COURSE: Radiographic Procedures III (RAD 228)
SEMESTER: Fall 2014
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WEEK #7

I. SINUSES
A. OBJECTIVES
1. Identify the anatomy of the sinuses on diagrams and radiographs.
2. List the general requirements for sinus radiography.
3. Describe the routine positions employed for radiography of the sinuses.

B. GENERAL REQUIREMENTS
1. Moving or stationary grid must be used
2. 75 - 85 kvp range
3. 40” SID
4. Wipe radiographic unit with appropriate solution.
5. Ask patient pertinent questions including pregnancy possibility
6. Ask patient to remove items which may appear on images. These include but are not limited to removable teeth, hair barrettes, bobby pins, hair pieces, earrings, necklaces.
7. Use small focal spot size for increased recorded detail
8. Exam should be performed erect to demonstrate air/fluid
9. Shield all patients
10. Suspend respiration for exposure

C. ROUTINE POSITIONS FOR SINUSES
1. LATERAL (RIGHT OR LEFT)
   A. 10 X 12 image receptor (IR) placed lengthwise to body part.
   B. Marker placed anteriorly near mandibular region. "R" marker is used for right lateral and "L" for left lateral.
   C. Place side of interest closest to the image receptor in a true lateral position; position of body is oblique for comfort.
      Example: Right lateral skull = RAO body position
               Left lateral skull = LAO body position
   D. Central ray is directed perpendicular to a point midway between the outer canthus and EAM. (@1" posterior and inferior to the outer canthus)
   E. Collimate to demonstrate a 1" border or more on four sides.
   F. MSP is placed parallel to the image receptor.
   G. IPL is placed perpendicular to the image receptor.
   H. IOML is placed parallel to the image receptor.

2. PA (CALDWELL)
   A. 10 x 12 IR placed lengthwise to body part.
   B. "L" marker placed in collimation.
   C. Rest patient’s forehead and nose on erect head unit.
   D. Central ray is directed perpendicular to exit the nasion.
   E. Collimate to demonstrate a 1” border on four sides.
   F. OML forms a 15 degree angle to the image receptor.
   G. MSP is placed perpendicular to the image receptor.
3. PARIETOACANTHIAL (WATERS)
A. 10 x 12 IR placed lengthwise to body part.
B. "L" marker placed superiorly in collimated field.
C. Rest patient's chin and nose on erect head unit.
D. Central ray is directed perpendicular to exit the acanthion.
E. Collimate to demonstrate a 1" border or more on four sides.
F. MML is placed perpendicular to the image receptor.
G. MSP is placed perpendicular to the image receptor.
H. OML forms a 37 degree angle with the image receptor.

NOTE: Facial features may prevent nose and chin placement, and MML relationship with the image receptor.

4. OPEN MOUTH PARIETOACANTHIAL (WATERS)
A. 10 x 12 IR placed lengthwise to body part.
B. "L" marker placed in collimation.
C. Rest patient's chin and nose on erect head unit, extend neck placing MML perpendicular to image receptor.
D. OML forms a 37 degree angle with the image receptor.
E. Central ray is directed perpendicular to exit the acanthion.
F. Collimate to demonstrate a 1" + border or more on four sides.
G. Ask patient to open their mouth without moving their head. MML is no longer perpendicular to IR.

5. SUBMENTOVERTEX (FULL BASAL)
A. 10 x 12 IR placed lengthwise to body part.
B. "R" marker placed in collimation.
C. Extend patient's chin to rest vertex on erect head unit, placing IOML parallel to image receptor.
D. Central ray is directed perpendicular to a point @1.5" – 2" below the mandibular symphysis and midway between the mandibular angles.
E. Collimate to demonstrate a 1" + border on four sides.
G. MSP is placed perpendicular to the image receptor.

*NOTE:* The central ray is directed perpendicular to the IOML. If the patient cannot hyperextend their neck, then direct the central ray cephalad to remain perpendicular to the IOML.
WEEK #8

I. SKULL NON-TRAUMA
A. OBJECTIVES
1. Identify the anatomy of the cranium on diagrams and radiographs.
2. List the general requirements for trauma and non-trauma radiography.
3. Describe the routine positions employed for trauma and non-trauma radiography of the cranium.

B. GENERAL REQUIREMENTS SKULL NON-TRAUMA
1. Moving or stationary grid must be used
2. 80 - 85 kvp range
3. 40" SID, 36" SID with head unit
4. Wipe radiographic unit with appropriate solution.
5. Ask patient pertinent questions including pregnancy possibility
6. Ask patient to remove items which may appear on images. These include but are not limited to removable teeth, hair barrettes, bobby pins, hair pieces, earrings, necklaces.
7. Use small focal spot size for increased recorded detail
8. Suspend respiration for exposure

ROUTINE PROCEDURES
1. LATERAL (RIGHT OR LEFT)
   A. 10 X 12 IR placed crosswise to body part.
   B. Marker placed anteriorly in mandibular region. "R" marker is used for right lateral and "L" for left lateral.
   C. Place side of interest closest to the image receptor in a true lateral position; position of body is oblique for comfort. Use sponges as necessary.
      Example: Right lateral skull = RAO body position
               Left lateral skull = LAO body position
   D. Central ray is directed perpendicular 2" above EAM.
   E. Collimate to outer margin of skull, a border should be visible on four sides of the image.
   F. MSP is placed parallel to the image receptor.
   G. IPL is placed perpendicular to the image receptor.
   H. IOML is placed parallel to the image receptor.

2. PA (Caldwell)
   A. 10 x 12 IR placed lengthwise to body part.
   B. "L" marker placed in collimation.
   C. Rest patient's forehead and nose on table or erect head unit.
   D. *Central ray is directed 15 degrees caudad to exit the nasion, enters @ 1-2" superior to the inion.
   E. OML is placed perpendicular to the image receptor.
   F. MSP is placed perpendicular to the image receptor.
   *NOTE: A 23 degree caudad angulation is required if the GML is perpendicular to the cassette; an 8 degree caudad angulation is required if the IOML is perpendicular to the cassette.
   A 25 – 30 degree caudad angle will demonstrate the entire inferior orbital margin.
3. POSTEROANTERIOR (PA)
   A. 10 x 12 IR placed lengthwise to body part.
   B. "L" marker placed in collimation.
   C. Rest patient's forehead and nose on table or erect head unit.
   D. Central ray is directed to exit the glabella, enters @ level of the inion.
   E. Collimate to outer margin of skull on each side of the image receptor.
   F. OML is placed perpendicular to the image receptor.
   G. MSP is placed perpendicular to the image receptor.

4. AP AXIAL (TOWNE)
   A. 10 x 12 IR placed lengthwise to body part.
   B. "R" marker placed in collimation.
   C. Rest the back of the patient's skull against the table or erect head unit.
   D. Central ray is directed 30 degrees caudad @2.5 inches above the glabella. Central ray should exit at the level of the foramen magnum at the level of the base of the occiput.
   E. Collimate to outer margin of skull on each side of the image receptor.
   F. OML is placed perpendicular to the image receptor.
   G. MSP is placed perpendicular to the image receptor.
   *NOTE: A 37 degree caudad angulation is required if the IOML is placed perpendicular to the image receptor. This is performed to maximize patient comfort.
WEEK #9

I. TRAUMA SKULL
A. GENERAL REQUIREMENTS
1. Cervical spine fractures must be ruled out before the patient's head may be manipulated.
2. Moving or stationary grid must be used
3. 80 - 85 kvp range
4. 40" SID recumbent
5. Wipe table with appropriate solution
6. Ask patient pertinent questions including pregnancy possibility.
7. Ensure the removal of items that may appear on images. These include but are not limited to hair barrettes, bobby pins, hair pieces, earrings, necklaces
8. Use small focal spot size for increased recorded detail
9. Exam must be performed recumbent
10. Shield all patients as patient condition warrants
11. Suspend respiration for exposure

B. ROUTINE PROCEDURES
1. LATERAL (RIGHT OR LEFT)
   A. 10 x 12 grid IR placed crosswise to body part.
   B. Marker placed anteriorly in mandibular region. "R" marker is used for right lateral and "L" for left lateral
   C. Elevate head on sponge or adjust head 1" above bottom of image receptor.
   D. Place side of interest closest to the image receptor in a true lateral position.
   E. Central ray is directed HORIZONTAL 2" above EAM.
   F. Collimate to outer margin of skull, a border should be visible on four sides of the image.
   G. MSP is placed parallel to the image receptor.
   H. IPL is placed perpendicular to the image receptor.
   I. IOML is placed parallel to the image receptor.

2. AP
   A. 10 x 12 IR placed lengthwise to body part, blocker placed inferiorly.
   B. "R" marker placed @ 2" above the blocker.
   C. Rest patient's posterior head surface on the radiographic table. Cervical collar may remain in place. Head manipulation may only be performed after cervical spine fracture has been ruled out.
   D. *Central ray is directed perpendicular to the glabella; parallel to the OML.
   E. Collimate to outer margin of skull, a border should be visible on four sides of the image.
   F. OML is placed perpendicular to the image receptor.
   G. MSP is placed perpendicular to the image receptor.
   *NOTE: An @10-15 degree caudad angulation is required if the patient has a cervical collar to achieve the same results.
3. **AP (REVERSE CALDWELL)**
   A. Follow the above criteria with the exceptions as noted.
   B. *Central ray is directed 15 degrees cephalad to the nasion; perpendicular to the OML.*
   C. Collimate to outer margin of skull, a border should be visible on four sides of the image.
   D. OML is placed perpendicular to the image receptor.
   E. MSP is placed perpendicular to the image receptor.
   **NOTE:** Angle the central ray 15 degrees more cephalad than angle used for AP.

4. **AP Axial (Towne)**
   A. Follow the criteria for the AP projection with the exceptions as noted.
   B. *Central ray is directed 30 degrees caudad @ 2 1/2” above the glabella or 3/4” above the EAM’s. The central ray is directed 30 degrees caudad to the OML.*
   C. Collimate to outer margin of skull, a border should be visible on four sides of the image.
   D. OML is placed perpendicular to the image receptor, MSP is placed perpendicular to the image receptor.
   **NOTE:** Angle the central ray 30 degrees more caudad than angle used for AP.
   **MAXIMUM:** 45 degrees
WEEK #10

I. FACIAL BONES: NON-TRAUMA

A. OBJECTIVES
1. Identify the anatomy of the facial bones on diagrams and radiographs.
2. List the general requirements for non-trauma radiography, nasal bones and orbits.
3. Describe the routine positions employed for non-trauma radiography of the facial bones, nasal bones, and orbits.

B. GENERAL REQUIREMENTS
1. Moving or stationary grid must be used
2. 75 - 85 kvp, 70 – 80 kVp lateral facial bones
3. 40" SID, 36" SID with head unit
4. Wipe table unit with appropriate solution.
5. Ask patient pertinent questions including pregnancy possibility
6. Ask patient to remove items which may appear on images. These include but are not limited to removable teeth, hair barrettes, bobby pins, hair pieces, earrings, necklaces.
7. Use small focal spot size for increased recorded detail
8. Shield all patients as patient condition permits.
9. Suspend respiration for exposure

C. ROUTINE PROCEDURES NON-TRAUMA FACIAL BONES

1. LATERAL (RIGHT OR LEFT)
   a. 8 x 10 IR placed lengthwise to body part.
   b. Marker placed anteriorly near mandible. "R" marker is used for right lateral and "L" for left lateral.
   c. Place side of interest closest to the image receptor in a true lateral position; position of body is oblique for comfort. Erect position is preferred.
   d. Example: Right lateral skull = RAO body position
   e. Left lateral skull = LAO body position
   f. Central ray is directed perpendicular to a point midway between the outer canthus and EAM at the level of the zygoma.
   g. Collimate to demonstrate a 1" + border on four sides.
   h. MSP is placed parallel to the image receptor.
   i. IPL is placed perpendicular to the image receptor.
   j. IOML is placed parallel to the image receptor.

2. PARIETOACANTHIAL (WATERS)
   a. 10 x 12 IR placed lengthwise to body part.
   b. "L" marker placed in collimation.
   c. Rest patient's chin on radiographic table.
   d. Central ray is directed perpendicular to exit the acanthion.
   e. Collimate to demonstrate a 1" + border on four sides.
   f. MML is placed perpendicular to the image receptor in most cases.
   g. MSP is placed perpendicular to the image receptor.
   h. OML forms a 37 degree angle with the image receptor.
3. **PA (MODIFIED WATERS)**

A. Follow the criteria stated above for the Parietoacanthial (Waters) with the changes noted.

B. OML forms a 55 degree angle with the image receptor. This requires less extension of the neck as compared to the Parietoacanthial projection.

C. LML is perpendicular to the image receptor.

D. MML is not perpendicular to the image receptor.
WEEK #11
I. FACIAL BONES: NASAL BONES, ZYGOMA & ORBITS
A. OBJECTIVES
1. List the general requirements for the nasal bones, zygoma, and orbits.
2. Describe the routine positions employed for radiography of the nasal bones, zygoma, and orbits.

B. GENERAL REQUIREMENTS NASAL BONES, ZYGOMA & ORBITS
1. Moving or stationary grid must be used.
2. 60 - 70 kvp range nasal bones, 70 – 80 kvp zygoma, 75 – 85 kVp orbits
3. 40" SID, 36" SID with head unit
4. Wipe head unit with appropriate solution.
5. Ask patient pertinent questions including pregnancy possibility.
6. Ask patient to remove items which may appear on images.
   These include but are not limited to removable teeth, hair barrettes, bobby pins, hair pieces, earrings, necklaces.
7. Use small focal spot size for increased recorded detail
8. Exam should be performed erect or recumbent
9. Shield all patients
10. Suspend respiration for exposure.

C. ROUTINE PROCEDURES NASAL BONES
1. LATERAL (RIGHT and LEFT) Nasal Bones
   A. 8 X 10 IR placed crosswise to body part, blocker placed inferiorly on the radiographic table-top. (A detail IR is recommended)
   B. Marker placed anteriorly near mandibular. "R" marker is used for right lateral and "L" for left lateral.
   C. Place side of interest closest to one half of the image receptor in a true lateral position; position of body is oblique for comfort.
   Example: Right lateral skull = RAO body position
   Left lateral skull = LAO body position
   D. Central ray is directed perpendicular 1/2" inferior to the nasion.
   E. Collimate to include nasion and acanthion.
   F. MSP is placed parallel to the image receptor.
   G. IPL is placed perpendicular to the image receptor.
   H. IOML is placed parallel to the image receptor.
   NOTE: The protocol will often include at least one or two additional positions

D. ROUTINE PROCEDURES ZYGOMA
1. AP AXIAL (TOWNE)
   A. 10 x 12 IR placed lengthwise to body part.
   "R" marker placed in collimation.
   B. Rest the back of the patient's skull against the table or erect head unit.
   C. Central ray is directed *30 degrees caudad @1 inch above the glabella to exit at the level of the zygomatic arches.
   D. Collimate to demonstrate a 1" + border on four sides.
   E. OML is placed perpendicular to the image receptor.
   F. MSP is placed perpendicular to the image receptor.
   **NOTE:** A 37 degree caudad angulation is required if the IOML is placed perpendicular to the image receptor. This is performed to maximize patient comfort.
2. **SUBMENTOVERTEX (FULL BASAL)**
   A. 10 x 12 IR placed lengthwise to body part.
   B. "R" marker placed in collimation.
   C. Extend patient's chin to rest vertex on erect head unit, placing IOML parallel to image receptor.
   D. Central ray is directed perpendicular to a point @1.5" below the mandibular symphysis and midway between the mandibular angles.
   E. Collimate to demonstrate a 1" + border on four sides.
   F. MSP is placed perpendicular to the image receptor.

*NOTE:* The central ray is directed perpendicular to the IOML. If the patient cannot hyperextend their neck, then direct the central ray cephalad to remain perpendicular to the IOML.

3. **OBLIQUE INFEROSUPERIOR (TANGENTIAL) - RIGHT and LEFT**
   A. 10 X 12 IR placed crosswise to body part, blocker placed anteriorly.
   B. "R" marker is used for right zygoma, "L" marker is used for Left zygoma.
   Place inferiorly and laterally.
   C. Rest patient's vertex on image receptor or erect head unit by raising their chin and hyperextending the neck. Use sponges as needed for the recumbent position. The erect position is the preferred method for patient comfort.
   D. Rotate and tilt the patient's skull 15 degrees toward the side being examined.
   E. Central ray is directed perpendicular to the zygomatic arch entering parietal eminence and mandibular body.
   F. IOML is placed parallel to the image receptor.
   G. MSP is placed perpendicular to the image receptor.

*NOTE:* A cephalad angulation is required if the patient cannot extend their neck to place the IOML parallel to the image receptor. The central ray should then be directed perpendicular to the IOML to achieve the same results. Both sides are often imaged for comparison.

4. **ROUTINE PROCEDURES ORBITS**
   1. **PARIETO-ORTBITAL (Rhese) RIGHT and LEFT**
   A. 10 x 12 IR placed lengthwise to body part.
   B. "L" marker placed inferiorly for left orbit, "R" marker is used for right orbit.
   From the PA projection, rotate patient's head 37 degrees away from the side being examined, placing affected orbit closest to the image receptor.
   C. Rest head on zygoma, nose and chin of affected side.
   D. Central ray is directed perpendicular to EXIT the center of the orbit.
   E. Collimate to demonstrate a 1" border or more on four sides.
   F. AML is perpendicular to the image receptor.
   G. Both sides generally examined for comparison.
WEEK #12
I. MANDIBLE & TMJ’s
A. OBJECTIVES
1. List the general requirements for the mandible and TMJ’s.
2. Describe the routine positions employed for radiography of the mandible and TMJ’s.

B. GENERAL REQUIREMENTS MANDIBLE
4. Moving or stationary grid must be used.
5. 75 - 85 kvp range
3. 40” SID, 36” SID with head unit
4. Wipe head unit with appropriate solution.
5. Ask patient pertinent questions including pregnancy possibility.
6. Ask patient to remove items which may appear on images.
   These include but are not limited to removable teeth, hair barrettes, bobby pins, hair pieces, earrings, necklaces.
7. Use small focal spot size for increased recorded detail
8. Exam should be performed erect or recumbent
9. Shield all patients
10. Suspend respiration for exposure.

D. ROUTINE PROCEDURES MANDIBLE
1. POSTEROANTERIOR (PA)
A. 10 X 12 IR placed lengthwise or CW to body part, blocker placed inferiorly.
B. "L" marker placed in collimation.
C. Rest patient’s forehead and nose on table or erect head unit. Erect position is preferred.
D. *Central ray is directed perpendicular to a point @ 3-5" below the inion.
   Central ray must exit the center of the lips in the closed mouth position.
E. Collimate to demonstrate a 1" border on four sides.
F. OML is placed perpendicular to the image receptor.
G. MSP is placed perpendicular to the image receptor.
*NOTE: AML is placed perpendicular to the image receptor if the body is area of interest.

2. AP AXIAL
A. 10 X 12 IR placed lengthwise or CW to body part, blocker placed inferiorly.
A. "R" marker placed @ 1" above the blocker.
B. Rest the back of the patient's skull against the table or erect head unit.
C. *Central ray is directed 35 degrees caudad to the glabella. A 40 degree angle is used for the TM fossa.
E. Collimate to demonstrate a 1" border on four sides.
F. OML is placed perpendicular to the image receptor.
G. MSP is placed perpendicular to the image receptor.
*NOTE: A 42 degree caudad angulation is required if the IOML is placed perpendicular to the image receptor. This is performed to maximize patient comfort.
3. AXIOLATERAL - RIGHT AND LEFT
A. 10 X 12 IR placed crosswise to body part, blocker placed inferiorly.
B. Marker placed anteriorly near mandible to denote affected side.
C. Place side of interest closest to the image receptor in a true lateral position; position of body is oblique for comfort. Erect position is preferred.
   Example: Right lateral = RAO or RPO body position
   Left lateral = LAO or LPO body position
D. Extend the chin to prevent superimposition on the spine.
D. Central ray is directed 25 degrees cephalad to enter the gonion furthest away from the image receptor.
F. Collimate to demonstrate a 1" border on four sides.
G. MSP is placed parallel to the image receptor.
H. IPL is placed perpendicular to the image receptor.
I. IOML is placed parallel to the image receptor.
NOTE: The following variations may be performed:
   ➢ 0 degree (lateral) is performed to demonstrate the ramus
   ➢ 10 – 15 degree rotation toward cassette is a general survey.
   ➢ 30 degrees rotation toward cassette demonstrates the body
   ➢ 45 degrees rotation toward cassette demonstrates the mentum.
J. Both sides are examined for comparison.

II. TMJ’S (Lecture content, no lab assessment)
A. GENERAL REQUIREMENTS
1. Both sides are examined for comparison in the open and closed mouth positions.
2. Moving or stationary grid must be used.
3. 70 - 80 kvp range
4. 40” SID, 36” SID with head unit
5. Wipe head unit or table with appropriate solution.
6. Ask patient pertinent questions including pregnancy possibility.
7. Ask patient to remove items which may appear on images. These include but are not limited to removable teeth, hair barrettes, bobby pins, hair pieces, earrings, necklaces.
9. Use small focal spot size for increased recorded detail.
10. Shield all patients.
11. Suspend respiration for exposure.

B. ROUTINE PROCEDURES
1. AP AXIAL
A. Follow protocol for the mandible. Central ray must exit at the level of the TMJ’s.
2. **AXIOLATERAL OBLIQUE (LAW) RIGHT and LEFT**
A. 8 x 10 IR placed lengthwise to body part.
B. Marker placed anteriorly near mandible. “R” marker is used for right TMJ and “L” for left TMJ.
C. Place side of interest closest to the image receptor in a true lateral position; position of body is oblique for comfort. Erect position is preferred.
   
   Example:    
   Right lateral = RAO body position  
   Left lateral = LAO body position  
D. From the lateral position rotate the head 15 degrees toward the image receptor.
E. Central ray is directed 15 degrees caudad to enter 1.5” superior and posterior to the independent EAM. Central ray must exit the dependent TMJ which is located 1” anterior to the EAM.
F. Collimate to demonstrate a 4” x 4” field.

3. **AXIOLATERAL (SCHULLER) RIGHT and LEFT**
A. 8 x 10 IR placed lengthwise to body part, blocker placed inferiorly.
B. Marker placed anteriorly near mandible. “R” marker is used for right TMJ and “L” for left TMJ.
C. Place side of interest closest to the image receptor in a true lateral position; position of body is oblique for comfort. Erect position is preferred.

   Example:  
   Right lateral = RAO body position  
   Left lateral = LAO body position  
D. Central ray is directed 25 - 30 degrees caudad to enter 1” anterior and 2” superior to the independent EAM. Central ray must exit the dependent TMJ which is located 1” anterior to the EAM.
E. Collimate to demonstrate a 4” x 4” field.
F. MSP is placed parallel to the image receptor.
G. IPL is placed perpendicular to the image receptor.
H. IOML is placed parallel to the image receptor.

**NOTE:** Both sides are examined in the open and closed mouth positions.
WEEK #13

I. FACIAL BONES TRAUMA
A. OBJECTIVES
1. List the general requirements for trauma facial bone radiography.
2. Describe the routine positions employed for trauma radiography of the facial bones.

B. GENERAL REQUIREMENTS TRAUMA FACIAL BONES
1. Follow non-trauma bone requirements and adjust the following:
2. Cervical spine fractures must be ruled out before the patient's head may be manipulated.
3. Verify the removal of items that may appear on images. These include but are not limited to removable teeth, hair barrettes, bobby pins, hair pieces, earrings and necklaces.
4. Exam should be performed with the individual in the supine position.
5. Shield all patients as condition permits.

C. ROUTINE PROCEDURES
1. LATERAL (RIGHT OR LEFT)
   A. 8 X 10 grid IR placed crosswise to body part.
   B. Marker placed anteriorly in mandibular region. "R" marker is used for right lateral and "L" for left lateral.
   C. Place side of interest closest to the image receptor in a true lateral position. Head manipulation may only be performed after cervical spine fracture has been ruled out.
   D. Central ray is directed HORIZONTAL to the independent zygomatic prominence.
   E. Collimate to demonstrate a 1" border or more on four sides.
   F. MSP is placed parallel to the image receptor
   G. IPL is placed perpendicular to the image receptor.
   H. IOML is placed parallel to the image receptor.

2. ACANTHIOPARIETAL (REVERSE WATERS)
   A. 8 X 10 IR placed lengthwise to body part.
   B. "R" marker placed in collimation.
   C. Extend chin; rest patient's posterior head surface on the radiographic table.
   D. Cervical collar may remain in place as necessary. Head manipulation may only be performed after cervical spine fracture has been ruled out.
   E. Central ray is directed perpendicular to enter the acanthon; parallel to the MML.
   F. Collimate to demonstrate a 1" border on four sides.
   G. Direct the central ray cephalad to be parallel to the MML when head manipulation may not be performed due to patient condition.

3. MODIFIED ACANTHIOPARIETAL (MODIFIED REVERSE WATERS)
   A. Follow protocol listed in #2A - F.
   B. Direct the central ray cephalad to be parallel to the LML when head manipulation may not be performed due to patient condition.