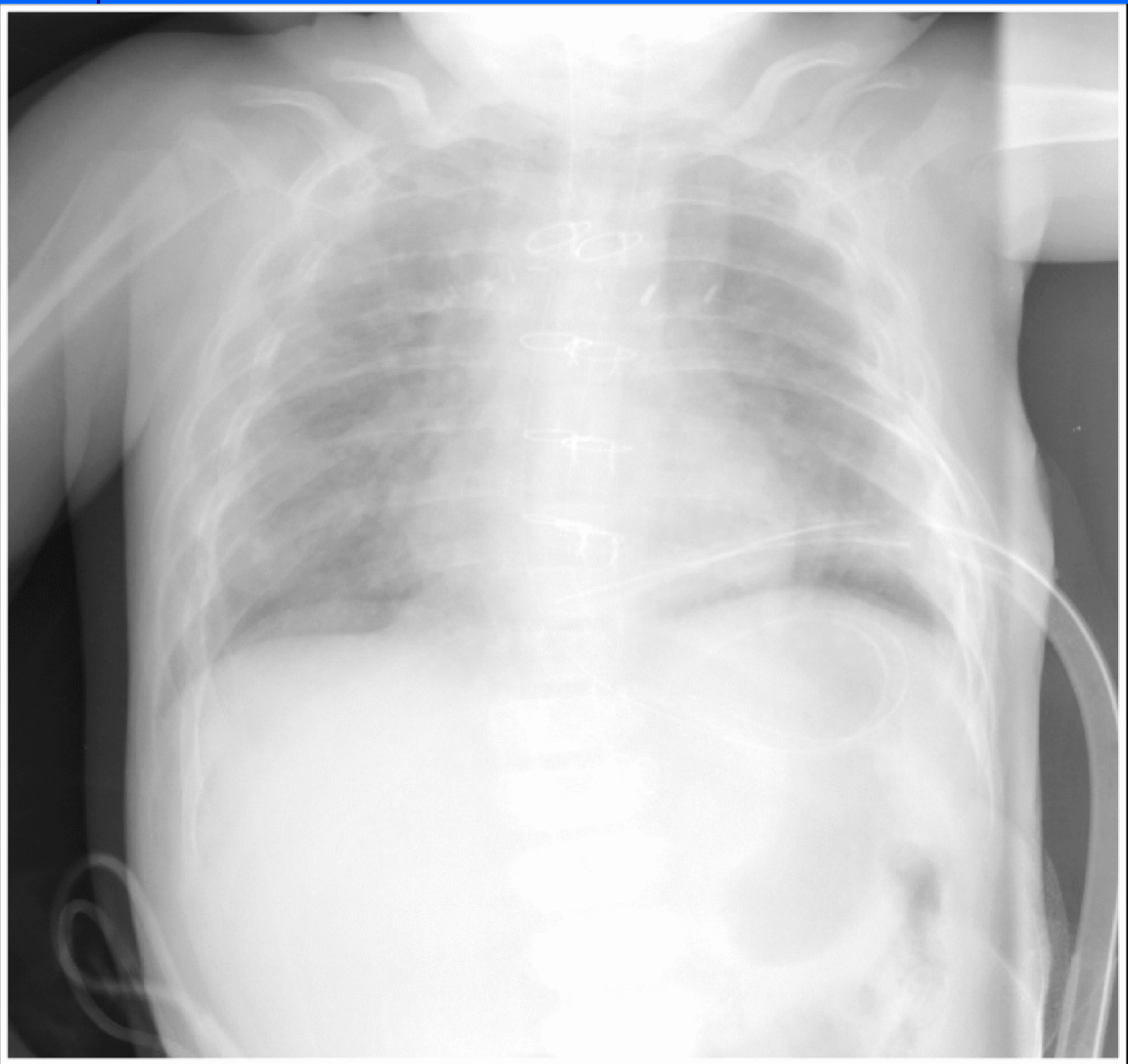
HOW can you tell the difference on a film/ cassette?

Kink mark or nail pressure mark

notion

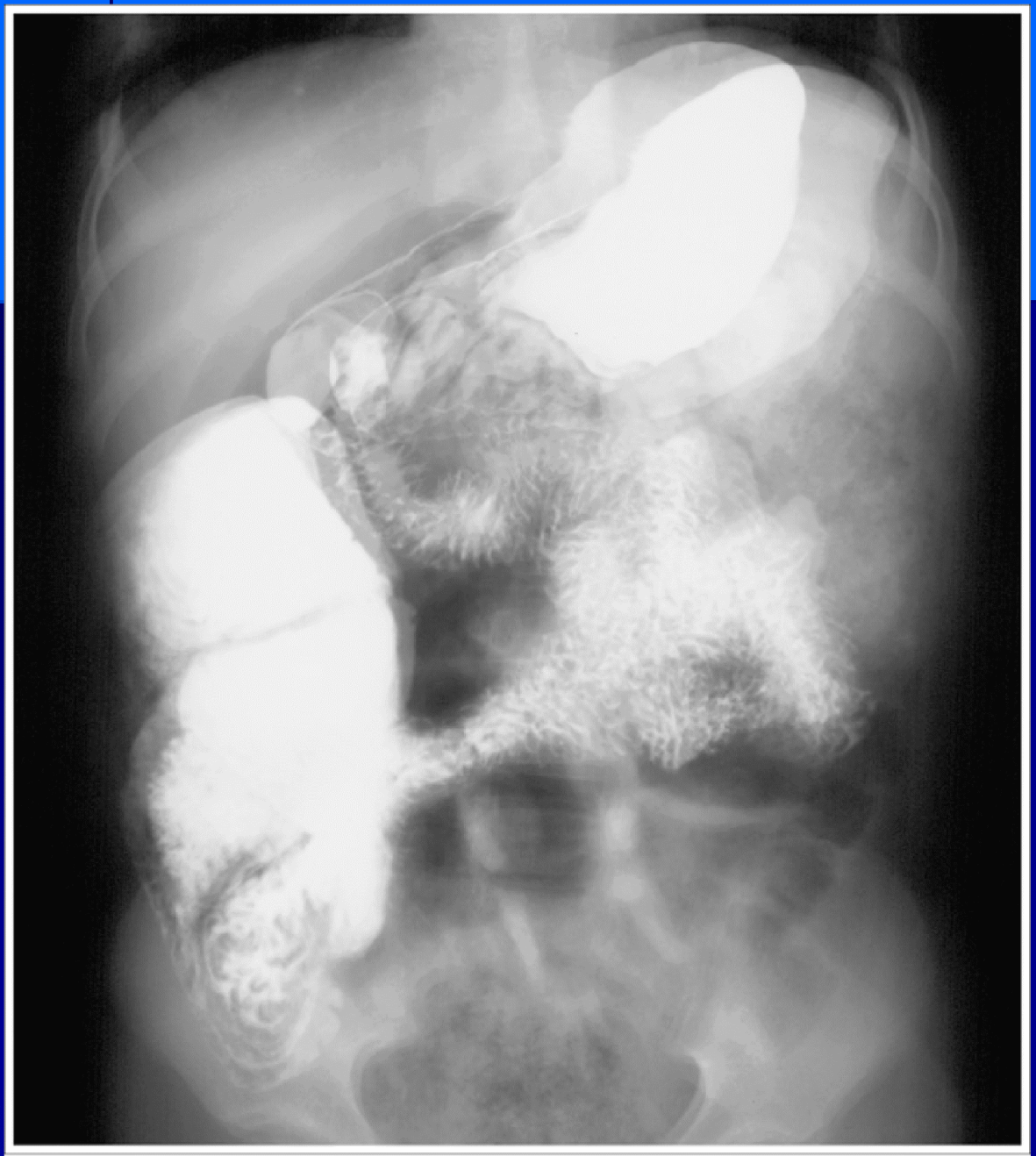


Double exposure Child



Poor screen contact

Double exposure



Exposure Artifacts

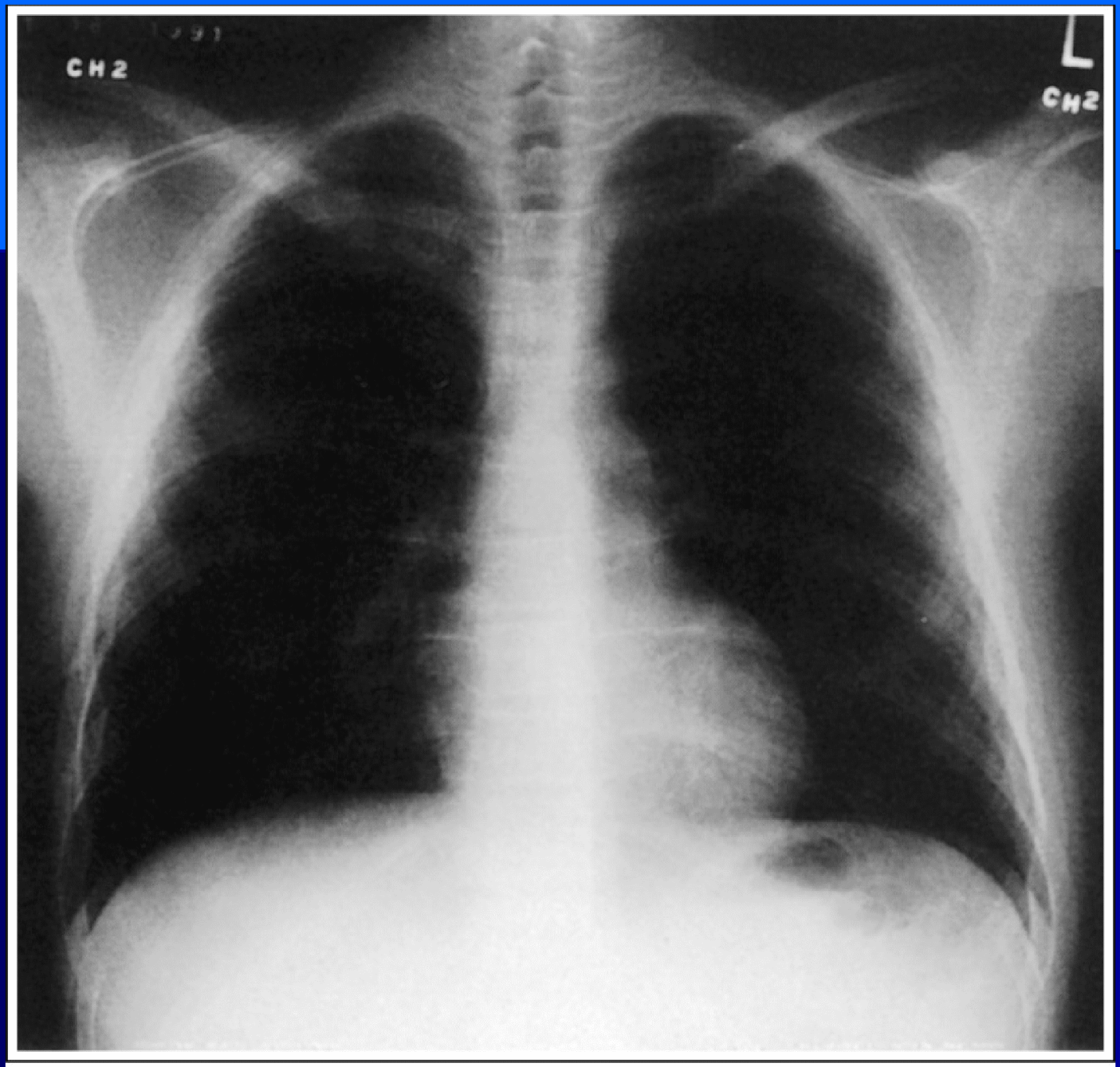
- Could be corrected before exposure =

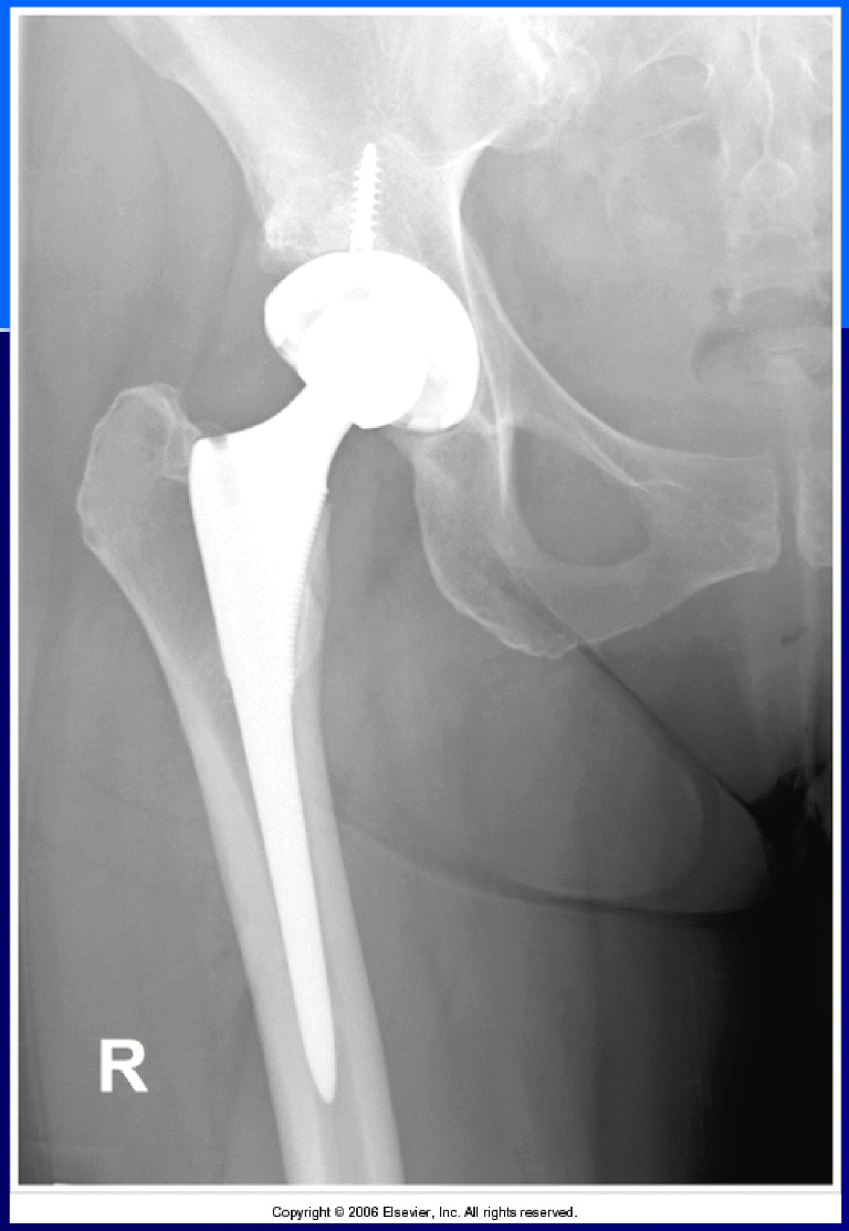
- Jewelry
- Hands in the anatomy
- Something on the patient

?

Hands over upper abdomen

Is it motion or double exposure?





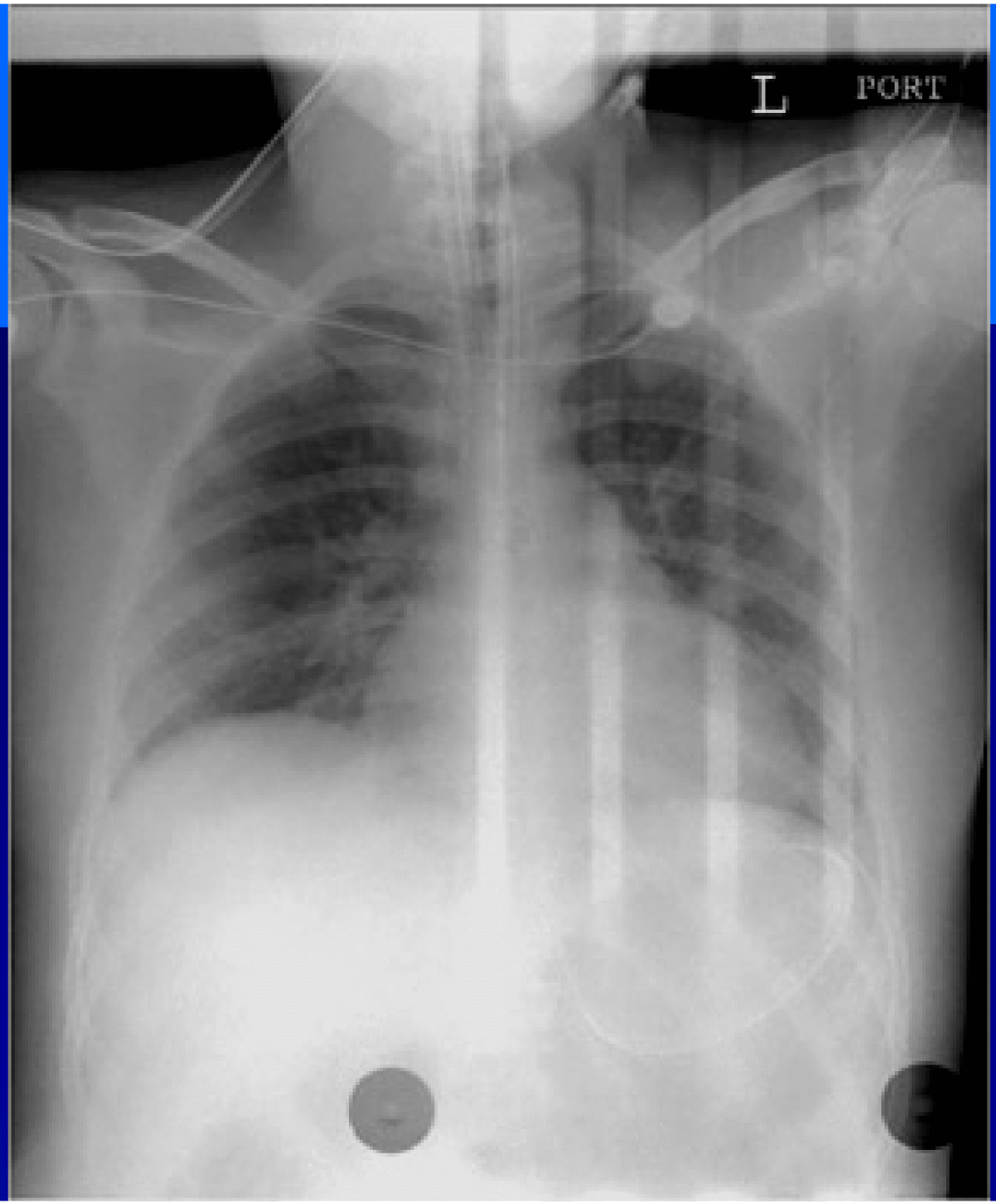
Hip replacement

PATHOLOGY NOT ARTIFACT

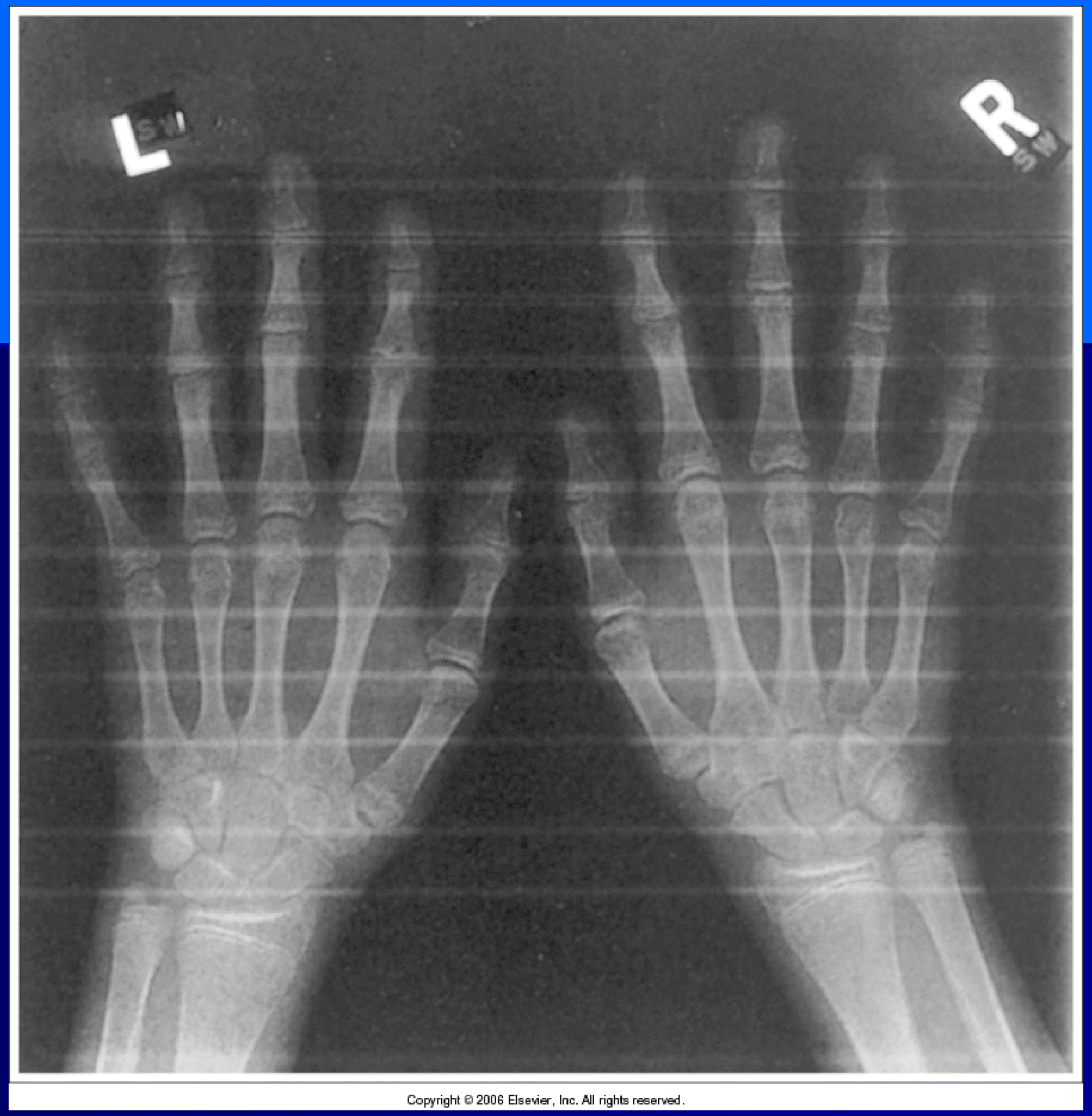
Name & cause of this?

scratches

Pacemaker

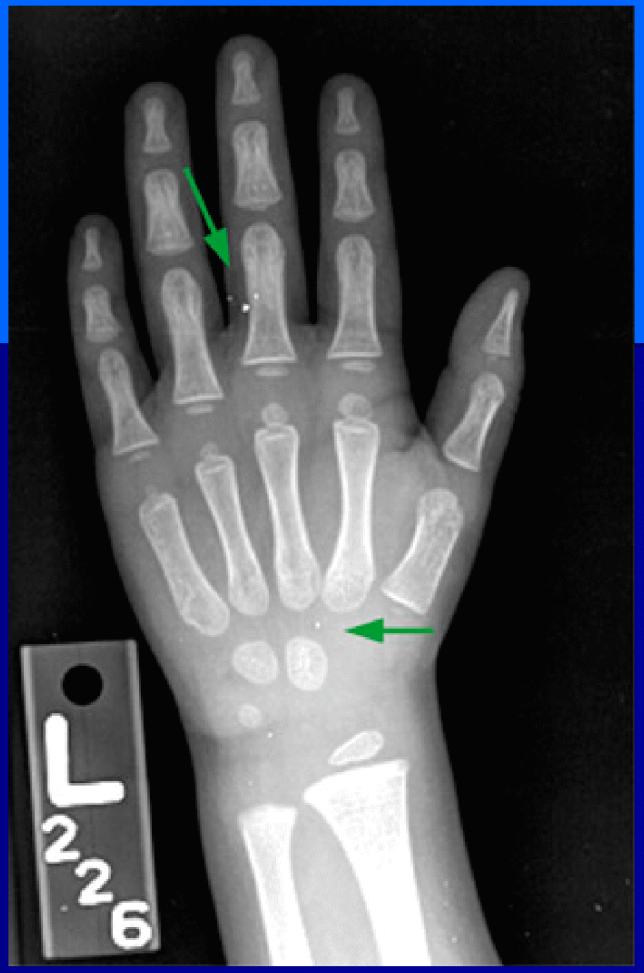


Digital image Mis-Registrationi error



Roller marks from film stuck –

then pulled from processor



- Dust in imaging plate can cause white marks on image
  –
- Both in film/screen and computed radiography

- Does this show good detail?
- Is all of the anatomy present?
- How is the density / contrast?