---SPLEEN---

Basics

#1 developmental anomaly is accessory spleen (10-30% of pop'n)
    Location: hilum> splenocolic lig> gastrocolic lig> splenorenal lig> omentum
Spleen functions: blood filtering, immune modulation (opsonin produc'n & clearance)
    Blood enters white pulp, where plasma cells make antibodies
    It then enters red pulp, where mcphgs engulf Ab tagged material
Normally, 1/3 of total body platelets stored in spleen
Spleen is body's largest producer of IgM
Enlarged spleen usu not tender (if tender = infxn, splenic infarct, trauma)

Splenic trauma

#1 reason for splenectomy; blunt > penetrating
Rib fxs seen in 20% of splenic injuries
Associated neuro and orthopedic injuries common w/ splenic injuries
Isolated spleen injuries occur only in 30% pts
Kehr's sign: pain at L shoulder
Balance's sign: dullness to percussion of L flank
Grades of splenic injury
    I: hematoma <10% surface area
    II: hematoma 10-50% or lac <3cm
    III: hematoma >50% or lac >3cm or involving trabec vessels
    IV: lac involving segmental vessels and devasc <50%
    V: shattered spleen or hilar vessel injury w/ devasc
Rx: Splenectomy for grade V inj or pt unstable
    Splenorrhaphy (operative repair) if >50% spleen intact
        Pt must be stable, w/ inj grades I-III
        Bed rest in ICU, serial exams + HCTs
        Successful in 85% of kids, 70% of adults

Disorders of splenic function

Splenomegaly: anatomic enlargement of spleen
Hypersplenism: excess function of spleen (pts usu have splenomegaly)
    Usu assoc w/ pancytopenia d/t ↑'d sequestera'n, desctruc'n, or Ab produc'n
    Sequesteration of both RBCs and platelets
    Splenectomy if: plts<50K w/ bleeds, PMNs<2K, or anemia requiring transfusions
    In secondary hypersplenism, splenect does not completely resolve cytopenia
        Postop, may see thrombocytosis, risk of thromboembolism
    Congestive hypersplenism w/ liver failure: splenectomy contraindicated
Hyposplenism seen w/ sickle cell, multiple myeloma
Hemolytic anemia: membrane or metabolic abnormality, hemoglobinopathies
    Hereditary spherocytosis: spectrin def (rigid RBCs); splenectomy indicated
    CCY performed w/ splenectomy for hemolytic anemias to prev pigment stones
    Metabolic abnormalities not responsive to splenectomy
    Splenectomy sometimes req'd for sickle cell pts w/ splenomeg in hemolytic crisis
Coombs + hemolytic anemia

Steroids should be used first
Splenectomy when steroids fail or side effects intolerable
Anemia w/ warm reactive Ab (IgG): splenic sequest occurs thus responds to splenect
Splenectomy not helpful for cold Ab (IgM) b/c hemolysis occurs in periphery
Thalassemia: splenectomy benefits: ↓transfusion needs, ↓potential rupture, ↓discomfort
Thal pts are at highest risk for overwhelming postsplenect infxn (OPSI)
Thus alternatives to total splenectomy used more frequently
Immune Thrombocytopenic Purpura (ITP)
Acute ITP usu follows viral infxn; 80% of kids have complete, spont recovery
Chronic ITP: young adults; steroids 1st, if no response, splenectomy (80% success)
Pts who respond to steroids initially have better px w/ splenectomy
If platlets <20K, transfuse after splenectomy
TTP: fever, purpura, hemolytic anemia, neuro sxs, renal dz
Plasma pheresis usu successful; may also use steroids, ASA, transfusion
Splenectomy if these measures fail
HIV-assoc. thrombocytopenia: splenectomy 60-80% successful if meds fail
Feltys's synd: rheum arthritis w/ leg ulcers, chronic infxns
d/t Abs against PMNs
Splenectomy indicated for severe, recurrent infxns or intractable leg ulcers
Leukemia/Lymphoma: w/ chronic dz, splenect may ↓sxs from massive splenomeg
Splenect not indicated for acute dz

Consequences & complications of splenectomy

WBCs ↑50% post op, return to nl by POD 7
Platelets ↑30%, return to nl w/in 2 weeks
Start plt inhibitors (ASA) if >750K or >400K w/ myeloprolif d/o
OPSI: 2-4% in kids, 1-2% in adults
Pts undergoing splenect for heme d/o are at highest risk
S pneumo, H flu, N mening, herpes, malaria
Gradual onset (like flu), death w/in 24-48 hours (Waterhouse-Friderichsen synd)
Vaccinate pts before elective splenectomy, or postop when pt recovers
Pts must seek medical attention at 1st sign of any minor infxn
Subphrenic abscess: ↑'d risk if drains placed; sxs POD 5-10
Fever, leukocytosis, pain, pleural effusion, PNA
Pancreatic injury: check serum amy/lip, POD 4-5
NGT to prevent gastric distension and bleed from short gastric vessels

Summary of indications for splenectomy

Coombs + or warm reactive Ab hemolytic anemia
TP: plts<50K w/ bleeds, PMNs<2K, or anemia requiring transfusions
Chronic ITP, HIV-assoc TP, Felty's synd, chronic leuk/lym
Hereditary spherocytosis, sickle cell pts in crisis
Splenic rupture, secondary hypersplenism

Splenic cysts

Parasitic most common (Echinococcus)
Usu impinge on stomach (pts feel full)
Lung ca #1 tumor to met to spleen
Dx: echinococcal antibodies
Rx: Symptomatic parasitic cysts: splenectomy
Symptomatic nonparasitic cysts: if small, excise; if large, unroof