NEONATAL INTESTINAL OBSTRUCTION

VOLVULUS NEONATORUM

Pathology
Embryology: intestine internalises in week 3 and rotates 270° anti-clockwise
Anatomy: (i)duodenum to right of caecum (ii)Caecum remains high (to left of duodenum)
(iii)midgut mesentery narrow's across duodenum → volvulus (iv)Ladd's bands across duodenum
(v)SMV to left of SMA

Clinical features
Symptoms: presents in first few weeks with bilious vomiting
Signs: distended

Investigations
US: SMV to right of SMA
Barium: DJ flexure to right of midline

Management
1. Resuscitation
2. Laparotomy → Ladd's operation: untwist, widen narrow mesentery,
divide Ladd's bands, straighten duodenum
place caecum on LEFT, appendicectomy

NECROTIZING ENTEROCOLITIS

Mesenteric ischaemia with bacterial translocation → sepsis/bleeding/perforation

Aetiology
?Hirschprung's
Risk factors: low BWT

Clinical features
Symptoms: bilious vomiting/PR blood and mucous
Signs: (i)septic (ii)distended/tense abdo

Investigations
AXR: distended small bowel +/- pneumatosis coli

Management
1. Resusucitate
2. Medical: abx/TPN
2. Surgery: laparotomy + resection if (i)failed medical therapy (ii)bleeding (iii)perforation

HIRSCHPRUNG'S DISEASE

Epidemiology
80% male; 1/5000 births; commonest cause of neonatal bowel obstruction; 80% present as neonates

Pathology
Aganglionosis in Auerbach's + Meissner's plexuses of rectosigmoid → spasticity of involved segment
Proximal segment uninvolved and distended

Clinical features
Symptoms: delayed meconium passage (95% should pass in first 48hrs)
Signs: (i)General= severe enterocolitis (ii Rectal=empty rectum with faeces impacted above; absent RAIR

Investigations
AXR: dilated bowel + empty rectum
Barium enema: narrow segment
Rectal wall biopsy: aganglionosis in Auerbach's and Meissner's plexuses

Diff Dx
Acquired megacolon: faecal impaction to anal verge/RAIR present/normal rectal biopsy
SB atresia: older child/RAIR present/normal rectal biopsy

Management: rectosigmoid resection + primary anastomosis (if perforated, defunctioning colostomy)

MECONIUM ILEUS

Aetiology: 95% CF
Features: obstruction in first few days → vomiting/distension
Investigations: AXR: ground glass meconium + dilated bowel *check for pancreatic insufficiency*
Management: (i)gastrograffin enema (50% relieved) (ii)Surgery (fail to respond/perforate): enterotomy + lavage

ATRESIAS

JEJEUNO-ILEAL ATRESIA
Iscahemic insult to gut
Features: polyhydramnios → bilious vomiting/distension/no meconium at 48 hrs + jaundice
Diff dx: Hisrchprung'svolvulus neonatorum/meconium ileus/other atresias
Investigations: AXR
Management: resection

COLONIC ATRESIA
Rarest site; 2-3 in IMA territory
Features: polyhydramnios → GROSS distension/no meconium at 48hrs
Diff dx: Hirschprung's
Investiations: AXR/barium enema/rectal biopsy
Management: resection + anastomosis/stoma

IMPERFORATE ANUS
Aetiology: unknown
Associations: 50% have urogenital malformation 25% spina bifida/tethered cord
Features: (i)boys= high anomaly with rectovesical/urethral fistula
(ii)girls= low anomaly with rectoperineal/vaginal fistula
Management: (i)boys= colostomy with later pullthrough
(ii)girls= anoplasty with fistula repair

INTUSSUSSCEPTION
Prolapse of one part of bowel into immediately adjoining bowel
Commonest obstruction in 6-18mths; 2/3 male

Aetiology (95% idiopathic. 5% pathological)
Infants/children up to 3yrs: usually idiopathic (may be enlarged ileal Peyer's patch)
Adults/kids over 3 yrs: often pathological lead point (polyps/cancers/lymphoma/Meckel's diverticulum)
Risk factors: recent viral illness, HSP, CF, coeliac disease

Sites
Ileocolic (85%), ileoileocolic (10%) = commoner types; idiopathic
Ileoileal/colocolic = rarer; pathological lead point

Clinical features
Symptoms: (i)colic (screaming paroxysm with legs drawn up) (ii)vomiting (iii)Blood and slime PR(redcurrant jelly)
Signs: I=pallor, dehydration Pa= sasuage-shaped tumour anywhere except LIF Pe= Au= +PR=redcurrent jelly stool

Investigations
US: almost 100% diagnostic accuracy (target/doughnut signs transversely, pseudo-kidney longitudinally)
*AXR not useful as only shows SBO non-specifically but often done on presentation

Management
Non-surgical: pneumatic insufflation w/ air or CO2 95% successful in (uncomplicated, haemodynamically stable cases)
Surgical: laparotomy + reduce/resect (twice failed insufflation/strangulation/peritonitic/haemodynamically unstable)

Enema less successful if established SBO, <3mths or >2yrs, >24hr history; start with enema unless contraindicated

1. Resuscitate (NG, iv fluids)
2. Diagnosis: US
3. Decide if stable/non-strangulated/non-peritonitic or unstable/strangulated/peritonitic ie pneumatic reduction vs surgery
* Air less likely to contaminate than barium/water
4.a Attempt hydrostatic reduction → repeat if unsuccessful
4b If unstable/strangulated/peritonitic/twice failed insufflation → laparoscopic/laparotomy + reduction + resect (dead/perforated)