SNS COLLEGE OF ALLIED HEALTH SCIENCES

SNS Kalvi Nagar, Coimbatore - 35

Affiliated to Dr MGR Medical University, Chennai

DEPARTMENT OF RADIOGRAPHY AND IMAGING TECHNOLOGY

COURSE NAME : CONTRAST AND SPECIAL RADIOGRAPHY PROCEDURES

II YEAR

UNIT : 2

TOPIC : OPERATION THEATRE RADIOGRAPHY

INTRODUCTION

Operation Theatre radiography is required during the operation.The theatre radiography guides the surgeons to carry out accurate surgery of the patient.Orthopedic surgeons need to use mobile X-rays or mobile C-arm to check for proper reduction of fractures in OT.The procedure is commonly performed in dislocation of the Hip,fracture of the femur and other corrective orthopedic surgery.The general surgeons,neuro surgeons and urology surgeons need imaging facilities for stone extraction,nephrostomy,retrograde pyelography,cholangiography,arteriography and aortography.The mobile,portable X-ray units,C-arm,modern mobile digital image intensifiers are used for theatre radiography.

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GENERAL GUIDELINES

- After receiving the OT radiography requisition form,the radiographer should communicate with the theatre staff and ensure that the correct X-ray unit and accessory should be available in OT for the examination.
- To prevent the spread of infection in the opertion theatre,the mobile,C arm X-ray units and cassettes should clean with antiseptic solution before moving into infection controlled OT.After completion of the theatre radiographic examination,the equipment should be cleaned again with the antiseptic solution.
- To reduce the risk of transmitting pathogens in the OT,the cassettes must be covered with plastic sheets or sterile towels and the radiographers should remove their uniforms and wear gowns,disposble gloves and facemasks.
- The radiographers should introduce themselves to the surgeon and take the necessary guidance for the procedure.

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- The radiograophers should not stand too close to a staff member and do not touch the sterile area of the operation table.
- If the image intensifier is used in the theatre radiogaraphy,the radiographer should test the unit and check the hard drive space before the examination.The mobile image intensifier is used to capture the real-time images to assist the surgeon in positioning the guide wire in orthopedic procedures.The digital images must be captured in a sequence so the surgeon can view the image and assess the surgical procedure.
- The X-ray units should be covered with plastic coverings to reduce blood contamination during the surgical procedures,and the X-ray units should carefully push over a patient without touching the sterile area.The radiographers do not handle the sterile objects. The surgeons or the scrubbed nurse gives the position during the procedure.

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- Clear instruction is made by the radiographer before the exposure.the staff must stand at a maximum distance from the X-ray tube,and nobody should enter the controlled area during the exposure.
- If manual processing is used,the darkroom facility should be housed in OT.The processing solutions must be tested by the radiographer prior to the film processing.The radiographer should not move out from OT.The film is processed inside the OT darkroom.After film processing,the film is brought back to the surgeon to evaluate te operation.

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RADIATION PROTECTION

Various precations and safety measures are used to reduce the radiation dose to the technologists and other persons in the OT.

- The examination should be justified - the exposure should be as low as reasonably achievable.(**ALARA**)
- Three basic ,methods for reducing exposure
  - Minimize exposure time
  - Maximize distance from the X-ray tube
  - Use proper shielding.
- The exposure cable must be 2m long to allow the radiographer to stand distant from the irradiated patient.The staff must stand at a maximum distance from the X-ray tube,and nobody should enter the controlled area during the exposure.

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- The radio technologists,OT staff and sugeons should protect themselves with a lead apron (.25mm lead equivalent) and lead gloves.
- The radio technologists should use personnel monitoring devices and stand at a right angle to the tube.
- The radio technologists should use correct exposure factors.The exposure factors should be recorded to avoid repeat exposure.The radio technologists must use high kV,low mAs shortest exposure time,and collimated radiation field size.
- The other OT staff should stand outside the radiation field,and pregnant women and people under 18 years should not involve in assisting.
- High-speed screen -film combinations should be used to reduce the exposure and exposure time.

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