

Indications

Trauma like head injury, chest injury, abdomen trauma. In trauma *only plain CT scan* is taken.

Neoplasms: To see the exact location, size, vascularity, extent and operability.

E.g. Brain, abdominal, retroperitoneal, thoracic and spinal tumours.

Inflammatory conditions in various places also.

E.g. Psoas abscess, pseudocyst of pancreas.

Advantages of CT Scan

One to two mm sized sections are possible.

Amount of X-ray exposure is less.

More accurate, sensitive, and specific.

Small lesions are also detected.

CT guided biopsies are done at present safely.

Disadvantages

Interpretation by an experienced radiologist is important.

Artifacts can be present.

Cost factor and availability.

Findings

Extradural haematoma—*Biconvex lesion*.

Intradural haematoma—*Concavo Convex lesion*.

Smooth margin in benign condition.

Irregular margin in malignant condition.

Advantages of Spiral CT Scan

Reduced scan time. Useful in children and critically ill patients.

Imaging in both arterial and venous phases is possible.

Improved lesion detection. Missing a lesion is uncommon.

Multiplanar and 3-Dimensional analysis like CT Angiography, Complex joint imaging, Facial bone imaging is possible.

High Resolution CT

High resolution CT (*HRCT*) is a CT technique used in chest scan where thin sections are taken to have better quality images.

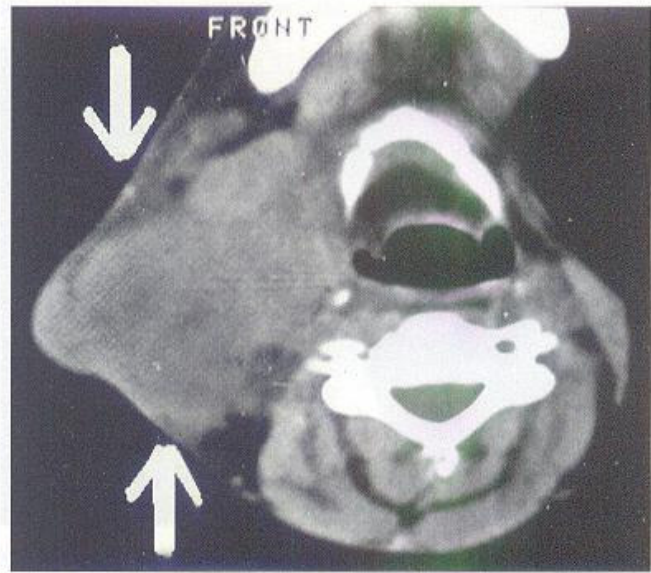


Fig. 5.7: CT scan showing parotid tumour right sided. Depth, deep lobe involvement and nodal status should be assessed.

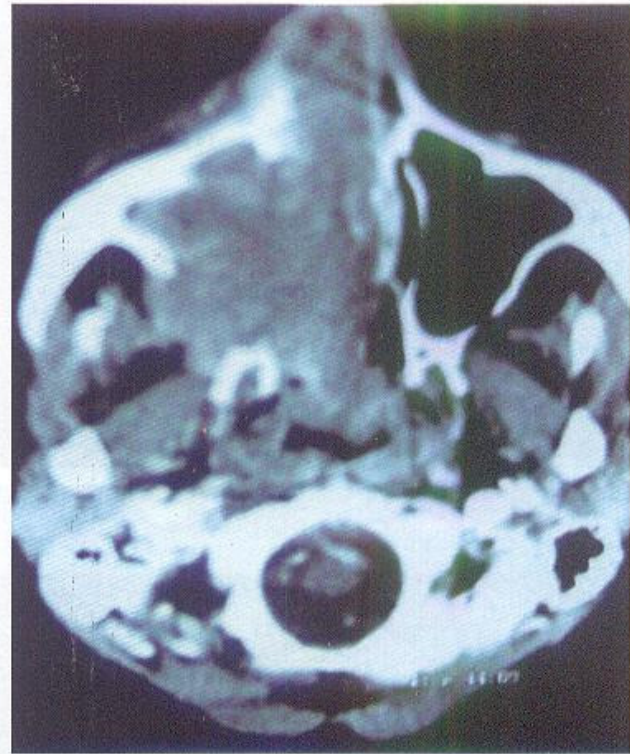


Fig. 5.8: CT picture showing carcinoma maxilla right sided.

MAGNETIC RESONANCE IMAGING (MRI)

Earlier named as *Nuclear magnetic imaging*, the term is not used now. Invented by Laterbuer and Mansfield – got Nobel Prize.



Fig. 5.9: CT scan showing mediastinal lymph node mass – could be lymphoma or secondaries. Mediastinoscopy and biopsy is needed. Later radiotherapy or chemotherapy is the treatment.



Fig. 5.12: CT abdomen showing cyst in the retroperitoneum – could be simple cyst or hydatid cyst.

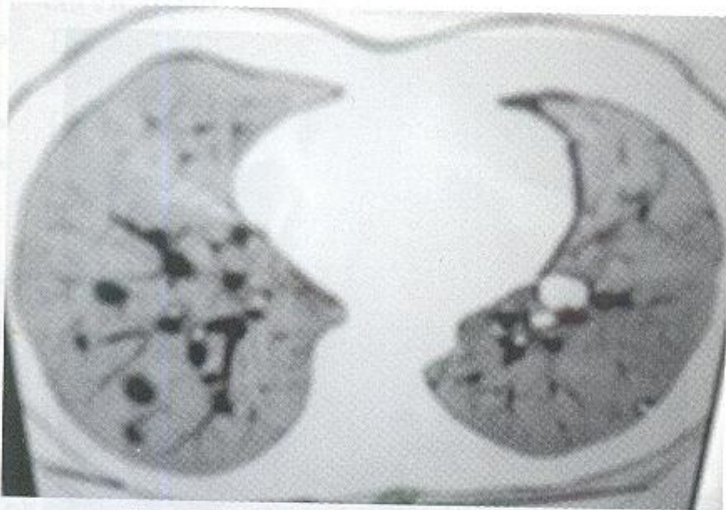


Fig. 5.10: HRCT chest. Invert film.

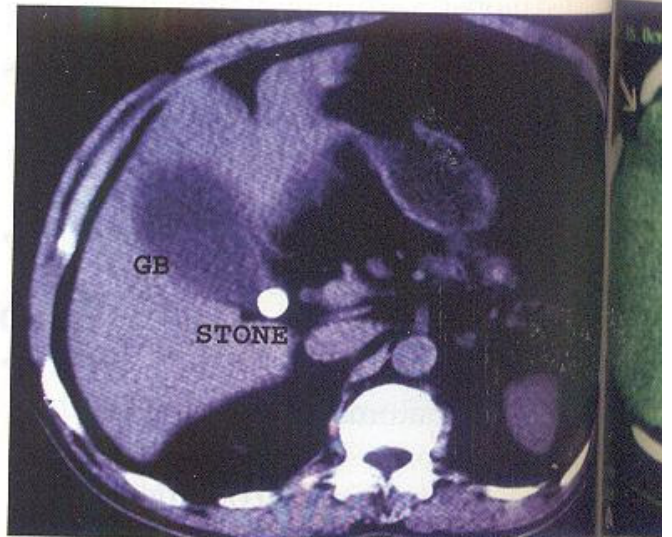


Fig. 5.13: CT scan showing gallbladder stone in Hartmann's pouch causing obstruction.

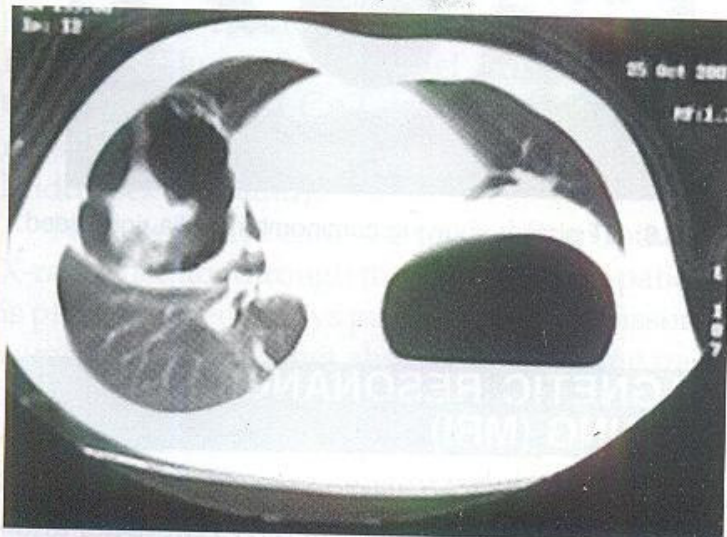


Fig. 5.11: CT scan chest showing lung abscess right side.



Fig. 5.14: Pancreatic ductal stones – multiple calcified stones. It needs pancreatico-jejunos...

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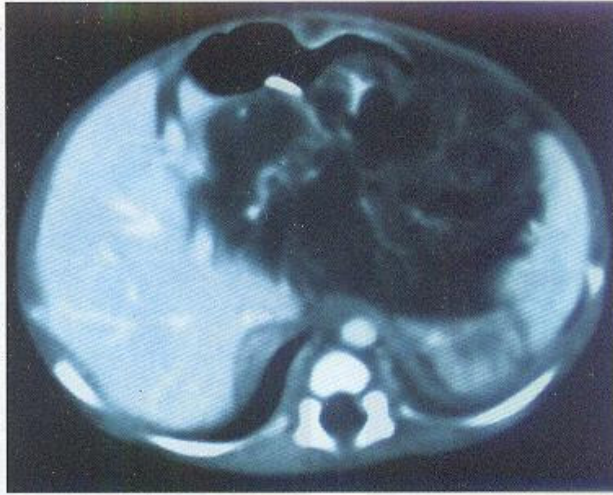
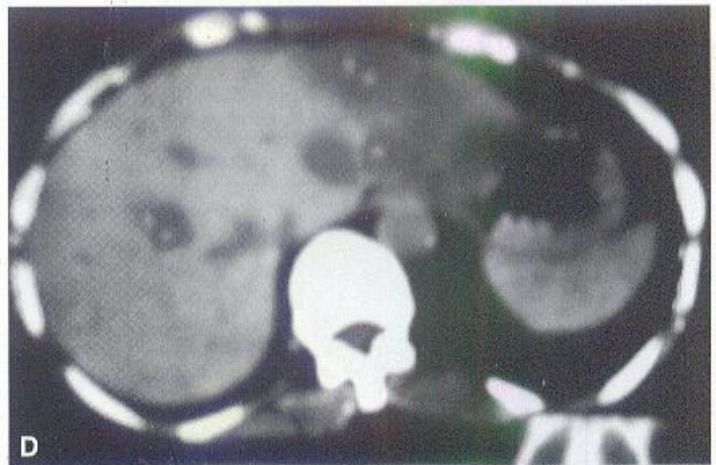
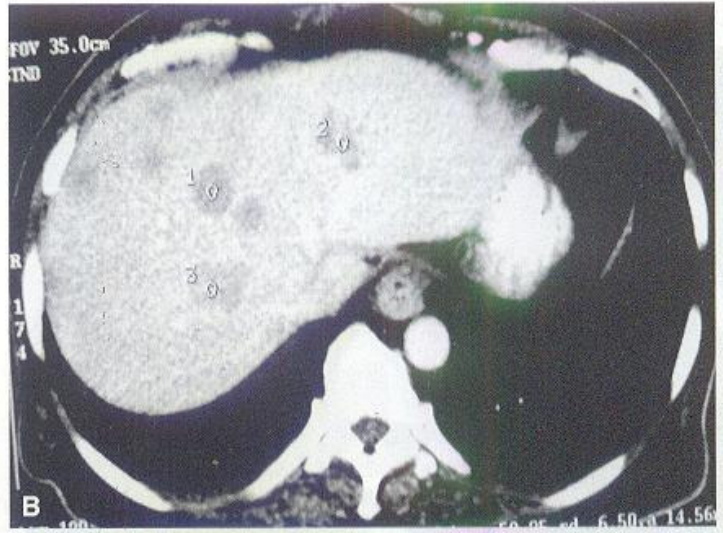


Fig. 5.15: CT showing extrinsic compression of stomach from a gastric teratoma in a newborn.



5.16A to D: CT scan showing secondaries in liver. Secondaries are usually multiple. Primary may be abdominal or extra-abdominal. One has to evaluate for primary by upper/lower endoscopy; chest CT; clinical methods for primary in breast/thyroid/melanoma. Treatment is palliative. Solitary secondary can be resected if primary is from breast or well differentiated. Segmentectomy is done. Often one large secondaries with small remaining secondaries occur.

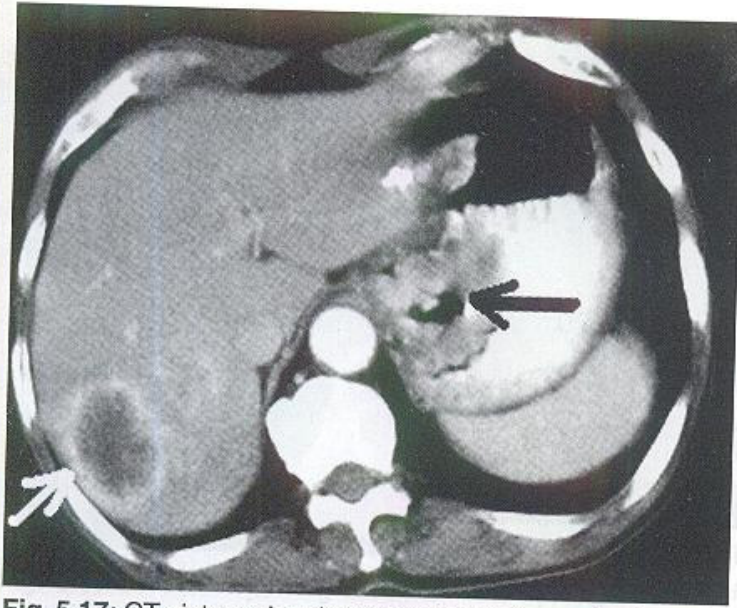


Fig. 5.17: CT picture showing primary carcinoma in stomach with secondaries in liver. Note the thickening of the wall of the stomach with mucosal irregularity.

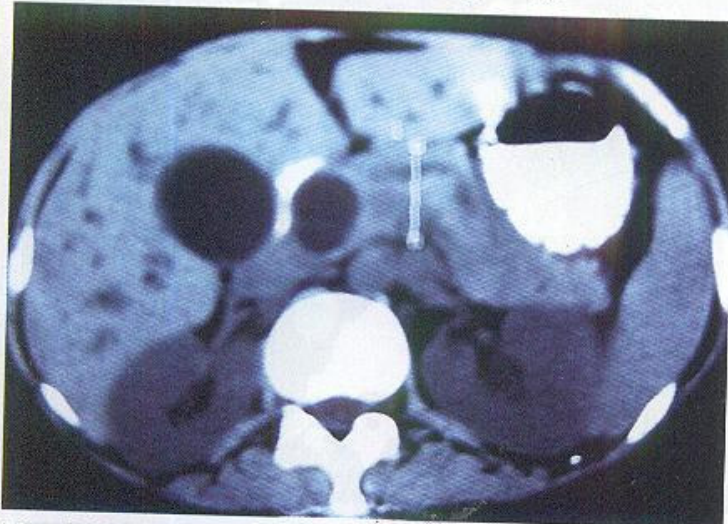


Fig. 5.18: Carcinoma pancreas with dilated common bile duct (CBD). Whipple's pancreaticoduodenectomy is needed to this patient.

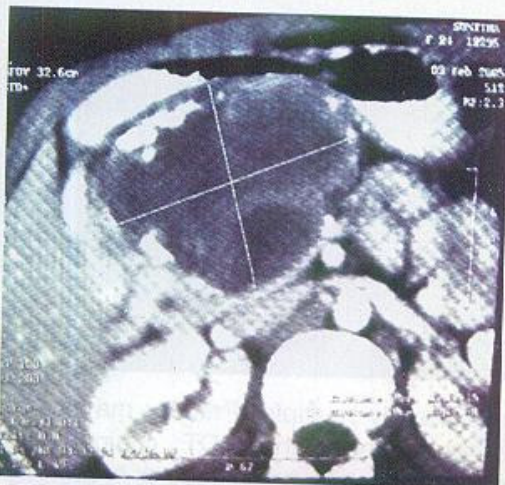
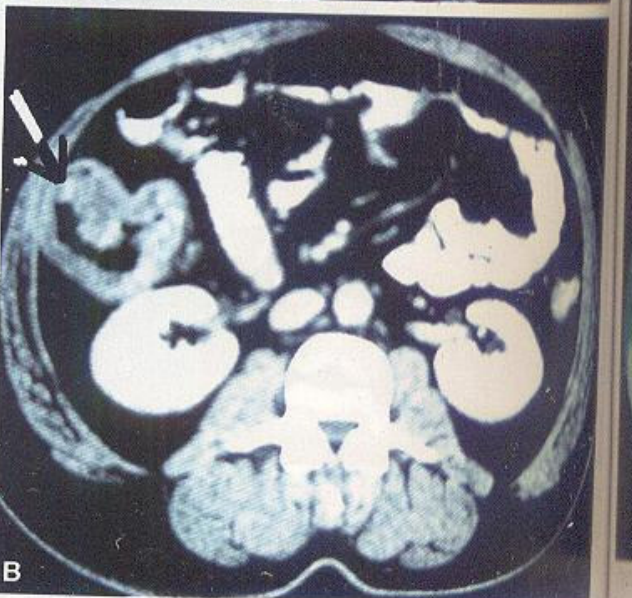
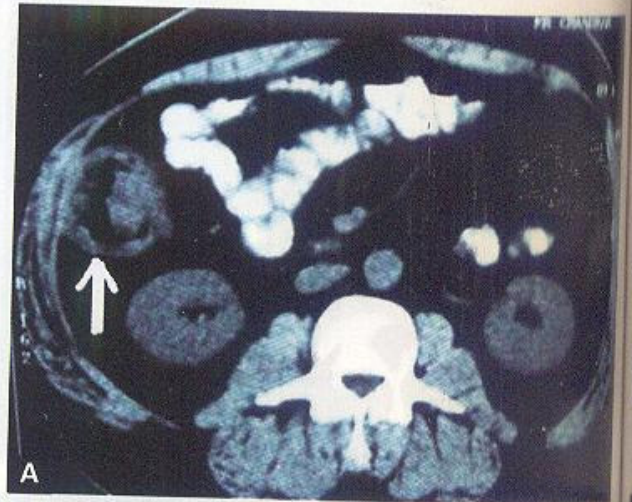


Fig. 5.19: CT picture showing features of cystadenocarcinoma of pancreas. It often attains large size; presents as mass abdomen without jaundice.



Fig. 5.20: CT picture showing features of hepatocellular carcinoma right lobe. Hepatoma is usually large, solitary mass in one of the lobes. AFP, liver biopsies are other investigations. Early growth is treated by hemihepatectomy. If there is cirrhosis, hemihepatectomy is technically difficult.



Figs 5.21A and B: CT scan showing carcinoma ascending colon. Note the narrowed lumen with irregularity.