

Clinical features: Purpuric patches in skin (buttocks and limbs), mucous membrane (most common presenting sign); epistaxis; menorrhagia, haematuria; GIT bleeding; intracranial haemorrhage (most dangerous); splenomegaly (25%); *Hess tourniquet test* is positive (By applying sphygmomanometer and inflating for 10 minutes just below the systolic pressure causes more than 20 petechiae in cubital fossa in 3 cm circled area).

Differential diagnosis: Other causes for purpura; increased capillary fragility; bone marrow suppression due to aplastic anaemia; chemotherapy; DIC; autoimmune diseases.

Investigations: Bleeding time is increased; Clotting and prothrombin time are normal; Platelet count is decreased; Bone marrow biopsy reveals increased megakaryocytes; US shows splenomegaly only in 25% cases.

Types: *Acute* is common in children. *Chronic* is common in adult. In children spontaneous regression occurs in 75% of cases after one attack.

Felty's syndrome

Chronic rheumatoid arthritis; leucopenia; splenomegaly, recurrent infections, ulcers in leg and ankles, anorexia, lymphadenopathy are the features.

Palpable Kidney Mass

There will be fullness in the loin which is better observed in sitting position. Mass moves with respiration. It is vertically placed, bimanually palpable, and ballotable. Renal angle is dull on percussion (normally it is resonant due to colon). There is a band of resonance in front due to reflected colon. It does not cross the midline.

Conditions where kidney gets enlarged:

Hydronephrosis: It is smooth, soft, lobulated, nontender mass.

Pyonephrosis: History of throbbing pain in the loin, pyuria and fever with chills. It is smooth, soft and tender kidney mass which is nonmobile due to inflammatory adhesion.

Perinephric abscess: Bulge in the loin; dullness on percussion; bending the trunk away from the side of the lesion; fever, tachycardia. *Mathe's sign:* In IVU, imaging in standing and lying down positions show kidney to be in same position whereas in normal individual kidney will be lower in standing position than in lying down position.

Polycystic kidney: History of loin pain and haematuria. Present with hypertension, anaemia and features of renal failure. Usually bilateral but one side presents early than the other side. It has lobulated, smooth surface.

Renal cell carcinoma: History of mass in the loin, haematuria, fever and dull pain. Mass is nodular and hard. It does not cross the midline.

Mass from the Ascending Colon on Right Side or Descending Colon on Left Side

History of altered bowel habits with decreased appetite and weight. Mass is nodular, hard which does not move with respiration and is not ballotable. It is resonant or impaired resonant on percussion. Renal angle is resonant. Proximal dilated bowel may be palpable.

Adrenal Mass

It is nodular and hard, does not move with respiration, not mobile and often crosses the midline. It is felt on deep palpation, resonant in front and not ballotable.

Retroperitoneal Tumours

They are not mobile, resonant and do not fall forward in knee-elbow position. They are deeply placed mass which are usually smooth and hard. They may be retroperitoneal sarcomas or teratomas, etc. Often

MASS IN THE LUMBAR REGION

Parietal wall swellings

Cold abscess in lumbar region may be due to Pott's disease
Lumbar hernia—impulse on coughing
Soft tissue tumours like anywhere

Intra-abdominal swellings

Renal mass
Liver mass right side; splenic mass left side
Colonic mass
Gallbladder mass right side
Retroperitoneal masses

MASS IN THE UMBILICAL REGION

Parietal swellings

Umbilical adenoma
 Umbilical hernia rectus sheath haematoma, abdominal wall abscess common in this region
 Desmoid tumour

Intra-abdominal swellings

Stomach and duodenum
 Small intestine—tumour, intussusception, inflammatory
 Mesenteric mass—cyst, tumour, nodal mass
 Transverse colon
 Omentum
 Pancreas
 Para-aortic nodes
 Aorta and iliac arteries
 Retroperitoneal swellings

retroperitoneal tumours attain large size. IVC compression is often seen causing dilated veins in the lateral abdominal wall with direction of blood flow upwards. They occupy many regions in the abdomen. Obstruction of ureters can cause hydronephrosis (**Fig. 21.47**).



Fig. 21.47: Retroperitoneal tumour

Retroperitoneal Cysts

They are *smooth and soft* with the same features as retroperitoneal tumours. They often attain large size.

Usual masses are:

Mesenteric cyst; Omental cyst; Ovarian cyst (Pedunculated); Small bowel tumours; Extension of masses from other region.

Mesenteric Cyst

Causes: Chylolymphatic; Enterogenous; Cysts of urogenital remnant; Teratomatous dermoid cysts; Other

causes - Traumatic haematoma and cyst formation, Tuberculous cold abscess of mesentery, Hydatid cyst of mesentery.

Chylolymphatic cysts are the commonest one. It arises from congenitally misplaced lymphatic system. Common in ileum, is a thin walled cyst with flat endothelium, containing lymph or chyle which is either milky or cream coloured. It is solitary and commonly unilocular with loop of the bowel in front. It has got independent blood supply, i.e. not from the adjacent bowel loop. So enucleation is done without resecting bowel.

Enterogenous type arises as a diverticulum or duplication from the adjacent bowel. Hence it is a thick walled cyst (contains all layers of the bowel) and receives its blood supply from the adjacent bowel (not independent). So resection of the adjacent bowel along with the cyst is essential. Enucleation is contraindicated.

Clinical features: It is common in 2nd decade, often in childhood. It presents as painless abdominal swelling in umbilical region, smooth, fluctuant, not moving with respiration. It is mobile freely in the direction perpendicular to the line of mesentery. Line of attachment of the mesentery is an oblique line starting from a point 2.5 cm left of the midline and 1.0 cm below the transpyloric line extending downwards to the right iliac fossa at the junction of right lateral and transtubercular plane. There is a band of resonance in front of the cyst (**Figs 21.48 and 21.49**).

Complications of mesenteric cysts: *Torsion of cyst* can lead to *volvulus* of the adjacent bowel; *Rupture of the cyst*; *Haemorrhage* into the cyst; *Infection* - Patient presents with acute painful swelling in umbilical region.

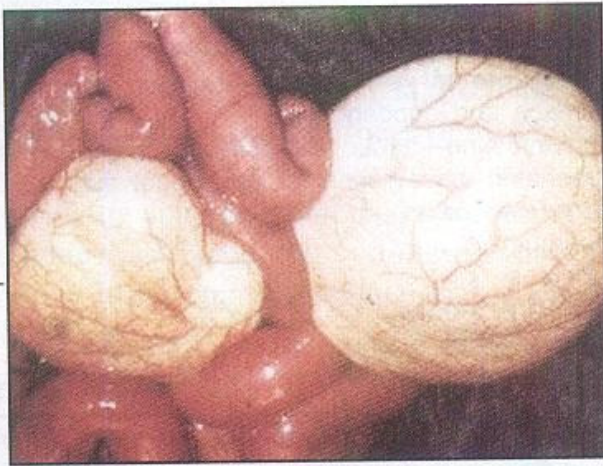


Fig. 21.48: Mesenteric cyst.

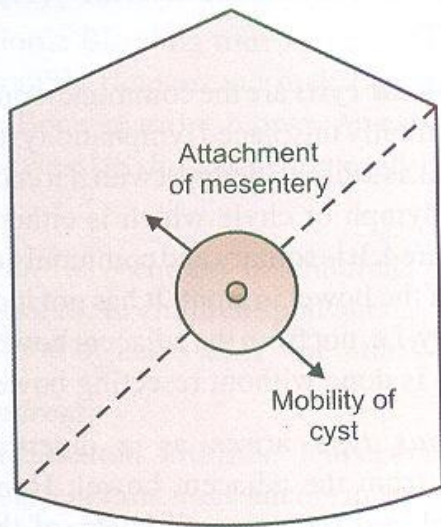


Fig. 21.49: Mobility of mesenteric cyst. Line of attachment of the mesentery is an oblique line starting from a point 2.5 cm left of the midline and 1.0 cm below the transpyloric line extending downwards to the right iliac fossa. It extends from ligament of Treitz at the level of L2 vertebra to right sacroiliac joint. Small bowel is 6 meters in length but mesentery is only 15 cm in length at its *root*.

Differential diagnosis: Hydronephrosis; Omental cysts; Tuberculosis.

Tillaux's triad

Soft fluctuant umbilical swelling
Freely mobile in a direction perpendicular to mesentery
Zone of resonance all around

Omental Cyst

It is smooth, soft and nontender, moves with respiration, mobile in all directions, dull on percussion. Omentum may also get involved by tuberculosis (rolled up omentum), secondary deposits (irregular and hard), may form a composite mass.

Small Bowel Swellings

Small bowel lymphomas; Small bowel tumours/ carcinomas; Intussusception.

Intussusception

Present as a mass in umbilical region usually towards left and above the umbilicus; occasionally towards right side. Mass is intra-abdominal, *sausage shaped*, well defined, smooth, firm and mobile. Mass does not move with respiration, contracts under palpating fingers. Often mass disappears and later reappears. Mass is resonant or impaired resonant on percussion. 'Red currant jelly' stool with features of intestinal obstruction may be present.

Tuberculous Mesenteric Lymphadenitis (*Tabes mesenterica*)

Matted lymph nodes of mesentery with coils of intestines can present as mass in umbilical region.

Diseases of the umbilicus

(1) **Inflammations:** Omphalitis; Umbilical granuloma; Pilonidal sinus. (2) **Fistulas:** (a) *Faecal*—Patent vitello intestinal duct, Neoplastic ulceration; Tuberculosis of peritoneum. (b) *Urinary*—Patent urachus. (3) **Neoplasms:** a) *Benign*—Adenoma (Raspberry tumour); Endometrioma. (b) *Malignant*—Primary (rare). Secondary carcinoma—Sister Joseph's nodule through lymphatics of the round ligament, primary being in the stomach, colon, ovary, uterus, breast (often blood spread). (4) **Umbilical hernias.** (5) **Umbilical calculus (Umbolith).**

Umbilical Granuloma

It is due to chronic infection of the umbilical cicatrix, causing sprouting of granulation tissue, leading to the formation of umbilical granuloma. It occurs in any age group, but common in infants and children. Present as umbilical discharge with tender, red swelling protruding from the umbilicus which bleeds on touch. It has to be differentiated from the anomalies of vitello-intestinal duct. It also mimics umbilical adenoma (Fig. 21.50).

Anomalies of Vitello-intestinal Duct

(1) It may remain completely patent, forming an *intestinal fistula*. (2) Only a small portion near the



Fig. 21.50: Umbilical granuloma.

umbilicus may remain patent causing discharging *umbilical sinus*. Often the mucosa of this retained portion (epithelial lining) protrudes or everts to form *umbilical adenoma*. (3) Duct is closed on either side, but the intervening portion may remain as an *intra-abdominal cyst*. (4) Vitello-intestinal duct which is obliterated can retain *as band* which may be a seat for intestinal obstruction, volvulus, internal herniation. (5) *Meckel's diverticulum* itself can cause diverticulitis, obstruction. Fistulogram is useful. MRI delineates track well (Figs 21.51 and 21.52).

Umbilical Adenoma (Raspberry Tumour)

It is commonly seen in infants. It is due to partially obliterated vitello-intestinal duct towards umbilical side causing *prolapse of the mucosa* giving rise to *Raspberry tumour*, also called as *umbilical adenoma*.

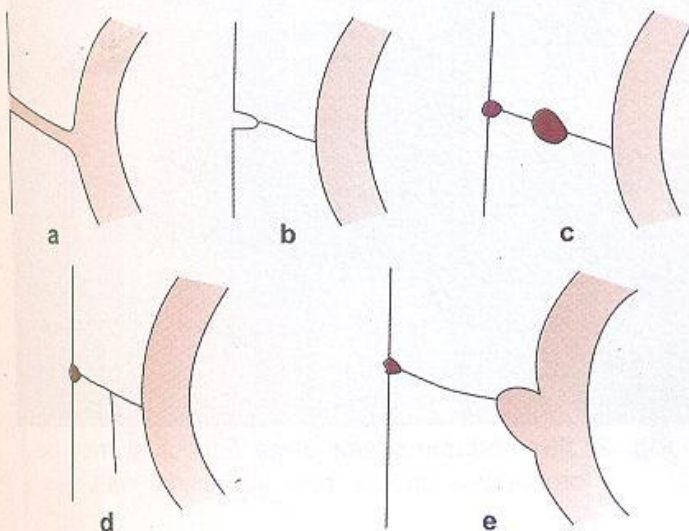


Fig. 21.51: Anomalies of vitellointestinal duct: (a) Intestinal fistula, (b) Umbilical sinus, (c) Intra-abdominal cyst, (d) Band, (e) Meckel's diverticulum.



Fig. 21.52: Patent vitellointestinal duct.

It protrudes out as a red swelling which is moist with mucus and tends to bleed on touch. It often gets infected, discharging pus through the umbilicus. Histologically, it consists of columnar epithelium rich in goblet cells (Fig. 21.53).

Differential diagnosis: Umbilical granuloma.



Fig. 21.53: Umbilical adenoma (Raspberry tumour).

Patent Urachus

Allantoic duct/stalk which is remnant of cranial part of ventral urogenital sinus forms urachus. It gets fibrosed and forms median umbilical ligament. When