PLAIN ABDOMEN
Plain means?

a) 2-dimentional
b) Without contrast
c) On film surface
d) Normal
plain = without contrast
Main use is in patients with acute abdomen
for most other intestinal problems, a sort of contrast is required
STANDARD VIEWS

- ERECT abdomen
- SUPUNE AP abdomen
- LATERAL DECUBITUS (ILL PATIENT)
Intestinal gas pattern

- Large amounts in stomach and colon
- Some gas may be seen in small bowel
Fluid levels

- Normal in Stomach and duodenum
- Short fluid levels in SB & LB also normal
- Fluid levels are abnormal if
1. Very numerus
2. Associated dilation of bowel
How to look at plain abdominal film

- Dilataion
- Gas outside bowel lumen
- Calcification
- Ascites
- Soft tissue densities
- Liver and spleen
DILATATION OF BOWEL
Causes of dilatation

- Mechanical SB obstruction
- LB obstruction
- Paralytic ileus
- Local peritonitis
- Toxic dilatation of the colon
- SB infarction
- Closed loop obstruction
Small or large bowel?

- Diameter
- Loop of curvature
- No. of loops
- Valvulae conniventes/haustrea
- Location
- Fecal material
<table>
<thead>
<tr>
<th></th>
<th>Small bowel</th>
<th>large bowel</th>
</tr>
</thead>
<tbody>
<tr>
<td>valvulae conniventes</td>
<td>Present</td>
<td>absent</td>
</tr>
<tr>
<td>number of loops</td>
<td>many</td>
<td>few</td>
</tr>
<tr>
<td>Distribution of loops</td>
<td>central</td>
<td>peripheral</td>
</tr>
<tr>
<td>haustra</td>
<td>absent</td>
<td>Present</td>
</tr>
<tr>
<td>diameter</td>
<td>3-5 cm</td>
<td>&gt;5cm</td>
</tr>
<tr>
<td>radius of curvature</td>
<td>small</td>
<td>large</td>
</tr>
<tr>
<td>Solid feces</td>
<td>absent</td>
<td>Present</td>
</tr>
</tbody>
</table>
Fig. 4.3 Large bowel obstruction due to carcinoma at the splenic flexure. There is marked dilatation of the large bowel from the caecum to the splenic flexure.

Fig. 4.4 Paralytic ileus. There is considerable dilatation of the whole of the large bowel extending well down into the pelvis. Small bowel dilatation is also seen.
Gas in the peritoneal cavity (pneumoperitoneum):

- viscus perforation
- Post-surgical
Gas outside bowel lumen

- Gas in an Abscesss
- Gas in bowel wall
- Gas in biliary tree
FIGURE 52.28. Necrotizing Enterocolitis. A. Multiple loops of distended bowel have bubbly and linear radiolucencies in the bowel wall, representing pneumatosis intestinalis (arrows). B. Another patient with marked pneumatosis of the wall of the colon (arrows). C. Another infant showing pneumatosis intestinalis (arrowheads) and branching radiolucencies within the liver representing air within the portovenous system (arrows).
Abdominal calcifications

- Location
- Pattern

Most are insignificant
- Vascluar
- L.N
- Phleboli
- fibroids
Fig. 4.18  Mass arising out of pelvis (arrows) displaces the sides of the abdomen. The mass was a large cyst.
Advantages of CT scan

- show the whole width of bowel wall
- easier than either endoscopy or Ba enema
- Very rapid
- Multiplanar (with modern scanners)
- Lumen evaluation with contrast (gastrografin or air)
- Virtual colonoscopy possible
Role of CT scan

1. Diagnosing & staging tumors
3. Confirm or exclude appendicitis, intestinal obstruction
4. Bowel trauma.
Role of US

- US can assess bowel wall
- Ascites
- Infantile pyloric stenosis
- Intussusception
- Suspected appendicitis.
Role of MRI

- MRI has a limited role in GIT disease,
- **Currently** its major use is for
  1. assessing the local spread of rectal cancer
  2. assessing perianal fistula & abscess.
Contrast examinations
Barium sulphate

**ADVANTAGE**
- Excellent opacification
- Good mucosal coating
- Completely inert

**DISADVANTAGE**
- Impaction
- Peritonitis (leakage)
Cotrust examination
Gastrograffin

ADVANTAGE

- Safe if leaked into the peritoneum

DISADVANTAGE

- Less radio-opaque
- Hypertonic
- Irritant to lungs
Contrast examination
Technical considerations

- Fluoroscopic control
- Double-contrast
- Smooth muscle relaxant
- Peristalsis is transitory
Barium studies

- **Barium swallow**: examination of esophagus
- **Barium meal**: examination of stomach and duodenum
- **Barium follow through**: examination of jejunum and ileum
- **Barium enema**: examination of large bowel
1. Barium meal:
2. : Barium swallow
3. Barium enema:
4. : Barium follow through

a) : examination of esophagus
b) : examination of stomach and duodenum
c) : examination of jejunum and ileum
d) : examination of large bowel