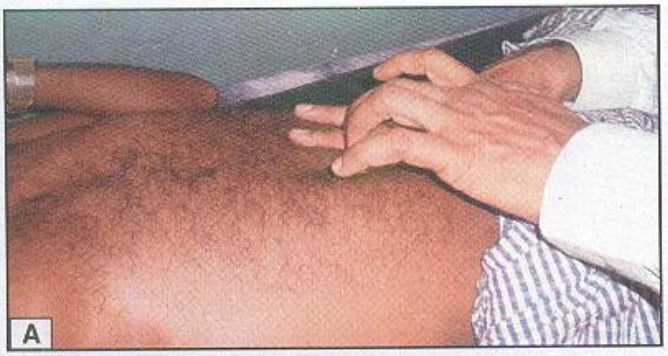
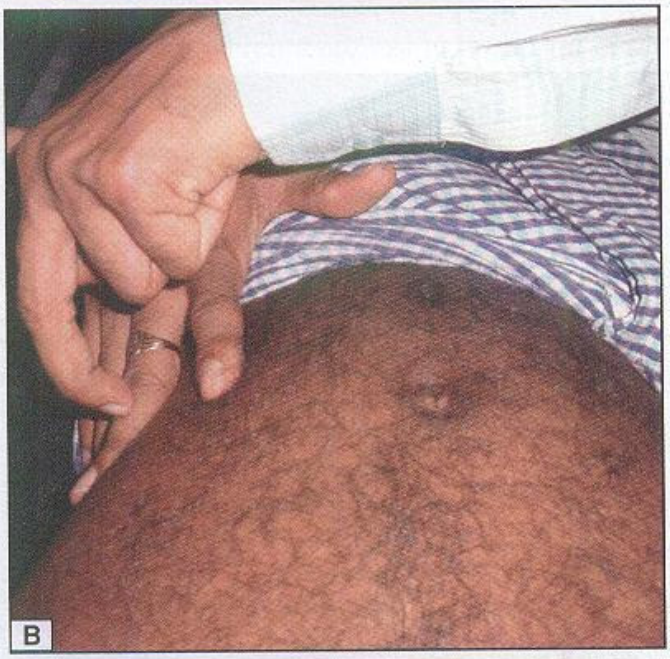
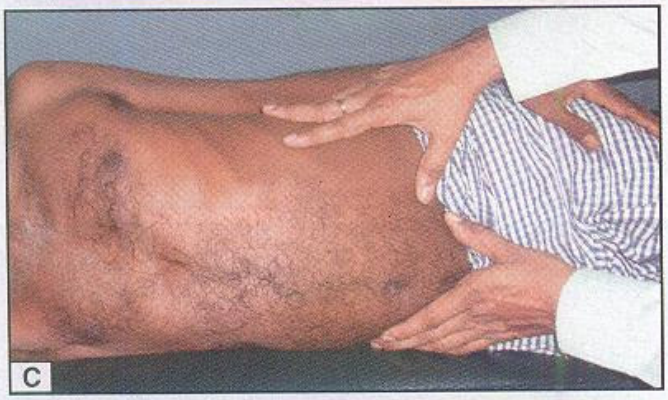
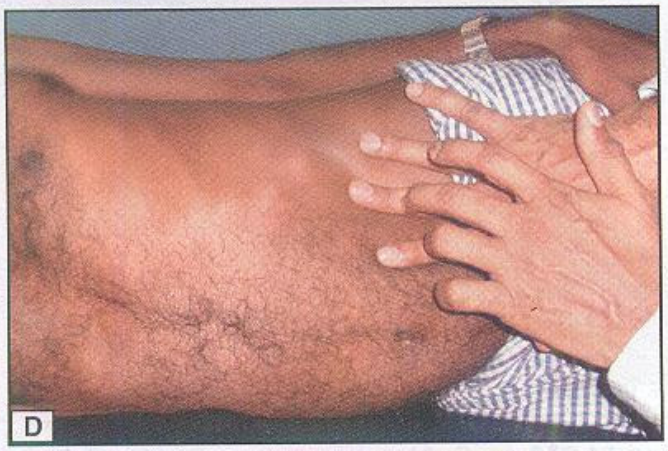








Figs 21.35A to D: Confirming ascites/free fluid in the peritoneal cavity by percussion—classical method.

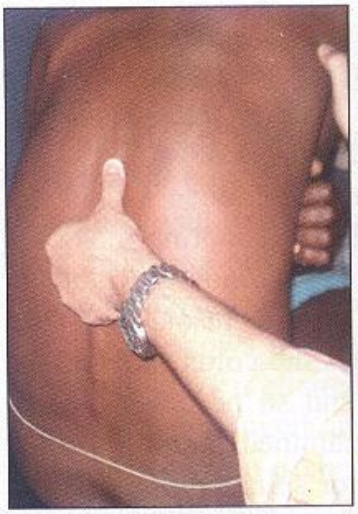
Auscultation

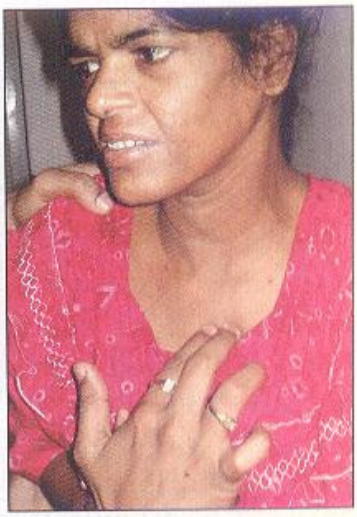
It is done for bowel sounds, bruit over the renal artery just to the side of the umbilicus, over the mass like liver which signifies vascularity, over aneurysm for bruit.

Left supraclavicular fossa between two heads of sternomastoid muscle should be palpated for Virchow's node enlargement—*Troisier's sign*—as secondary deposits.

Examination of respiratory system for effusion, altered breath sounds suggestive of metastases.

Examination of skeletal system - sternum, spine, skull and other bones for tenderness, swelling, pathological fracture, neurological deficits **(Figs 21.36A and B)**.





Figs 21.36A and B: Spine and other skeletal system should be examined in patient with mass abdomen.

Digital Examination of Rectum (Per Rectal Examination/P/R)

Per rectal examination must be done in all cases of abdominal mass. It is done with patient in left lateral position with right leg flexed completely and left leg kept straight. Procedure is done after informing patient about the technique and taking consent. Xylocaine jelly is applied over the anus. It is inspected for discharge, opening, skin changes and swelling. Pulp of the gloved right index finger is gently pushed into the anorectum in the direction of the umbilicus. Sphincter tone is assessed. Posteriorly sacral curvature, rectal mucosa are assessed. Finger is turned towards front. Prostate, its texture, size, median groove are felt. Rectum is palpated for any growth, stricture or

MASS IN THE RIGHT HYPOCHONDRIUM

Parietal swellings	Intra-abdominal swellings
Sebaceous cyst, lipoma, neurofibroma, cold abscess (from ribs or spine, presents as soft, fluctuant nontender well localised swelling), liver abscess or subphrenic abscess rupturing into the abdominal wall presenting as parietal wall abscess	Liver: Congenital Riedel's lobe; amoebic hepatitis or liver abscess, portal pyaemia or pyogenic liver abscess, gumma of liver (large smooth hard hepatomegaly), hydatid cyst of the liver, hepatocellular carcinoma (HCC), secondaries in liver, early cirrhosis of liver or macronodular type. *Gallbladder:* Mucocele, empyema, carcinoma, due to malignant CBD obstruction. *Subphrenic* abscess *Pylorus* of the stomach and duodenum *Hepatic flexure* of the colon: Carcinoma; inflammatory mass *Right kidney:* RCC, hydronephrosis *Right adrenal gland*

secondary nodule in front above (as a hard nodule with free rectal mucosa—*Blumer shelf*). Gently finger is removed and fingertip should be inspected for content staining—blood/mucous/pus, etc. **(Figs 21.37A to C)**. P/R is contraindicated in acute fissure in ano.

Per Vaginal Examination

It is done whenever pelvic mass is suspected with lower margin of the mass merging into the pelvis. Bimanual palpation is often done under general anaesthesia in lower abdominal masses.

Differential Diagnosis

Mass in any quadrant should be assessed first whether it is in the abdominal wall or intra-abdominal or retroperitoneal. From which specific organ mass is arising should be ascertained. Pathological nature of the mass must be assessed. So initially *anatomical diagnosis* is made and later *pathological diagnosis* is thought of, finally the *final diagnosis is concluded*.

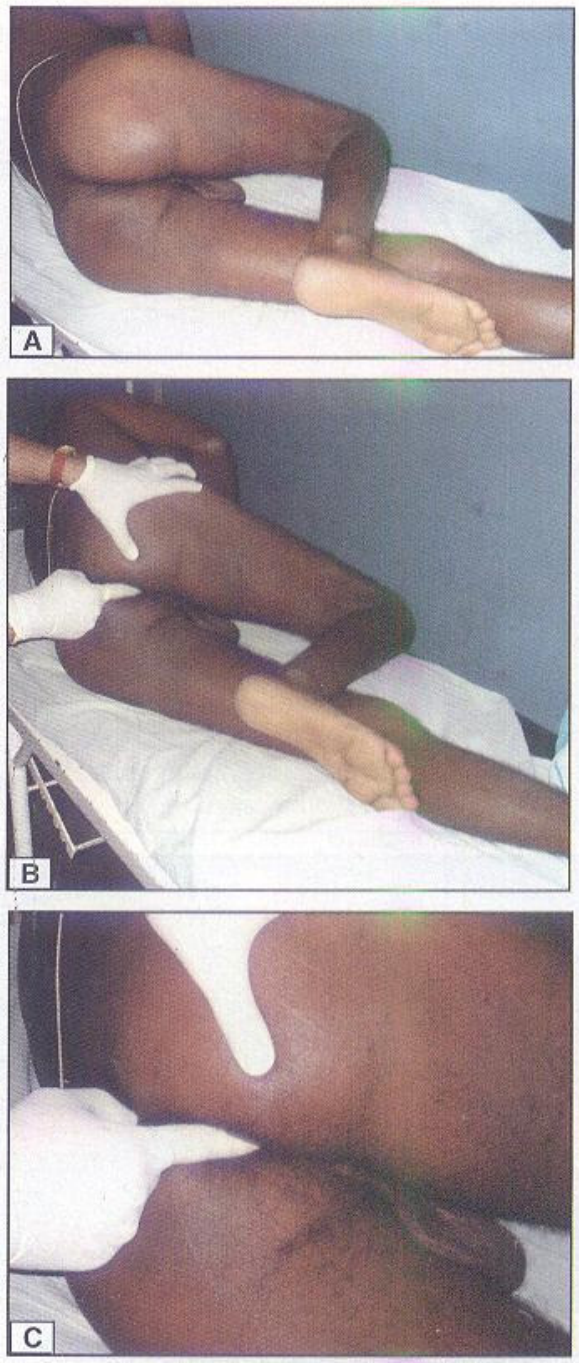
Palpable liver Mass as Mass in Right Hypochondrium

It is horizontally placed; usually moves with respiration; upper border is not felt; it is dull on percussion; (this dullness continuous over liver dullness above); fingers cannot be insinuated under right costal margin.

Conditions where liver gets enlarged:

1. *Soft, smooth, nontender liver—*

a. Hydrohepatosis: It is due to obstruction of CBD causing dilatation of intrahepatic biliary radicles (usually malignant CBD obstruction but can occur in obstruction due to stones).



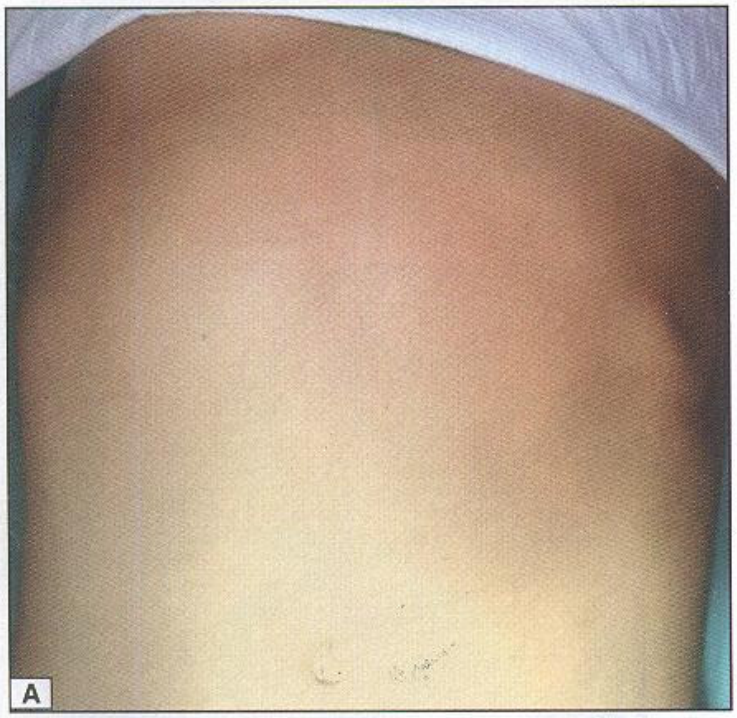
Figs 21.37A to C: Digital examination of the rectum is important (P/R; Per Rectal examination)

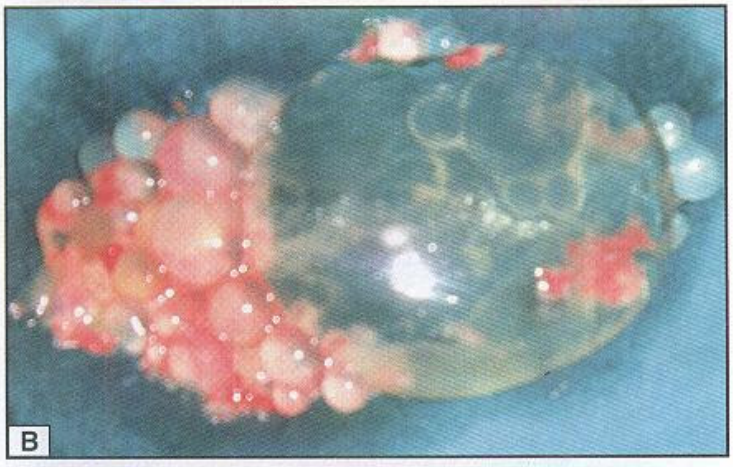
b. Congestive cardiac failure.
c. Hydatid cyst of the liver—Here mass is well localised in the liver with typical hydatid thrill (Three fingers are placed over the mass widely. When central finger is tapped fluid movement elicited is felt in lateral two fingers) **(Figs 21.38A and B)**.
d. Congenital Riedel's lobe is a tongue shaped projection from the lower border of the right lobe of the liver. It is often mistaken for enlarged gallbladder but is wider, flat and not spherical.

2. *Soft, smooth, tender liver—*
a. Amoebic liver abscess: Here liver often gets adherent to the anterior abdominal wall and will not move with respiration. Intercostal tenderness and right sided pleural effusion is common. History of amoebic dysentery few months before may or may not be there. Fevers, referred pain in right shoulder, pallor, mild jaundice, elevation of upper border of the liver are the features. Subcutaneous pitting oedema in right hypochondrium is often very significant. X-ray will reveal the elevated diaphragm with pleural effusion. Amoebic hepatitis: Liver will be tender, smooth, soft or firm.
b. Viral hepatitis also causes smooth, soft, tender liver. Patient develops multiple joint pains in viral hepatitis.
c. Portal pyaemia: It causes tender soft liver with toxaemia, jaundice.

3. *Hard, smooth liver.*
a. Hepatoma ([HCC): Here a large, single, hard nodule is palpable in the liver. But occasionally there can be multiple nodules when it is multicentric. Rapidly growing tumour can also be soft. Hepatoma often can also be tender due to tumour necrosis or stretching of the liver capsule. Vascular bruit may be heard over the liver during auscultation. It mimics amoebic liver abscess in every respect.
b. Solitary secondary in liver: It is not common but can occur (when primary is in colon); features of primary tumour may be present.

4. *Hard liver with multiple nodules.*
a. Multiple secondaries in liver: Hard nodules here have umbilication which is due to central necrosis.
b. Macronodular cirrhotic liver or early cirrhosis.



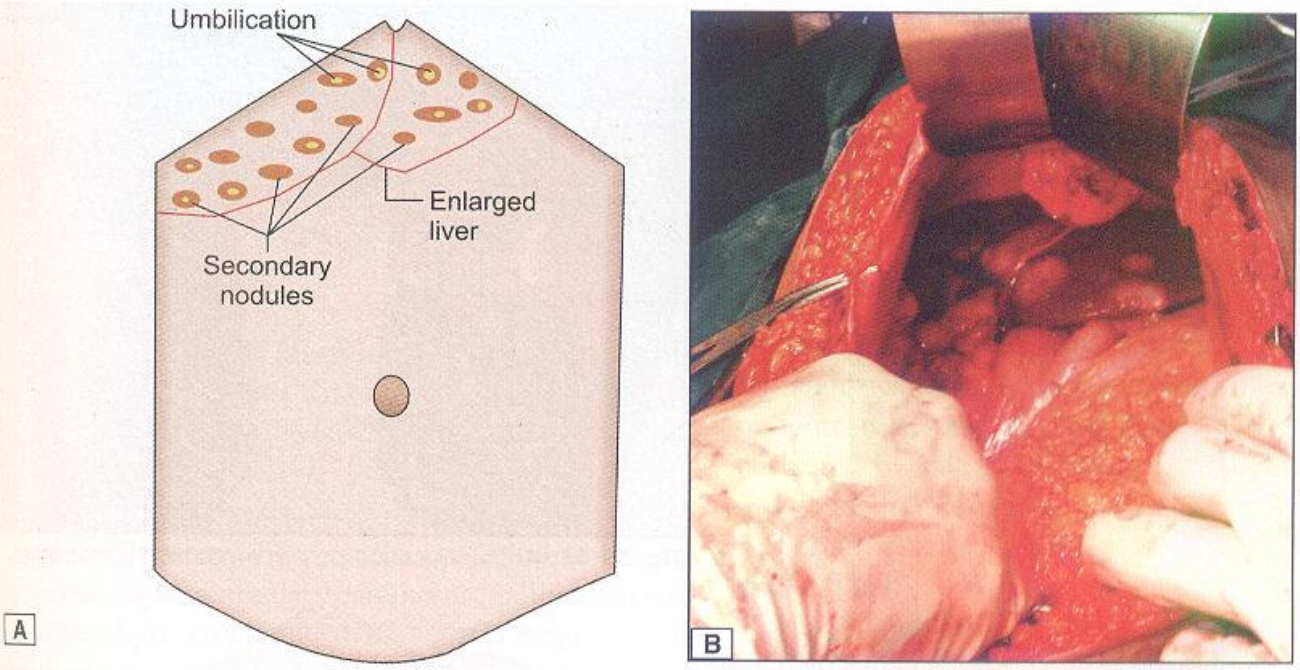


Figs 21.38A and B: Hydatid cyst of liver—fullness in right hypochondrium. Operated specimen of hydatid in same patient.

Causes for massive liver enlargement: Gummatous liver (*Hepar lobatum*); secondaries in liver from melanoma; often large hepatoma. Melanoma especially primary from choroids can cause secondaries in liver as late as 15 years after therapy (surgery) for primary **(Figs 21.39A and B)**.

Palpable Gallbladder in Right Hypochondrium

It is smooth and soft (except in carcinoma gallbladder); mobile horizontally (side-to-side); moves with respiration; located in lateral margin of the right rectus muscle, below the right costal margin or below the lower margin of the palpable liver; dull on percussion.



Figs 21.39A and B: Multiple secondaries in liver with umbilication. It is due to central necrosis. Secondaries are the commonest malignant tumour of the liver. It could be from GIT or extra gastrointestinal like from breast, lungs, melanoma, thyroid, prostate, kidneys, etc. Patient with liver secondaries have poor general condition. It should be differentiated from multicentric hepatoma. It is usually treated by palliative chemotherapy. Solitary secondary from carcinoma colon can be removed by segmentectomy. It has got poor prognosis.

Conditions where gallbladder is palpable:

1. *Soft, nontender gallbladder*:
   a. Mucocele of the gallbladder.
   b. Enlarged gallbladder in obstructive jaundice due to carcinoma head of the pancreas or periampullary carcinoma or growth in the CBD.
2. *Hard gallbladder:* Carcinoma gallbladder.
3. Smooth, tender, soft or firm gallbladder mass: Empyema gallbladder, acute cholecystitis mass.

Other Masses in the Right Hypochondrium

a. *Pericholecystic inflammatory mass*: It is tender, smooth, firm or soft, not mobile, intra-abdominal mass often with guarding.
b. *Mass arising from upper pole of the kidney*: It may be due to renal cell carcinoma or hydronephrosis.
c. *Adrenal tumour* may be phoeochromocytoma or adrenocortical carcinoma. It is nonmobile; does not move with respiration; extends medially; often crosses midline; fluctuating hypertension is common. Renal angle is normal and resonant. In children it could be neuroblastoma. Such neuroblastoma may cause secondaries in skull.

Note: Commonest benign tumour of liver is haemangioma.

Hepatoma/hepatocellular carcinoma/HCC

- Common aetiologies are aflatoxins, hepatitis B and hepatitis C virus infection, alcoholic cirrhosis, haemochromatosis, smoking, hepatic adenoma, clonorchis sinensis, polyvinyl chloride
- Unicentric and right lobe involvement is more common **(Fig. 21.40)**
- Fibrolamellar variant is common in left lobe, not related to hepatitis or cirrhosis without AFP level raise. There is increased serum vitamin B_{12} binding capacity and neurotensin levels.
- It can be multifocal/indeterminate/spreading/expanding—*Okuda classification*
- Presents as large smooth hard liver mass—later jaundice, fever, pain and tenderness, ascites and bruit over mass
- Spreads by lymphatics, blood and direct spread
- Mimics amoebic liver abscess, secondaries, hydatid cyst, polycystic liver disease
- LFT, CT scan, raised AFP, liver biopsy are the investigations
- Hemihepatectomy in early operable growth is the treatment
- Hepatic artery ligation/intra-arterial chemotherapy/chemoembolisation/percutaneous ethanol or acetic acid injection/radiofrequency ablation/chemotherapy using adriamycin, carboplatin, gemcitabine—are palliative procedures.