ABDOMINAL AORTIC ANEURYSM (AAA)

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HISTORY & PHYSICAL

- Male:female ratio is 4:1
- 5–10% of males over 65 years of age have AAA
- High incidence in patients with peripheral arterial aneurysm (popliteal, femoral)
- Ruptured AAA – clinical suspicion
  - ➢ elderly male with severe back or abdominal pain
  - ➢ may radiate to groin.

Signs & Symptoms

- Most are asymptomatic and found on other imaging studies
- pulsatile abdominal mass in less than 30% of patients with significant AAA
- Tender abdominal mass is suggestive of symptomatic aneurysm
- examine for associated peripheral aneurysms (femoral, popliteal)
- Unusual presentations:
  - ➢ atheroembolism to lower extremities
  - ➢ thrombosis (sudden severe ischemia of legs)
  - ➢ high output CHF from aortocaval fistula
  - ➢ GI bleeding from primary aorto-enteric fistula
- Ruptured AAA
  - ➢ Pulsatile mass + hypotension
  - ➢ abdominal/back/groin pain + hypotension

TESTS

Laboratory

- None

Imaging

- Ultrasound for screening
- CT scan is best test for aneurysms being considered for repair
- Defines : associated iliac aneurysms, eligibility for endovascular repair, possible suprarenal extension
- Conventional MRI has no advantage over CT for AAA
- Angiography is not used for diagnosis (can miss AAA due to normal lumen)

- Angiography (contrast or MR) indicated preoperatively in patients with:
  - ➢ clinical suspicion of concurrent renal artery stenosis (severe hypertension, elevated creatinine)
  - ➢ mesenteric occlusive disease (post-prandial pain)
  - ➢ significant lower extremity occlusive disease (claudication + ankle/brachial index<0.7).
- Ruptured AAA: if diagnosis is unclear (no mass):
  - ➢ Emergency ultrasound
    - helpful only if aorta is clearly seen and completely normal
    - often not helpful due to bowel gas and patient discomfort
    - cannot rule out a leak from AAA
  - ➢ CT scan
    - Best test when diagnosis of AAA is unclear
    - Emergency non-contrast scan of abdomen
    - Intravenous contrast increases post-op renal failure and is not needed to see AAA or leak
    - Oral contrast not required

DIFFERENTIAL DIAGNOSIS

Ruptured AAA

- most common misdiagnosis is kidney stone
- second most common is musculoskeletal back pain; high suspicion of AAA with new onset or change in chronic back pain
- other:
  - ➢ appendicitis (associated GI symptoms)
  - ➢ diverticulitis (fevers, GI symptoms, focal left sided tenderness)
  - ➢ aortic dissection (ripping pain, extends into chest and upper back)
  - ➢ incarcerated hernia (physical exam, CT scan if exam inconclusive)

MANAGEMENT

What to Do First

- Emergent (immediate) operation in patients with abdominal pain and hypotension due to ruptured AAA
- Emergent non-contrast CT scan in patients with symptoms suggestive of ruptured AAA

General Measures

- Rule out ruptured AAA first in all patients with suggestive symptoms, as it is the most rapidly lethal diagnosis if missed

- Risk/benefit ratio of elective repair is contingent upon low operative mortality (less than 5%)

SPECIFIC THERAPY

Indications

- Most patients
  - ➢ Elective repair if diameter in any orientation is 5 to 5.5 cm
  - ➢ Repair if serial scans (either ultrasound or CT) demonstrate rapid growth (> 1 cm/year) or saccular growth
  - ➢ Urgent repair in patients with symptoms (tenderness)
  - ➢ Repair associated lesions (renal, visceral or peripheral occlusive disease) concurrently if indicated
- Poor-risk patients
  - ➢ consider endovascular repair
  - ➢ discuss with patient/family outcome if not repaired
  - ➢ (Risk of rupture is 2–3% per year at 5 cm, and may not be significant relative to other co-morbidities)

Treatment Options

- Operative repair
  - ➢ Most durable treatment
  - ➢ Little difference between transperitoneal and retroperitoneal repairs
  - ➢ Intraoperative pulmonary artery catheters in patients with poor ejection fraction or CHF

Side Effects and Contraindications

- Operative repair
  - ➢ Perioperative mortality should be less than 5%
  - ➢ Complications
    - Myocardial infarction:
    - Clinical indices (Goldman criteria, Eagle criteria) are predictive of risk, but persantine thallium scanning is not.
    - MI after elective repair is rarely fatal
  - ➢ Ischemic colitis
    - Seen more often after ruptured AAA with hypotension
  - ➢ Renal failure
    - Seen after repair of ruptured and suprarenal AAA. Associated with high mortality (50%)
- Contraindications
  - ➢ Expected survival less than 50% at 5 years due to associated cardiovascular disease
    - Endovascular Repair

- Lower mortality and morbidity than open repair
- Less durable than standard repair
- Absolute Contraindications
  - ➢ Bilateral common iliac artery aneurysms
  - ➢ Pararenal or suprarenal aneurysm
  - ➢ Angulation, thrombus or dilation of infrarenal neck
  - ➢ Iliac occlusion or stenosis precluding transfemoral access
- Relative contraindications
  - ➢ Long term anticoagulation (higher risk of endoleak [see below])
  - ➢ Associated occlusive disease requiring treatment

Specific Complications

- Endoleak
  - ➢ Persistent arterial flow in aneurysm sac due to: failure of device to seal to arterial wall (Type I), back flow from branch vessel (Type III) or leak through graft material (Type III)
- Post-implant fever
  - ➢ Occurs 12–48 hours after implant; not due to infection

FOLLOW-UP

During Treatment

- Follow AAA less than 5 cm with serial ultrasound or CT scans q6–12 months, or more frequently if there is rapid change in size

Routine

- Patients undergoing endovascular repair require lifelong yearly CT scan to monitor position and seal of device

COMPLICATIONS AND PROGNOSIS

Complications

- Myocardial Infarction
- Renal failure
  - ➢ Poor prognosis (50% mortality). Treatment is supportive. Usually resolves (ATN)
- Ischemic colitis
  - ➢ Diagnose by bedside sigmoidoscopy. Colectomy for full-thickness ischemia; serial endoscopy for mucosal ischemia which often resolves. May cause late ischemic strictures.
- Endoleak (seen only after endovascular repair)
  - ➢ Diagnosed on post-op CT scan or angiogram. Treatment is usually endovascular
- Graft Infection

➢ Can occur after either open or endovascular repair. Symptoms: persistent fever or aorto-enteric fistula (upper GI bleeding). Diagnosis: CT scan. Treatment: graft excision and extra-anatomic bypass. Mortality: 50%.

Prognosis

- Ruptured AAA
  - ➢ Most die en route to hospital or on arrival
  - ➢ 50% of those undergoing surgery survive
  - ➢ Preoperative predictors of poor survival:
    - age > 80
    - preoperative hypotension
    - elevated creatinine preop or postop renal failure
- Elective Repair
  - ➢ Perioperative mortality approximates 5%
- Endovascular Repair
  - ➢ Requires life-long follow-up for late complications
    - Late onset endoleak:
    - Graft migration or disruption
  - ➢ Late complications
    - Graft infection (1%)
    - Secondary aorto-enteric fistula

ABSCESSES AND FISTULAS

EMMET B. KEEFFE, MD

HISTORY & PHYSICAL

Risk Factors

- Recent abdominal surgery
- Penetrating or blunt abdominal trauma
- Perforation of appendix or colonic diverticulum
- Perforation associated w/ intraabdominal malignancy
- Crohn disease
- Chronic diseases, eg, cirrhosis, renal failure
- Drugs, eg, corticosteroids, chemotherapy
- Prior radiotherapy

History

- High spiking fevers w/ chills
- Abdominal pain

- Nausea & vomiting
- Hiccups
- Chest pain
- Dyspnea
- Shoulder pain

Signs & Symptoms
- Tachycardia
- Abdominal tenderness
- Ileus
- Pleural effusion
- Basilar rales

TESTS

Basic Blood Tests
- Leukocytosis w/ left shift
- Anemia
- Nonspecific elevation of bilirubin & liver enzymes

Specific Diagnostic Tests
- Positive blood cultures
- Positive cultures from aspiration of abscess
- Most common aerobes: E coli & Enterococcus
- Most common anaerobes: Bacteroides

Imaging
- Plain abdominal & chest films: air-fluid levels in area of abscess; elevation of right diaphragm in subphrenic abscess
- Gallium scan: useful for smaller abscess not well seen on imaging
- CT: imaging modality of choice for identification of abscess; also allows aspiration for culture
- US: less sensitive for abdominal abscesses
- Charcoal or methylene blue: oral administration with detection in drainage from fistula

DIFFERENTIAL DIAGNOSIS
- Necrotic tumors

MANAGEMENT

What to Do First
- Complete diagnostic studies, particularly imaging, for localization & aspiration

General Measures
- Initiate general supportive care: fluid & electrolyte replacement, establish feeding (TPN if fistula present), oxygenation if needed
- Swan-Ganz catheter, mechanical ventilation &/or vasopressors if unstable

SPECIFIC THERAPY
- Adequate drainage of abscess either percutaneously or by surgery
- Surgery indicated if pt fails to respond to percutaneous drainage in 1–2 d
- Establish adequate drainage of enterocutaneous fistulas, eg, open recent surgical excision, use of percutaneous catheters
- Surgery for complex fistulas or failure to resolve w/ external drainage & TPN
- Antibiotics: broad spectrum initially, & then based on culture results

FOLLOW-UP
- Frequent clinical evaluation early after drainage
- Serial imaging when treated w/ catheter drainage to confirm catheter w/i abscess & abscess closed

COMPLICATIONS AND PROGNOSIS

Complications
- Multiorgan failure leading to death
- Recurrent abscess
- Fistula formation
- Bowel obstruction
- Pneumonia
- Pleural effusion

Prognosis
- Good w/ adequate drainage & response to antibiotic therapy

ACANTHOSIS NIGRICANS

JAMES SEWARD, MD and JEFFREY P. CALLEN, MD
REVISED BY JEFFREY P. CALLEN, MD

HISTORY & PHYSICAL

History
- A cutaneous marker of insulin resistance states
- Other etiologies: hereditary, endocrine disorders, obesity, drugs, and malignancy

- Seen in blacks > Hispanics > whites
- Five types:
  - ➢ Type I (Familial)
    - Exceedingly rare
    - Autosomal dominant
    - Present at birth or develops during childhood
    - Worsens at puberty
    - Not associated with an internal cancer
  - ➢ Type II (Benign AN)
    - Associated with various endocrine disorders
    - Examples include acromegaly, gigantism, Stein-Leventhal syndrome, Cushing's, diabetes mellitus, hypothyroidism, Addison's disease, hyperandrogenic states, and hypogonadal syndromes
  - ➢ Type III (formerly called Pseudo-AN; however, this probably is the result of an endocrinopathy, namely insulin resistance)
    - Most common form
    - Associated with obesity and insulin resistance states
    - Not associated with malignancy
  - ➢ Type IV (Drug-induced):
    - Nicotinic acid, niacinamide, diethylstilbestrol, triazineate, oral contraceptives, testosterone, topical fusidic acid, and glucocorticoids
    - Seen in 10% of renal transplant patients
  - ➢ Type V (Associated with malignancy):
    - Rare
    - Most often in adults
    - Highly suspected if occurs in non-obese male
    - Tends to be more widespread and involve mucosal surfaces
    - Precedes 18%, accompanies 60%, or follows 22% the internal malignancy
    - Most often associated with adenocarcinoma of gastrointestinal tract (60% stomach)
    - Also associated with lung and breast adenocarcinoma
    - Other cancers also seen

Signs & Symptoms

- Often asymptomatic; skin looks "dirty"
- Velvety brown thickening of skin on intertriginous surfaces, most commonly the axilla, the neck
- Other sites: genitalia, knuckles, lips, submammary area, umbilicus, eyelids, and conjunctiva

TESTS

- Use history and physical as guide to appropriate workup

Basic Tests:

- Check blood glucose and possibly an insulin level

Other Tests:

- Exclude malignancy in non-obese patients with no obvious cause
- Screen for malignancy as appropriate for patients age, risk factors, and symptoms
- Screen for endocrinopathy if suspected

DIFFERENTIAL DIAGNOSIS

n/a

MANAGEMENT

- Depends on cause:
  - ➢ Weight loss if obese
  - ➢ Treat underlying endocrinopathy
  - ➢ Discontinue offending drug
  - ➢ Treat underlying malignancy
- Topical urea, lactic acid, tretinoin, and oral etretinate used with varied success

SPECIFIC THERAPY

Urea-containing products may give symptomatic relief.

FOLLOW-UP

- Varies dependent upon the association with an underlying disorder or disease

COMPLICATIONS AND PROGNOSIS

- Depends on underlying cause
- Obesity related AN improves with weight loss
- Endocrinopathy associated AN improves with treatment of underlying disease
- Removal of malignancy may be followed by regression of AN

ACNE

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HISTORY & PHYSICAL

- May exist transiently during neonatal period
- Commonly begins during early puberty with increased activity throughout the teens with spontaneous resolution thereafter (strong genetic influence recognized)

- May begin at or persist into later ages
- May result from exposure to various oils, greases, etc. found in cosmetics, pomades, or industry
- May result from or be exacerbated by hormones - Polycystic ovary disease, insulin resistance, hyperandrogenism, Cushing's disease
- Complication of various drugs: corticosteroids, lithium, iodide/bromide, anticonvulsants

Signs & Symptoms

- Primary lesion = microcomedo (clinically unrecognizable = microscopic plugging of pilosebaceous unit)
- First clinically recognizable lesions are open comedones ("blackheads") and/or closed comedones ("whiteheads")
- Earliest stages most common on forehead and across nose and chin
- Later stages of development include inflammatory papules (1–5 mm) and pustules
- Most advanced lesions are cystic and/or nodular (>= 5 mm) with a predilection for lateral cheeks, chin and in more severe cases the chest and upper back (acne conglobata)
- Evaluate for signs of endocrinologic disease – hirsutism, striae, Cushingoid facies

TESTS

- Laboratory – routine: none except when indicated for specific therapies
- Screening. Woman with severe or recalcitrant acne (or the onset or recurrence of acne beyond their late twenties) should have at least a measurement of their free testosterone and dehydroepiandrosterone sulfate levels to consider polycystic ovarian disease or Stein-Leventhal syndrome.

DIFFERENTIAL DIAGNOSIS

- Pityrosporum or bacterial folliculitis more likely to occur on trunk, buttocks, and proximal extremities with follicular-based papules or pustules
- Acne keloidalis nuchae occurs as firm 2- to 5-mm papules on the occiput of African-American men
- Pseudofolliculitis barbae occurs as firm papules and occasionally pustules to beard areas of African-American men
- Hidradenitis suppurativa occurs within the axillae, under the breasts and the inguinal areas with larger cysts and sinus tract formation.
- Rosacea – more central facial and/or perioral, more common in adults, lack of comedones