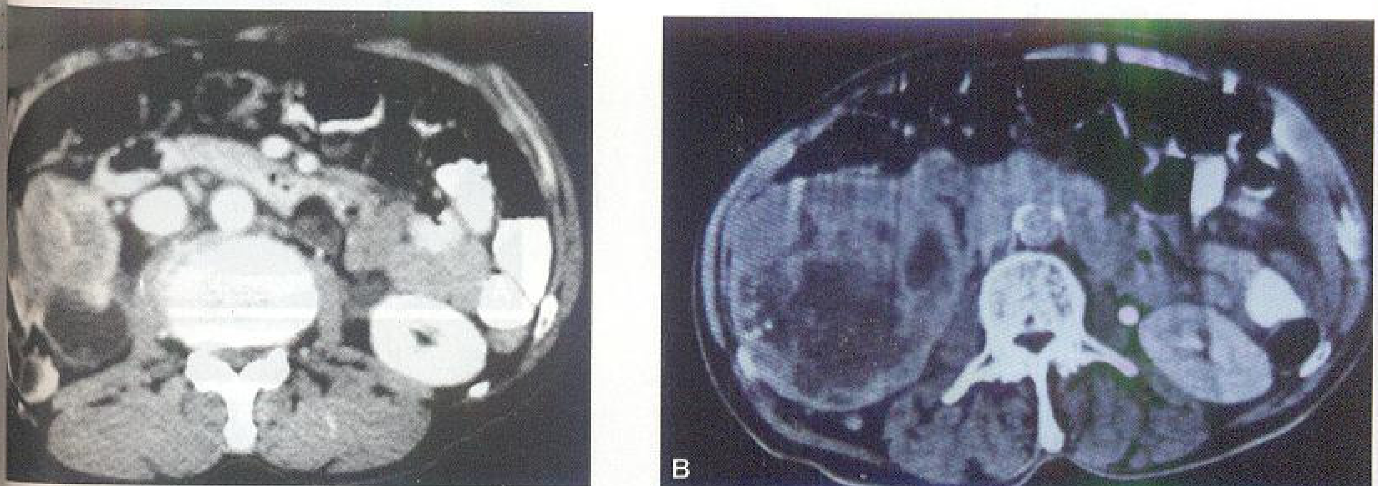
22: CT scan showing narrowing and irregularity rectal mucosa – a feature of carcinoma rectum.

Fig. 5.23: CT scan showing pelvic tumour



Figs 5.24A and B: CT scan showing renal cell carcinoma (RCC) right side.

Fig. 5.25: CT scan showing retroperitoneal tumour left sided

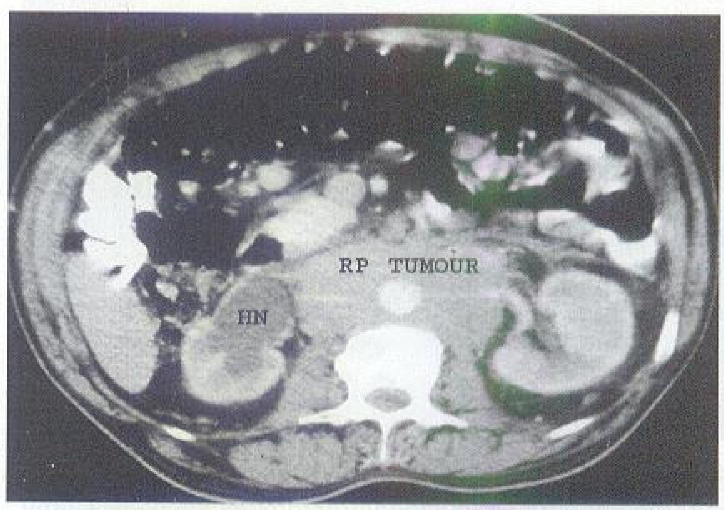


Fig. 5.26: CT scan showing retroperitoneal tumour encasing the aorta with hydronephrosis of right kidney due to ureteral obstruction.

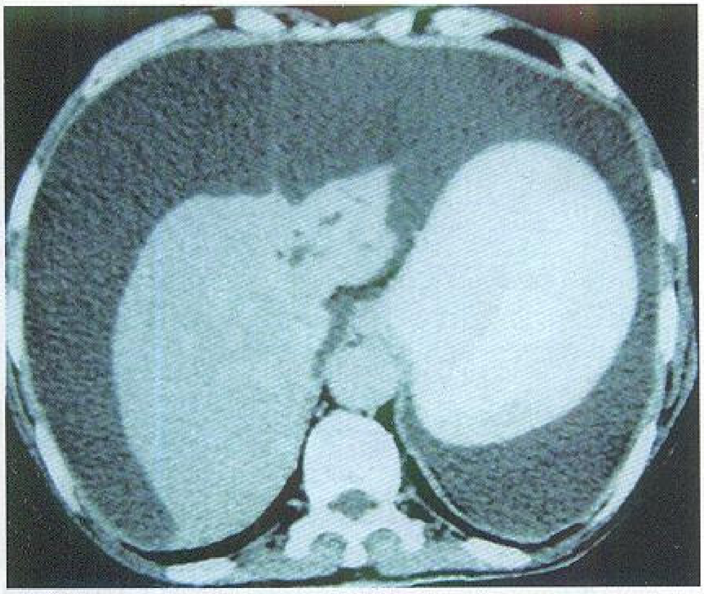
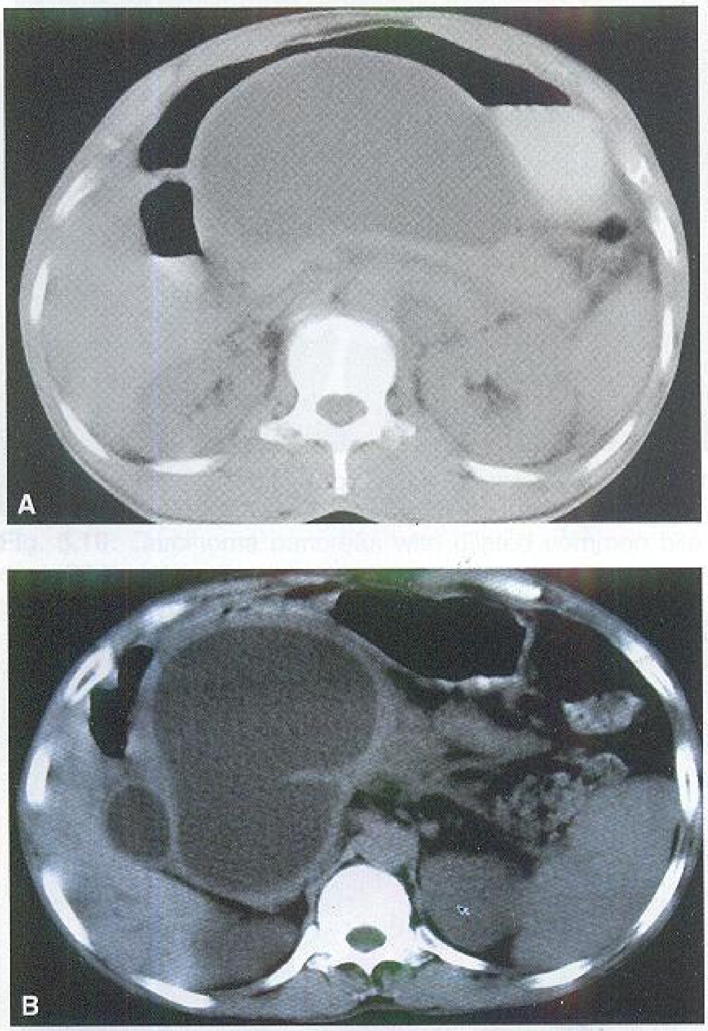
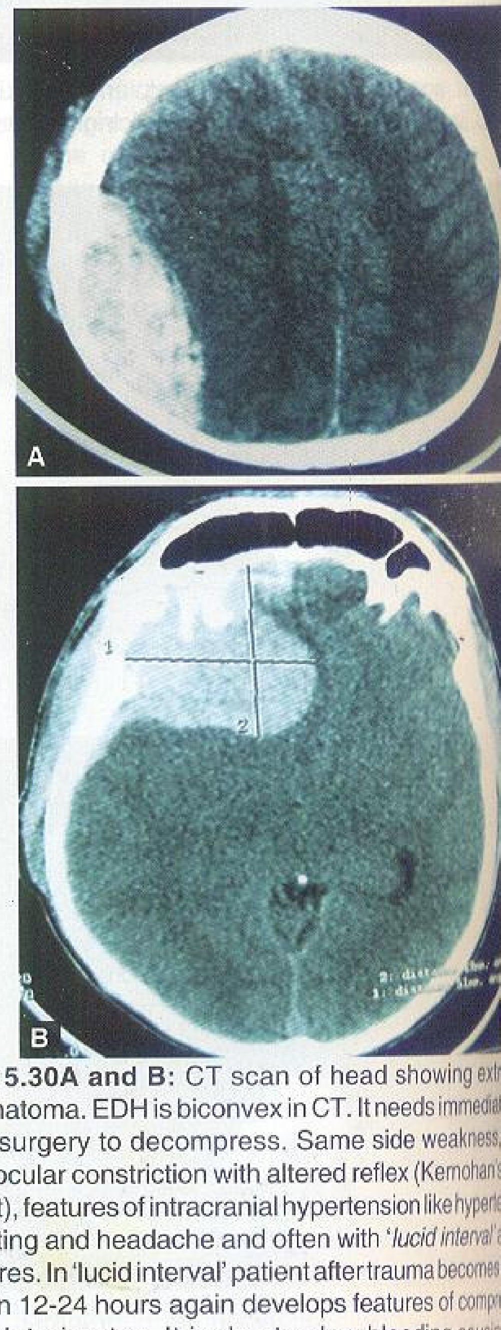


Fig. 5.27: CT picture showing ascites.

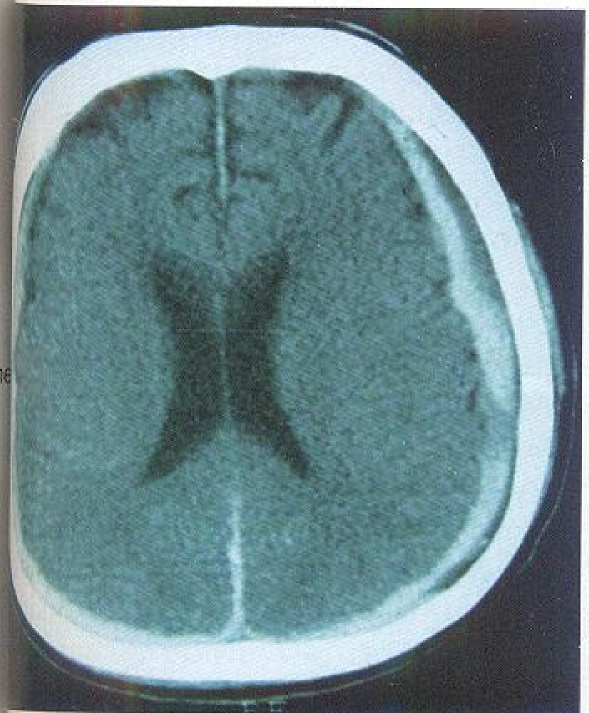


Figs 5.28A and B: CT scan showing pseudocyst of pancreas. It needs cystogastrostomy/cystojejunostomy.

Fig. 5.29: CT scan showing hydronephrosis of left kidney



Figs 5.30A and B: CT scan of head showing extradural haematoma. EDH is biconvex in CT. It needs immediate burr hole surgery to decompress. Same side weakness, same side ocular constriction with altered reflex (Kernohan's notch effect), features of intracranial hypertension like hypertension, vomiting and headache and often with '*lucid interval*' are the features. In 'lucid interval' patient after trauma becomes alright and in 12-24 hours again develops features of compression and deteriorates. It is due to slow bleeding causing late compression features. It is dangerous as while symptoms develops patient may be away from hospital.



5.31: CT scan of head showing concavo-canvex s on both sides – feature of bilateral subdural toma.

Fig. 5.33: CT picture showing astrocytoma—common primary malignant tumour of brain.

Fig. 5.32: CT head showing hydrocephalous.

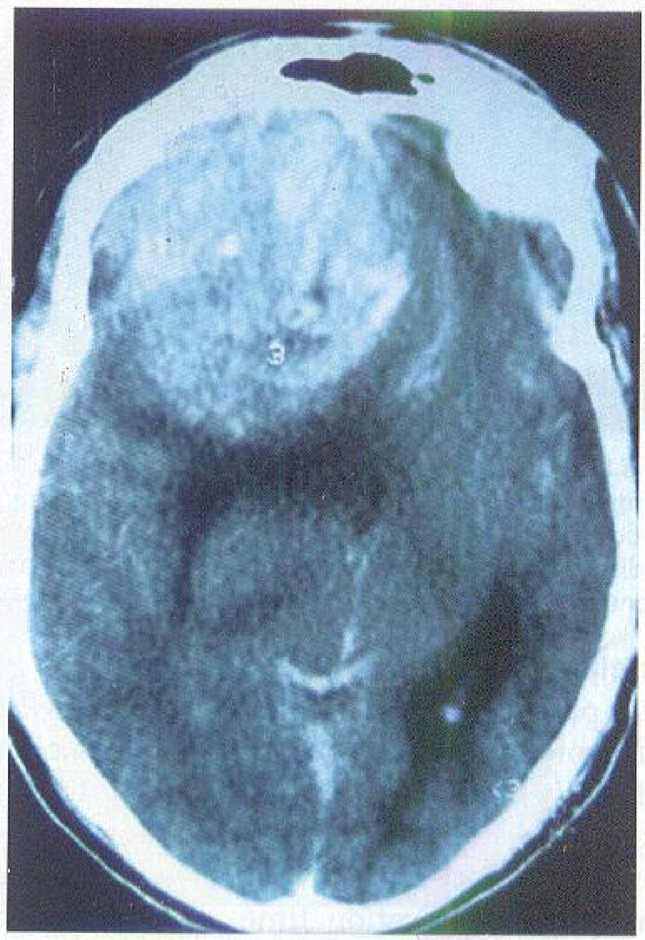


Fig. 5.34: CT scan showing features of meningioma.

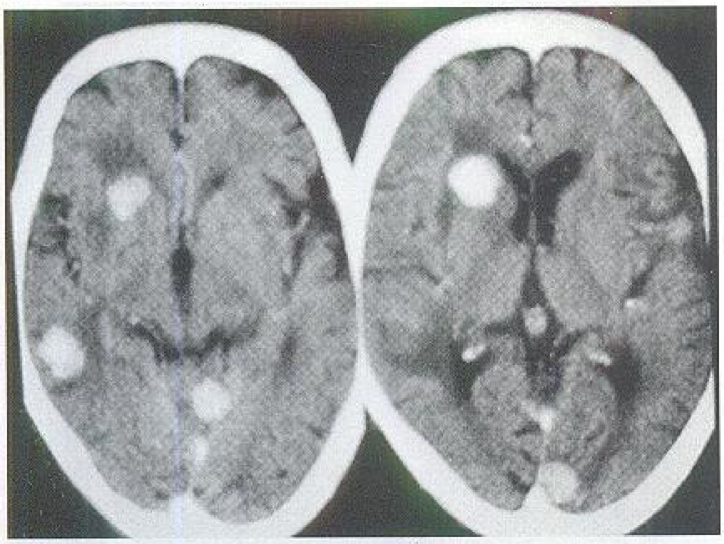


Fig. 5.35: CT showing secondaries in brain. Note the multiple lesions in brain. Secondaries are the commonest malignant tumour in brain. Primary may be from breast, lungs, thyroid or sarcomas. Treatment is external radiotherapy, chemotherapy, anticonvulsants. It has got poor prognosis.

Fig. 5.36: CT head showing secondaries in skull. It may be from follicular carcinoma of thyroid or from adrenal neuroblastoma. Secondary in skull with thyroid primary is well localised, warm, vascular and pulsatile. Secondaries in bone from other primaries are diffuse, hard and tender.

Principle

When patient is placed in an *external high magnetic field*, protons of hydrogen atoms rotate in phase with each other and gradually return to their original position releasing small amounts of energy which is detected by sensitive coils. Proton density and Relaxation time are assessed by Radiofrequency pulse and the computer generates a Grey scale image from this data.

- Magnetic field strength is measured in Te (T).
- T1 relaxation time is the time taken to re to original axis. **T1 images** are used to f out **normal anatomical detail.** It has got h soft tissue discrimination. Here fluid (C looks black. Fat is white in T1 images. spin lattice relaxation time.
- T2 relaxation time is the time taken by proton to diphase. It is used to ass **pathological** processes. **In T2 images** flui water looks white. It is spin-spin relaxati time.
- In Proton density images fluid looks between black and white.
- The magnet is kept under intense cold co tions to maintain a state of super conducti Coiled wires rest inside a double wal apparatus that is bathed in liquid heliu The apparatus is kept in a vacuum wh is left inside a liquid nitrogen filled tank. scanner is enclosed in a stainless shield copper shield called as *Faraday cage* wh blocks the radiofrequency signals from lo radio/TV stations. *Gradient coils* are used magnetic devices. This coils because immense magnetic forces bang agai mooring causing loud rhythmic no *Radiofrequency coils* transmit and recei radiofrequency signals.
- It can be **Plain MRI** or **Contrast** MRI. Con agent is Gadolinium given Intravenous

Uses of MRI

- It is very useful in Intracranial, Spinal an Musculoskeletal lesions including *jo pathologies*.
- It gives direct anatomical sections of the a with lesions at a high resolution.
- *MR angiogram* is done without injecting contrast agents.
- *Cardiac MRI* is very useful.
- *Breast MRI* is used in multifocal recurr cancers.
- *Magnetic resonance cholangiopancreatogr (MRCP)* is a very useful noncontrast diagnos