Achalasia

Achalasia is a motor disorder of the esophagus caused by degeneration of neurons of Auerbach's plexus.

A barium swallow will show the gastro esophageal junction failing to open fully and tapering to a rat tail or bird beak appearance. Intact mucosal folds can be traced through this narrowed segment which at times opens briefly to allow a little barium to spurt into the stomach. In the absence of peristalsis, this occurs when the hydrostatic pressure in the esophagus exceeds that of the lower esophageal sphincter.

With time the esophagus dilates, lengthens and becomes tortuous. The dilatation may involve the entire length of the esophagus

Complication

1. Repeated episode of aspiration pneumonia
2. Stasis of food cause esophagitis with an increased risk of carcinoma

Esophageal carcinoma

60% are seq. cell carcinoma, Forty per cent of esophageal carcinomas are adenocarcinomas arising in the lower esophagus as a result of longstanding reflux esophagitis (Barrett's esophagus).

The tumor or enlarged regional lymph nodes occasionally produce a mediastinal mass on a plain chest film. Esophageal dilatation and an air-fluid level may also be seen but these are more often

Features of achalasia and benign peptic strictures where dilatation is pronounced because of the slower onset of the obstruction. Barium radiology most frequently shows

a stricture with an irregular lumen and rolled margins unlike benign peptic strictures which have a smooth lumen and tapered margins.
. Some tumors show pronounced ulceration, or are predominantly polypoid , or spread submucosally, producing thick and irregular esophageal
folds simulating varices (varicoid carcinoma).

Hyper trophic pyloric stenosis

An abdominal radiograph shows a distended air-filled stomach with a relative paucity of bowel gas distally Ultrasound has now replaced the barium meal as the first-line investigation. It is a safe, non-ionizing investigation which, with experience, is both highly sensitive and specific
. Measurements of the muscle width and pyloric canal length are obtained from the longitudinal section. A muscle width measurement of > 3.5 mm and a pyloric length of > 16 mm in a term infant are usually taken as diagnostic of HPS. Gastric outlet function should be observed; hyper peristaltic ant rum and the absence of gastric contents passing into the duodenum are important sign.

A barium meal may be performed if ultrasound findings are equivocal or in circumstances in which the differential diagnosis is wider. Gastric, emptying is markedly delayed, with eventual passage of barium into the elongated, curved pyloric canal. The soft-tissue mass of hypertrophied muscle indents the antrum and the duodenal bulb (shouldering).

Duodenal Atresia

Duodenal atresia result from incomplete recanalization of the duodenum during gestational development.
Obstruction usually occurs just below the Ampulla of Vater
Abdominal radiographs demonstrate the classic 'double bubble' sign of duodenal atresia with an absence of distal air in which the higher, larger bubble to the left side is the stomach and the other bubble is the dilated proximal duodenum, which is seen above the area of obstruction
Contrast meal shows complete obstruction of the second part of the duodenum

Peptic Ulcer

Radiologically, gastric and duodenal ulcers are best demonstrated by performing a biphasic barium meal examination

Gastric ulcer

Benign gastric ulcers most frequently occur along the lesser curve of the stomach and the adjacent part of the posterior wall).. Giant ulcers are also caused by aspirin and non-steroidal anti-inflammatory drugs, in which case they tend to develop on the dependent part of the greater curve because gravity deposits tablets at this site.

Benign ulceration rarely involves the upper part of the greater curvature, so ulcers at this site should be suspected of being malignant.
When an ulcer is identified it should be demonstrated en face and in profile.

Benign Ulcer seen in profile as barium collection extends outside the projected margin of the gastric wall Sometimes overhanging mucosa at the margins of a benign ulcer will be seen as a pencil thin line separating a barium-filled ulcer from barium in the stomach(Hampton's line). Should the margins of the ulcer be edematous, this line will be thick (2-4 mm) & termed ulcer collar.

on. en face, an ulcer on the dependent wall of the stomach seen as distinct collection fills of barium, the collection is most often round or oval but can be linear whereas an ulcer on the non-dependent wall is seen as a ring with barium coating the edge of ulcer crater . Smooth mucosal folds radiate from the edge of a benign ulcer or if the margin is edematous the folds may stop some millimeters short of the margin. Barium evaluation to assess healing is normally conducted after an interval of 8 weeks of medical treatment.

Healing of the mucosa may be complete or there may be evidence of scarring. En face, scars are often seen as punctate or linear grooves from which smooth folds radiate evenly. . If scarring has been pronounced, perhaps because of recurrent ulceration at the same site, gastric deformity may result and can lead to an hour-glass configuration.

a malignant ulcer at the apex of a protruding tumor mass will lie within the outline of the stomach. Mucosal fold are thick, irregular & do not extend to the edge.

Duodenal Ulcer

The majority of duodenal ulcers occur within the cap. They involve the anterior and posterior walls with equal frequency. As in the stomach, an ulcer on the dependent wall fills with barium and shows radiating folds, which stop short of the margin if there is a rim of edema. An ulcer on the non-dependent wall appears as a ring. Ulcers are generally round, but may be linear, especially when healing. Spasm and scarring may draw in the margins of the duodenal cap, distorting its shape and often producing a characteristic cloverleaf appearance. Healing duodenal ulcers have a similar range of appearances to healing gastric ulcers. The ulcer niche may persist, reduce in size, become linear or a depression may persist at the site of ulceration.

Ct in peptic ulcer

• CECT (use water or water-soluble oral contrast)

o Signs of complications

• Wall thickening or luminal narrowing of stomach

• Infiltration of surrounding fat or organs (pancreas)

• Free air in abdomen or lesser sac

Complication of peptic ulcer

1. Spasm, edema and scarring from ulcers of the distal ant rum, pyloric canal and base of the cap may produce gastric outflow obstruction.

2. Perforation of anterior wall of the stomach or duodenum into the peritoneal cavity, whereas those on the posterior wall perforate into the lesser sac.
3. bleeding
4. Fistula: An antral ulcer may fistulate to the duodenal cap to give the appearance of a 'double pyloric canal' , ulcers on the greater curve can fistulate to the colon or _jejunum.

Carcinoma of Stomach

Carcinoma usually produces an irregular filling defect with alteration of the normal mucosal pattern. Overhanging edges or shouldering may be seen at the junction of the tumor & stomach wall. A carcinoma at the fundus may obstruct the esophagus while one in the antrum may cause gastric outlet obstruction.

Ulcerating lesions need to be differentiated from benign ulcers, so the adjacent mucosa must be carefully evaluated as malignant ulcers have folds radiating from their margins that are nodular, clubbed, interrupted or fused.

Advanced carcinomas may protrude into the stomach lumen and be polypoid or fungating or may infiltrate . Occasionally gastric carcinoma will spread submucosally, leaving the mucosa intact , The dcsmoplastic reaction associated with such tumor infiltration makes the stomach wall rigid, with loss of peristalsis, and the gastric lumen narrows. If the whole of

theStomach is involved, this is known as `leather bottle' stomach or linitis plastica.