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Question no : 3

Write the general classification of contrast agents used in conventional radiological procedures also explain each classification ?

Answer :

CLASSIFICATION OF CONTRAST MEDIA :

X- ray and ct	ultrasound	mri
Positive contrast media		negative contrast media or low atomic number
High atomic number		air water co2
Non water soluble baso4		water soluble
Non water soluble	water soluble	
Barium sulphate 56		
Oil based contrast media	iodine based contrast media	

Iodinated contrast media

	Water soluble	
Hepatic excretion	renal excretion	
	High osmolar	low osmolar
	Ionic	non ionic

Positive contrast	negative contrast
Radio opaque	Radio lucent
White on film	black on film
E.g barium sulphate	water air and carbon dioxide

Use : GI studies

2 : iodine compounds.

USE :

Angiography(contrast study for vessels)

Hysterosalpingography (cm for female fullopian tube)

MYELOGRAPHY: contrast study for spinal cord etc

BARIUM SULPHATE :

- Barium sulphate having atomic number 56
- Non absorbable
- Radio paque and non toxic we can insert in tissues through orally or rectally.

USES :

- Barium swallow
- Barium meal
- Barium enema etc

ADVANTAGES :

- The main advantage of barium sulphate is excellent coating .
- Cost (affordable price or easily available)

DISADVANTAGES :

- High morbidity rate

COMPLICATIONS OF BARIUM :

- Perforation
- Aspiration
- Intravasation

IODINE :

- Atomic number 53
- Atomic weight 127

Iodine is preferred because high contrast density high atomic number and low toxicity .
Contain benzene ring .

OILY/ NON WATER SOLUBLE IODINATED CONTRAST MEDIA

Contain fatty acids these are insoluble in water

White on radiograph

EXAMPLE :

Myodil use for spinal cord studies oily in nature

ETHIODOL also oily in nature use for the study of lymphatic vessels

COMPLICATIONS :

Fat embolism (clot type)

Oil based contrast media don't use commonly use in a rare cases .

USE :

- Dacryocystography (lacrimal glands)
- Galactography (ducts and breast)

LOW OSMOLALITY CONTRAST MEDIA :

Have the osmolality 2-3 times the osmolality of blood .

ADMINISTRATION :

- Intravascular
- Intrathecal
- Less toxic osmolality

HIGH OSMOLAR CONTRAST MEDIA :

Have the osmolality 1,300 to 2,140 mOsm/kg or about 4 to 7 times that of the human blood.

ADMINISTRATION:

- Intravascular
- Intrathecal

AGENTS :

- Gastrografin
- Conray

Question no : 1

A patient came with complaint of difficulty in swallowing which imaging procedure is best for its diagnosis and what are the standard protocols for this procedure ?

ANSWER :

A patient came with complaint of difficulty in swallowing the best imaging procedure for its diagnosis is barium swallow test .

INVESTIGATION :

Barium swallow test is use for the investigating patient with a complaints that may be difficulty swallowing dysphagia heart burn dyspepsia or gastroesophageal reflux.

PROTOCOLS :

The first protocol is a **hold position** the patient to place bolus into the oral cavity and to hold it there if patient doesn't swallow then given the command to swallow . Hold position is important for the measurement of hyoid position and pharyngeal at rest and before the swallow .

The patient then will swallow liquid barium in sequence 1cc,2cc,3cc .

When liquid swallow complete then 2 swallows will consist of paste then cookie.

When this part of protocol is complete then introduce difficult food straw drinking and strategies .

The patient is turned for AP view .The disk of unknown diameter is placed on the patient left sternoleidomastoid muscle. 20cc liquid swallow and pill swallow are recorded.

The entire study saved in an avi format then the file transfer to the computer desktop for further analysis.

QUESTION NO : 2

Explain the different position use to take film foe barium meal . ?

ANSWER :

1: SPOT FILM OF THE STOMACH POSITION :

- **RAO** : This position is for pyloric canal antrum and greater curve of stomach .
- **SUPINE** : This position for the identification antrum in body
- **LAO** : This position identify lesser curve and face .
- **LEFT LATERAL GRADE** : This position is for fundus .

2: SPOT FILM OF DUODENUM :

- **PRONE** : patient lying prone on the compression pad which is important to prevent the flooding of barium .
- For the detail study of duodenum then inner wall of duodenum test taken in RAO position .

3 : SPOT FILM FOR DUODONAL CAP POSITIONS :

- **PRONE** : The patient will lying at prone position to obtain duodonal cap spot film .
- **RAO** : The patient get this position by turning to right position slightly .
- **SUPINE** : The patient turn to supine position .
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4: SPOT FILM OF FUNDUS POSITION :

This position taken erect this will be taken if there is some distrest in fundal lesion .

5: SPOT FILM OF ESOPHAGUS :

This position taken at the start of swallowing till to the complete examination .