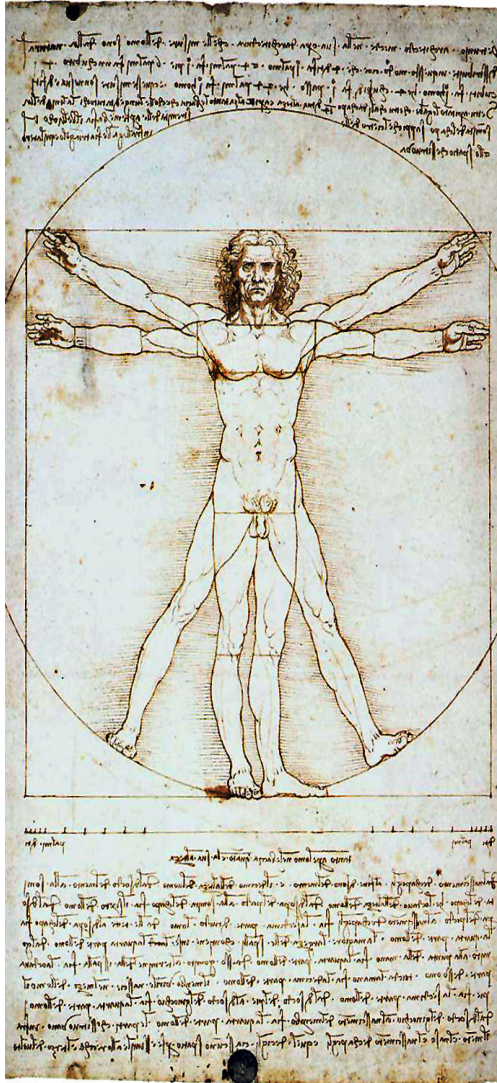


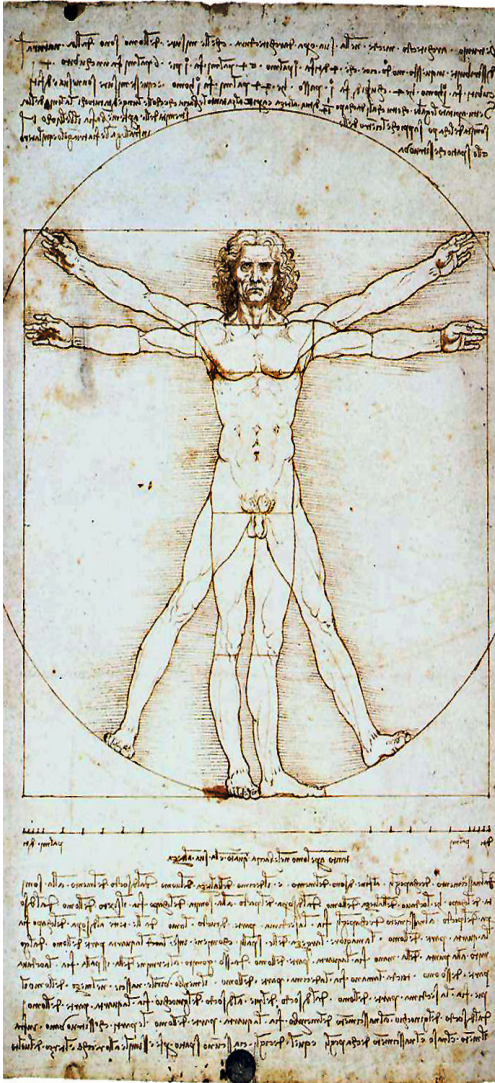
Abdominal Pain in the Elderly



It's Not All Just Constipation

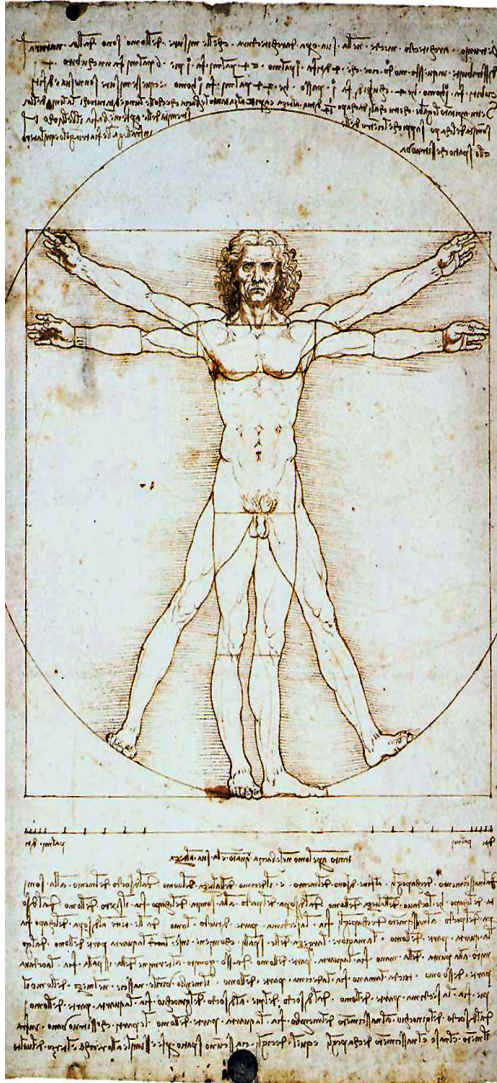
Todd A. Parker, M.D.
LCDR MC USN
EM-2

Notre Dame update



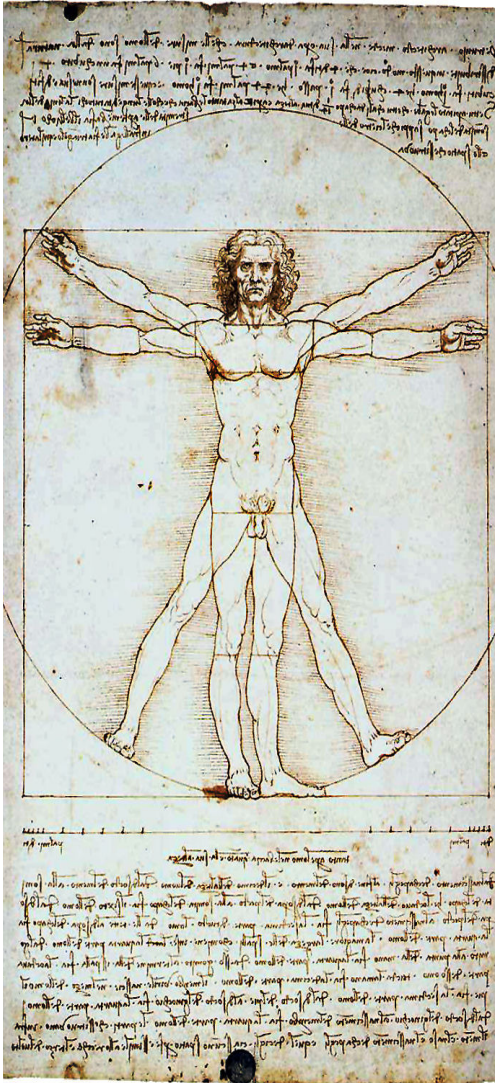
- Mich St 31, ND 14
- BUT.....
 - 1st offensive touchdown! (2 in fact)
 - We moved into positive yards rushing for the season!

Obligatory Statistics



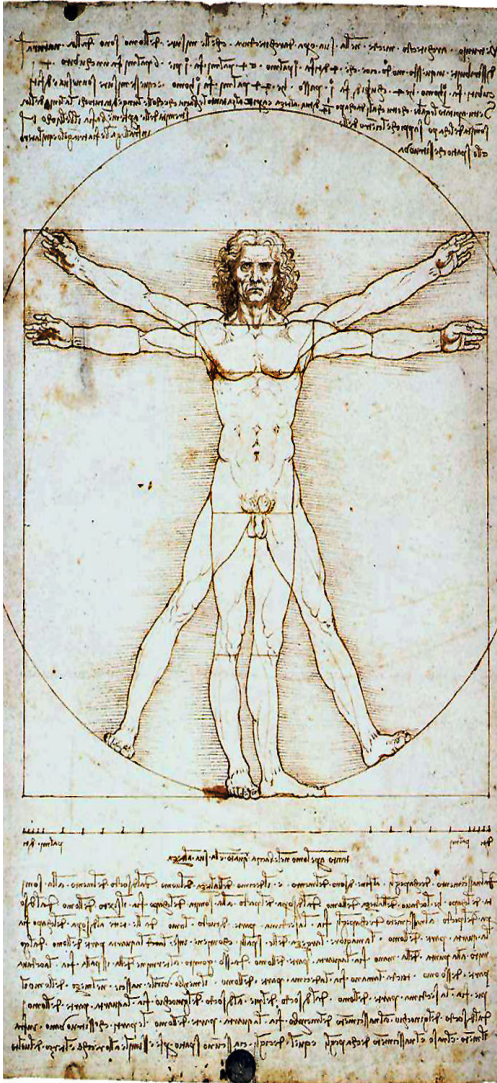
- Just in case....
- 5% of total ED visits
- Half >65 will be admitted
- One third of those surgery
- Ten percent mortality
- Equals that of STEMI

Difficult Diagnosis



- Difficult History
- Blunted physiologic responses
 - Fever, labs, pain
- Confounding comorbidities
- Medications
 - May provide alternate dx or interfere with diagnostic process
 - i.e. NSAIDs, narcotics

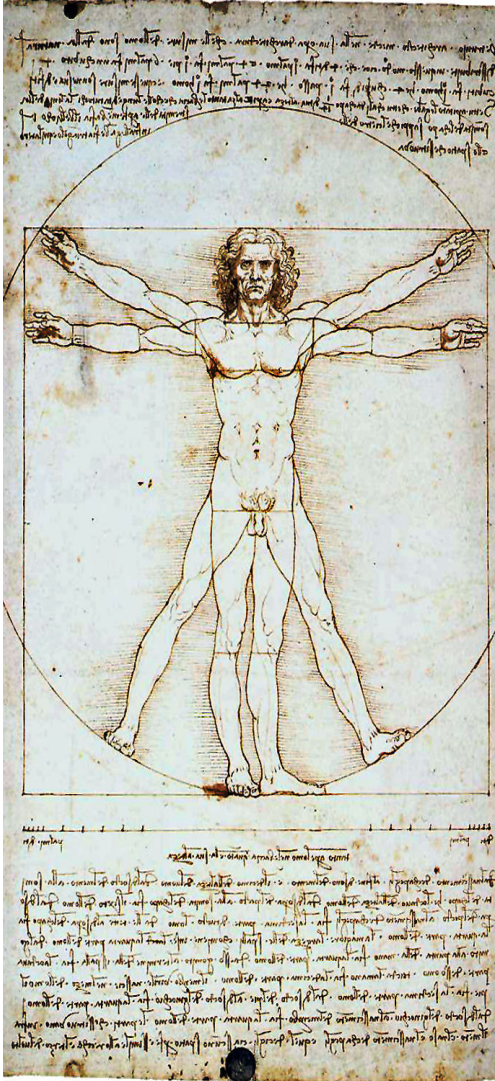
History



A doctor who cannot take a good history and a patient who cannot give one are in danger of giving and receiving bad treatment.

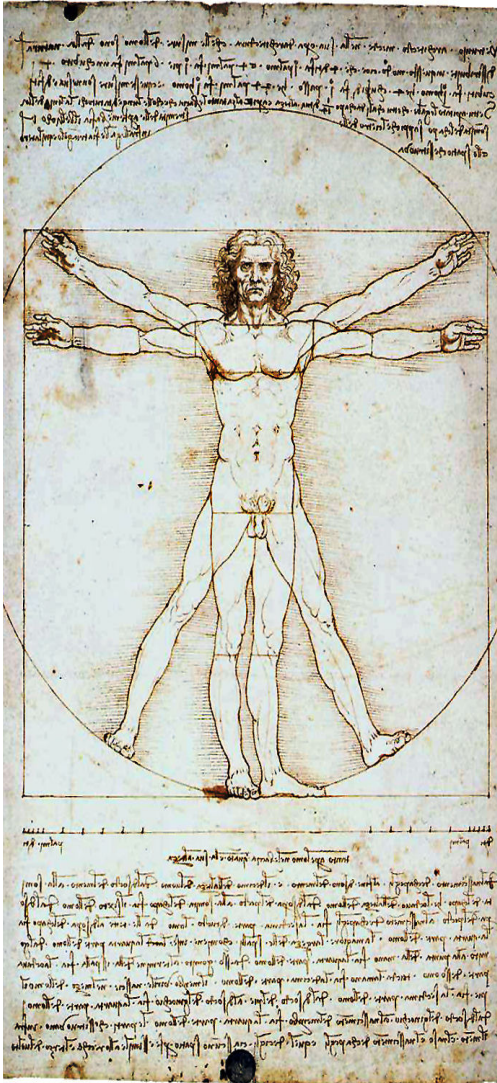
~Author Unknown

History



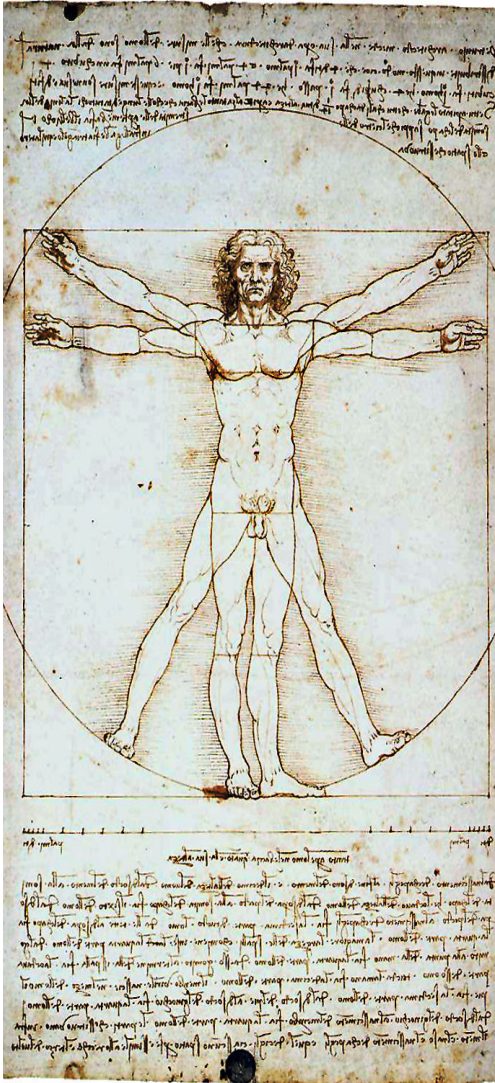
- May be less reliable
- Factors
 - Hearing/vision loss
 - Acute / chronic altered mental status
 - Stoicism
 - Fear of loss of independence
- Nonetheless, thorough history is critical
 - Use all available resources

History



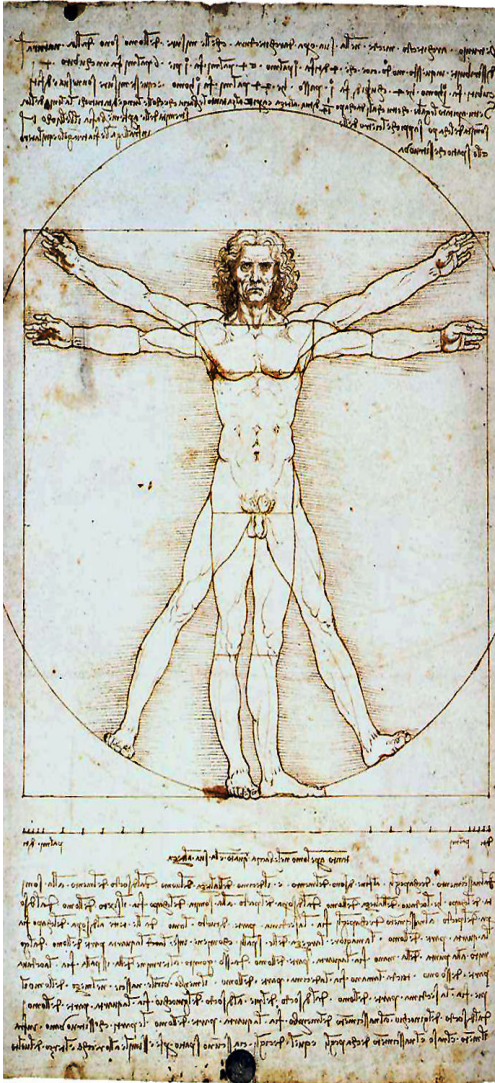
- Basic abdominal pain questions
 - Character
 - Location / radiation
 - Onset
 - Intensity
 - Duration
 - Associated sx
 - Provocation / palliation
 - Previous episodes
- “Classic” usually not!

History



- Medications:
 - NSAIDs - PUD, blunt fever
 - Steroids - PUD, ↓ pain sensation, alter WBC count
 - Anticholinergics - Urine retention, ileus
 - B-Blockers - may blunt tachycardia
 - Abx - pain / n/v/d
 - Narcotics - blunted pain response

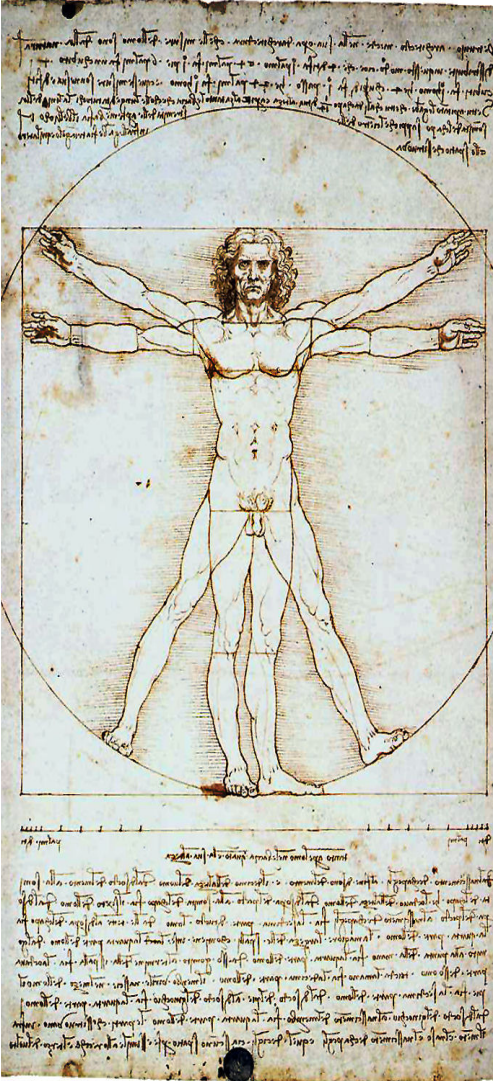
History - Comorbidities



- “The greatest impediment to the correct diagnosis is an existing diagnosis” – author unknown
- Diabetes – blunts pain response
- Known GI malignancies
- Vascular Disease
- Arrhythmias



Case - 84 yo Female

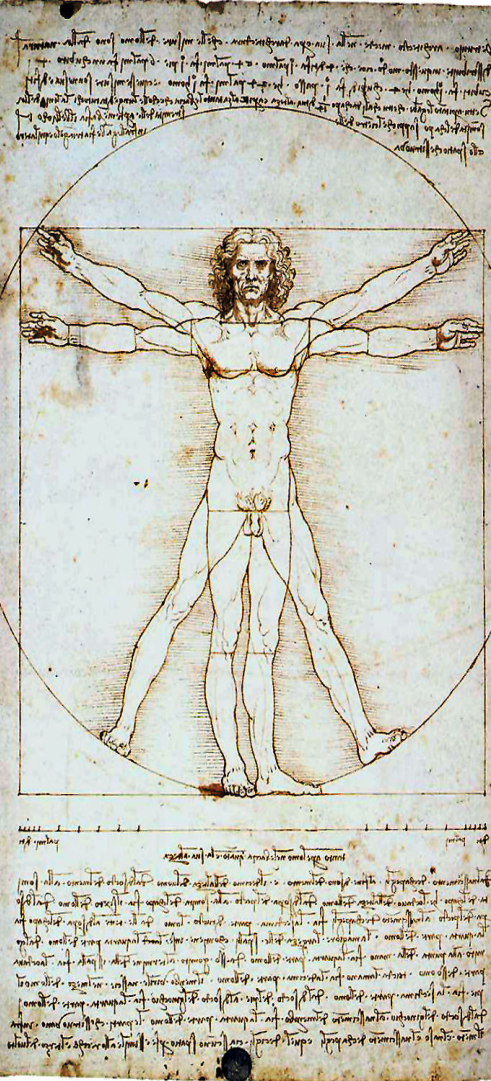


- cc: Diffuse abd pain since last night, n/v, diarrhea
- Vitals: T 97.3 P 50 R 18
BP: 86/41 O2 98% RA
- Pale appearing elderly female in mild distress



Case- History

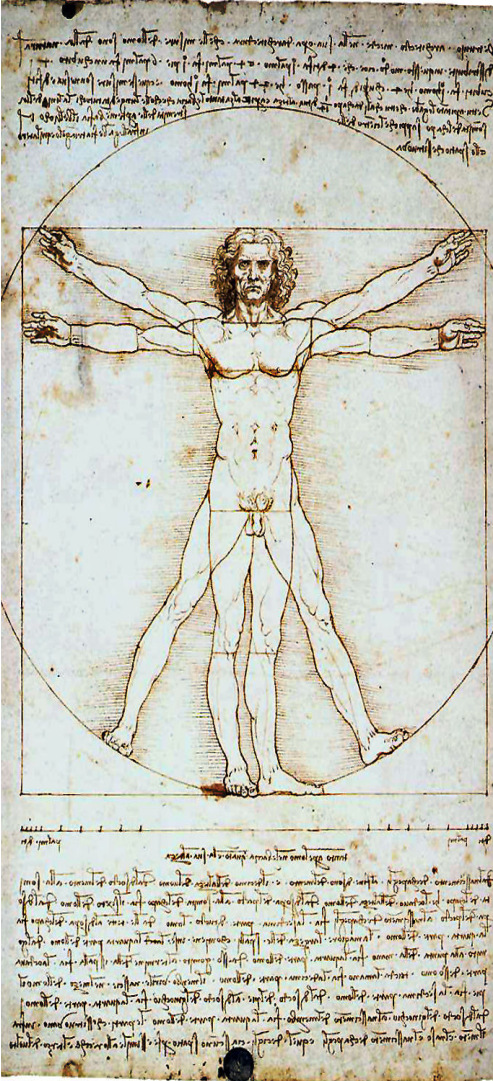
- 4 episodes vomiting
 - ~ started after dinner 16 hrs ago
- Diffuse moderate abd pain
 - ~ Worse epigastric
- Mild SOB
- No diarrhea/melena
- No fever/chills





Case - History

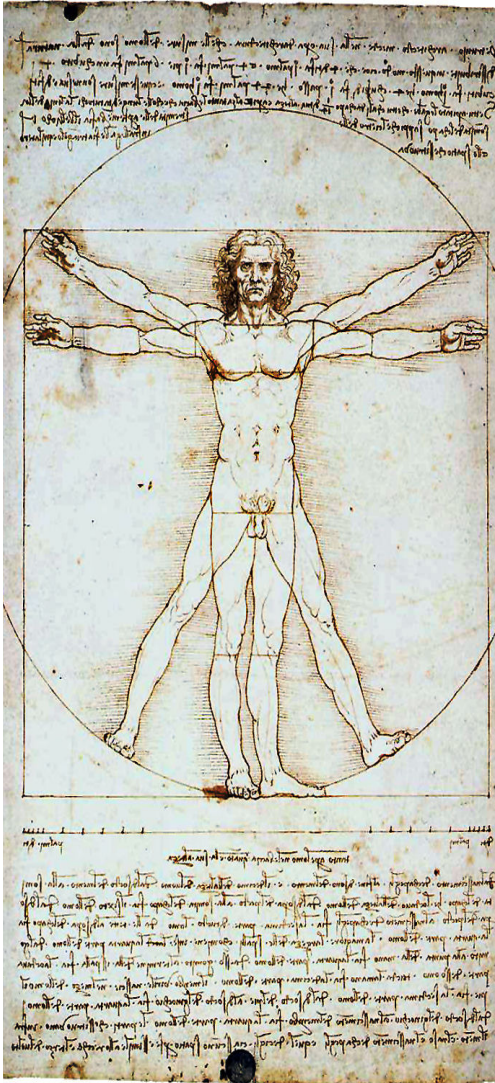
- PMHx: HTN, GERD, OA
- PSHx: Open Chole
- Meds:
 - Atenolol
 - Lotrel
 - Celebrex
 - Aciphex
- NKDA
- Soc Hx: Non-smoker, occ glass of wine



Physical Exam

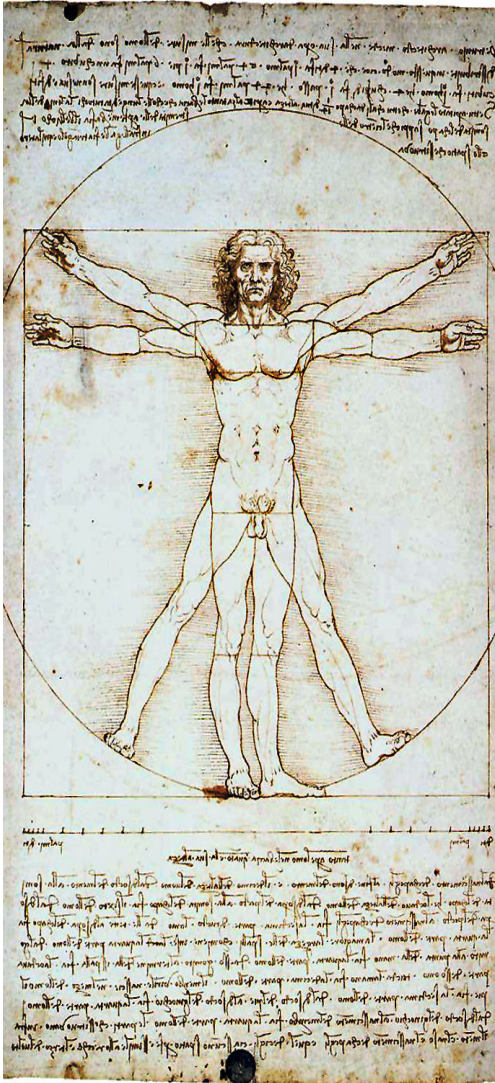
- Vital Signs: Watch out!

- Temperature unreliable
- Blunted tachycardia
- Normal BP may be hypotension
- Tachypnea – pain vs acidosis



Physical Exam

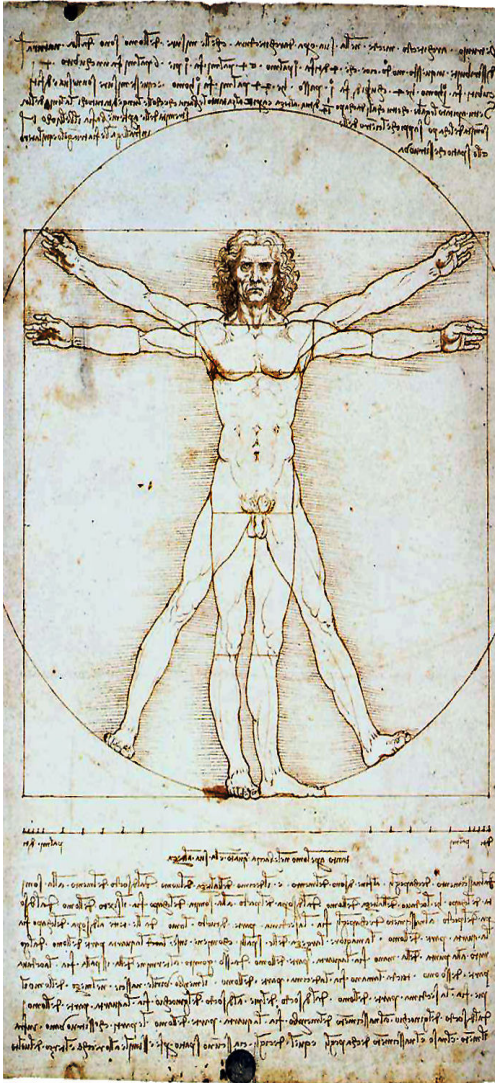
- Look for clues elsewhere
 - CV: CHF, pericarditis, ACS
 - A. Fib - risk for mesenteric ischemia
 - Pulm: Pneumonia, PE, Effusion
 - Extremities: Periph vascular disease / DVTs
 - Neurologic: Deficits clue to PVD



Physical Exam - Abdomen

- Inspection

- Note scars, discoloration, distention
- Stigmata of liver disease
- Cullen's / Grey - Turner's sign



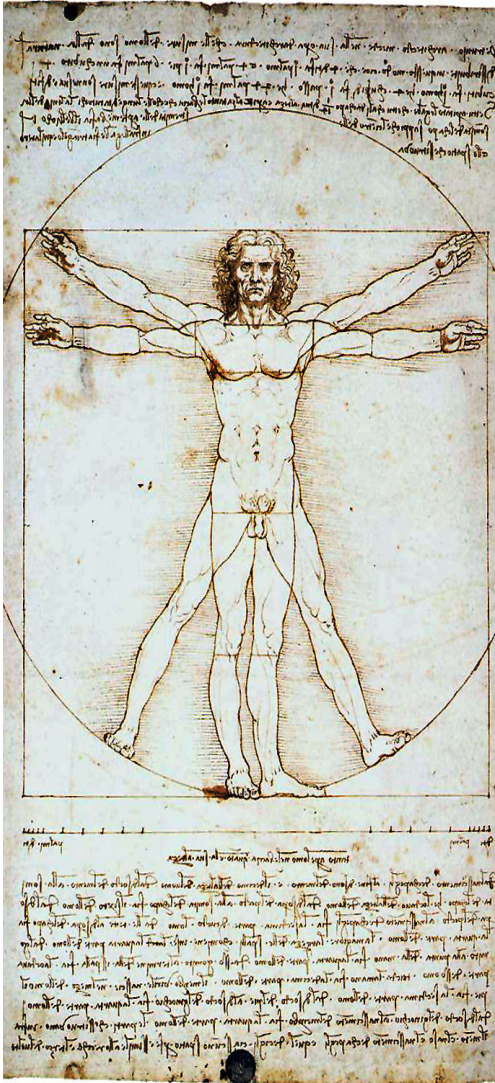
© Division of Pediatric Surgery - Brown Medical School



- Auscultation

- Bruits, bowel sounds

Physical Exam - Abdomen



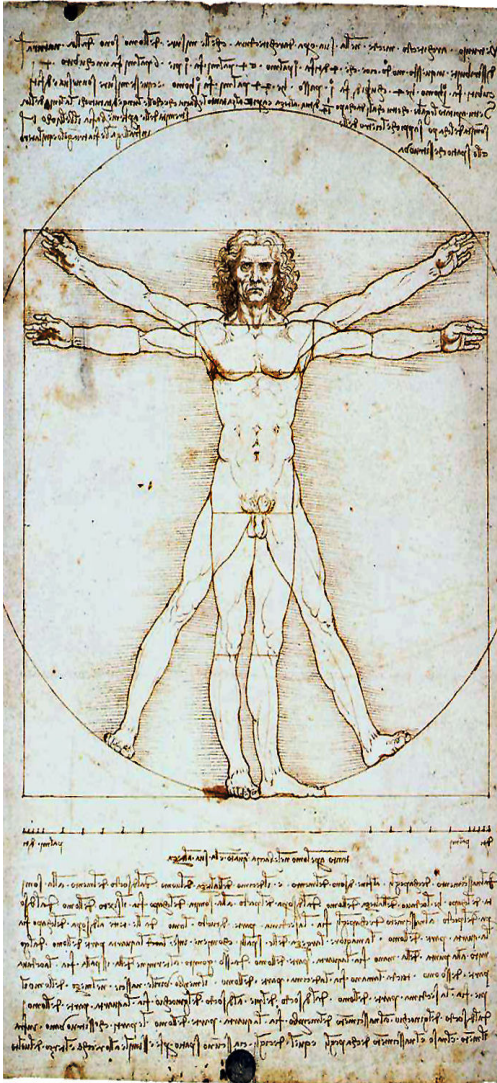
- Palpation

- Tenderness
- Masses (solid vs pulsating)
- Thin abd musculature
 - Minimizes Guarding and Rigidity
 - <20% of >70 yo with Perf Ulcer guard/rigidity

Fenyo: Acute abdominal disease in the elderly Am J Surgery 1982

- Search for Hernias

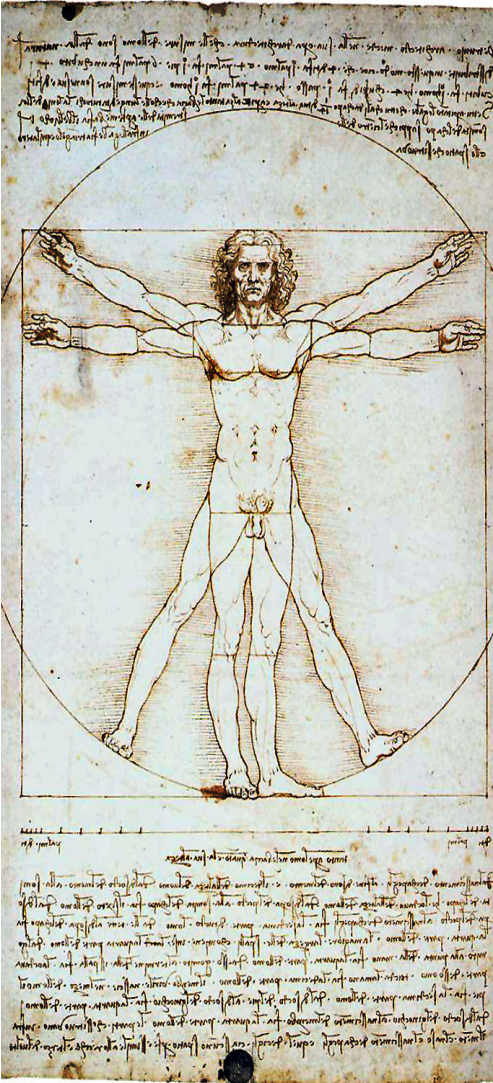
Physical Exam - Rectal



- Rectal exam is critical!
 - Blood
 - Masses
 - Quality of stool
 - Prostate



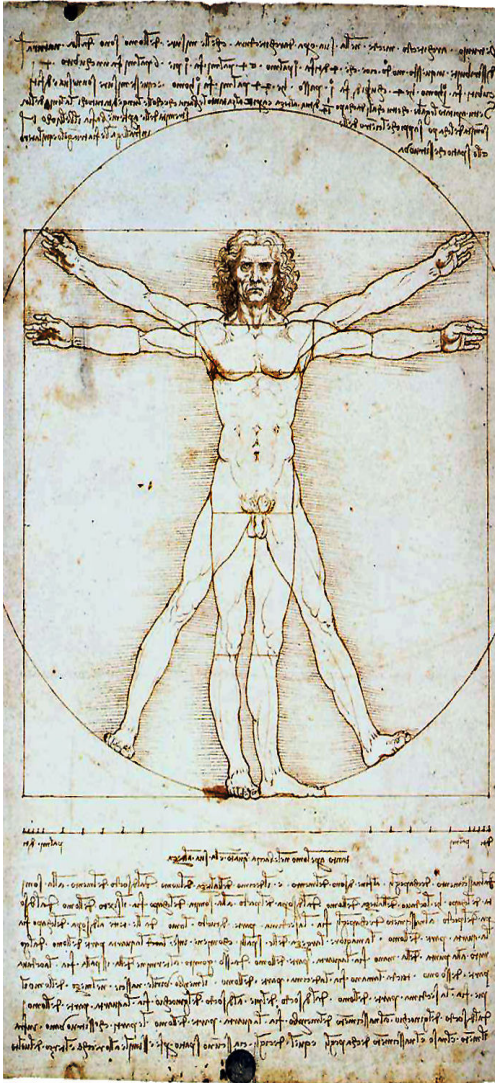
Case - Physical Exam



- Elderly but relatively fit female in mild distress
- HEENT: normal
- CV: normal
- Lungs: normal

- Abd: Soft, mild diffuse TTP, No guarding or RT, no masses or bruits
- Rectal: Heme neg, no masses

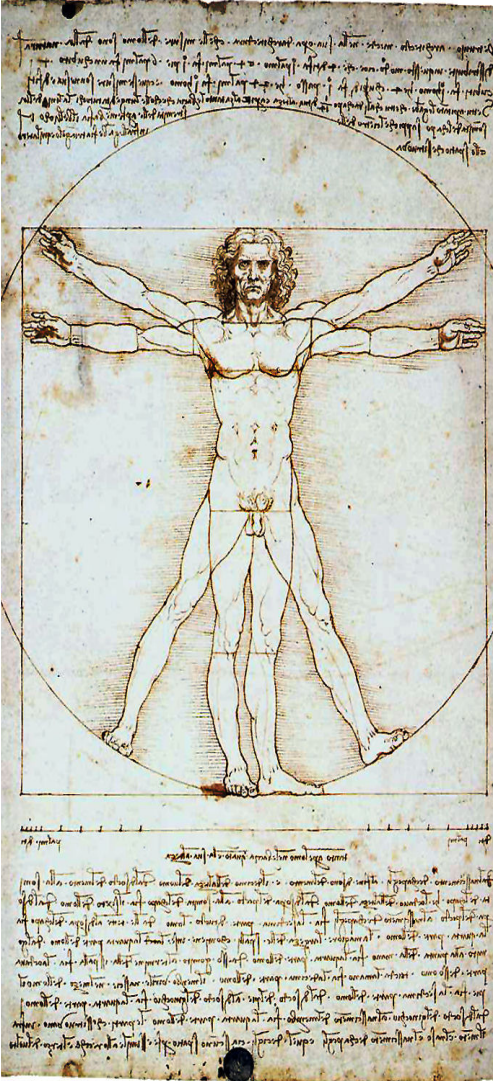
Labs / Studies



- Lower threshold to order
but
- Do not over-rely on results!
- Specific Labs
 - CBC
 - Lipase
 - Coags
 - CMP
 - Cardiac Enzymes
 - Lactate
- EKG early on is critical



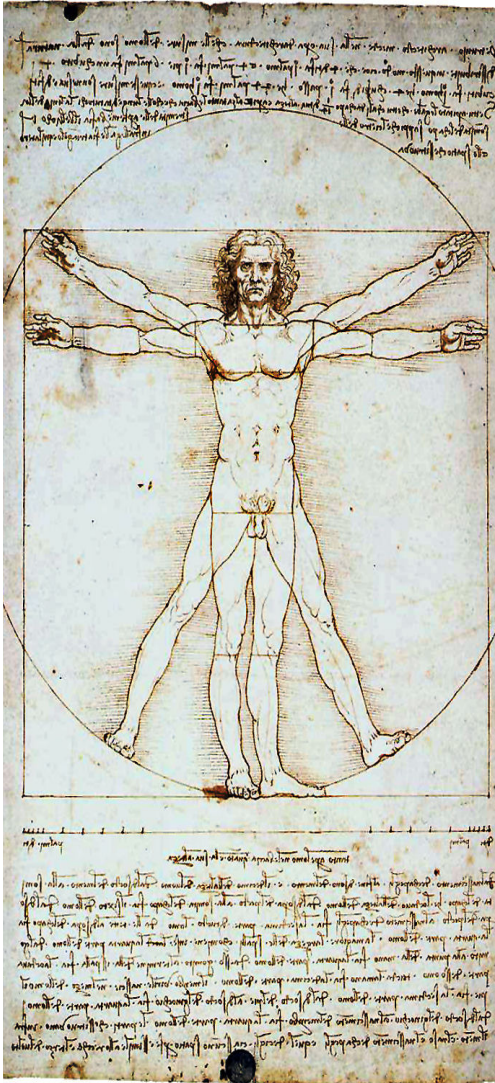
Case - Labs/Studies



- CBC: WBC 14.1
- CMP: Normal
- I-stat Troponin .01

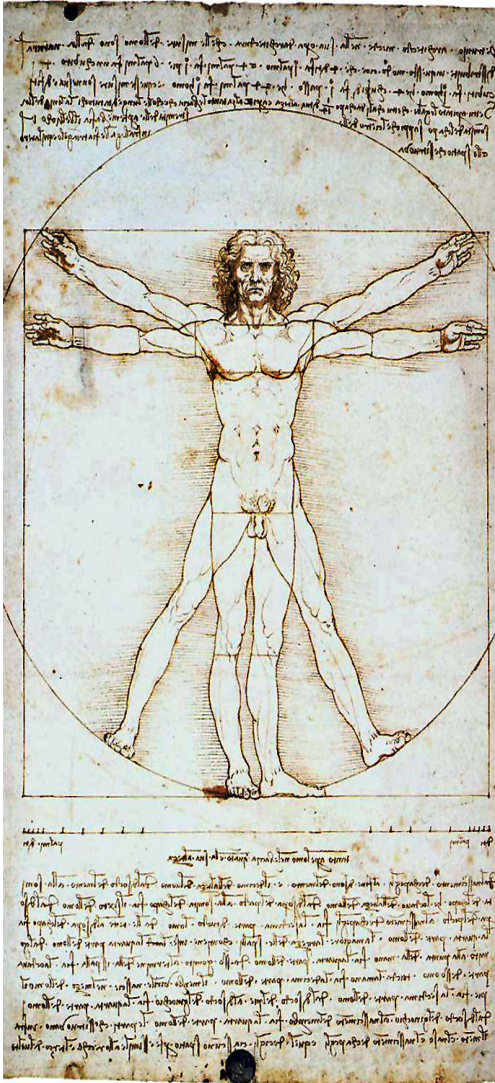
- CXR: Normal
- Abd flat plate: No free air or obstruction

Additional Studies



- CXR generally useful
- AAS – only if indicated
 - Concern for perforation/free air
 - Bowel Obstruction
- CT
 - Often more helpful than younger pts
 - 2004 study: Altered diagnosis 45% of time!
Esses D: Ability of CT to alter decision making in elderly patients with acute abdominal pain. Am J Emergency Medicine, 2004.
 - Must consider renal fxn
- Angiography
 - Helpful for vascular disease
 - CT angio likely more useful

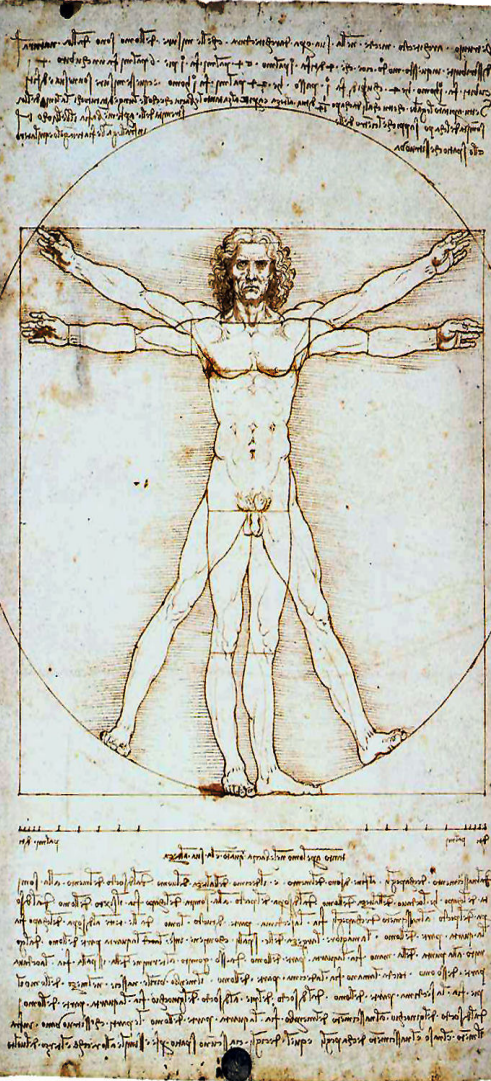
Bedside Ultrasound



- Should be performed on nearly every patient!
 - AAA
 - Biliary Disease
 - Free fluid
 - Cardiac Function



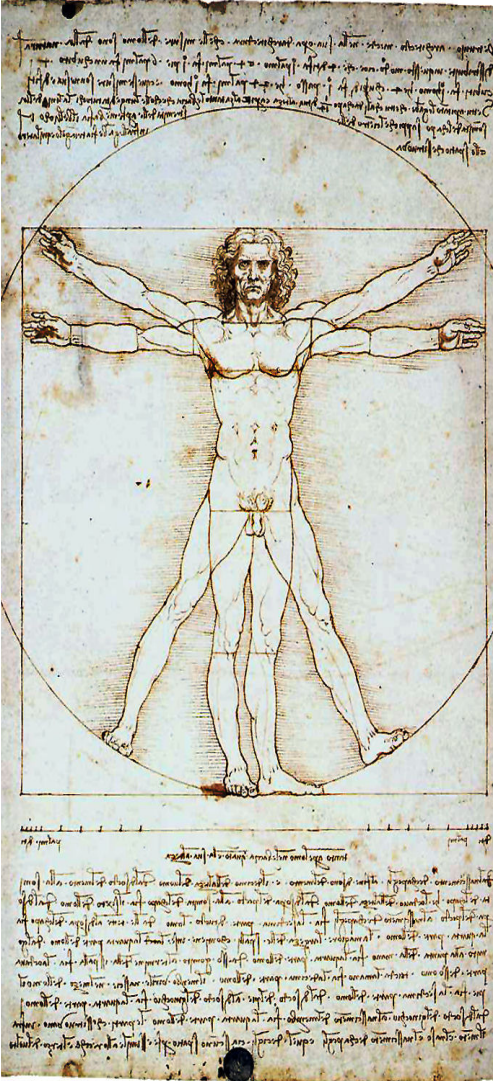
Case - Bedside W/S



- No pericardial effusion
- No free fluid
- No biliary disease noted
- Aorta ~ 1.75 cm



Case - Next Step

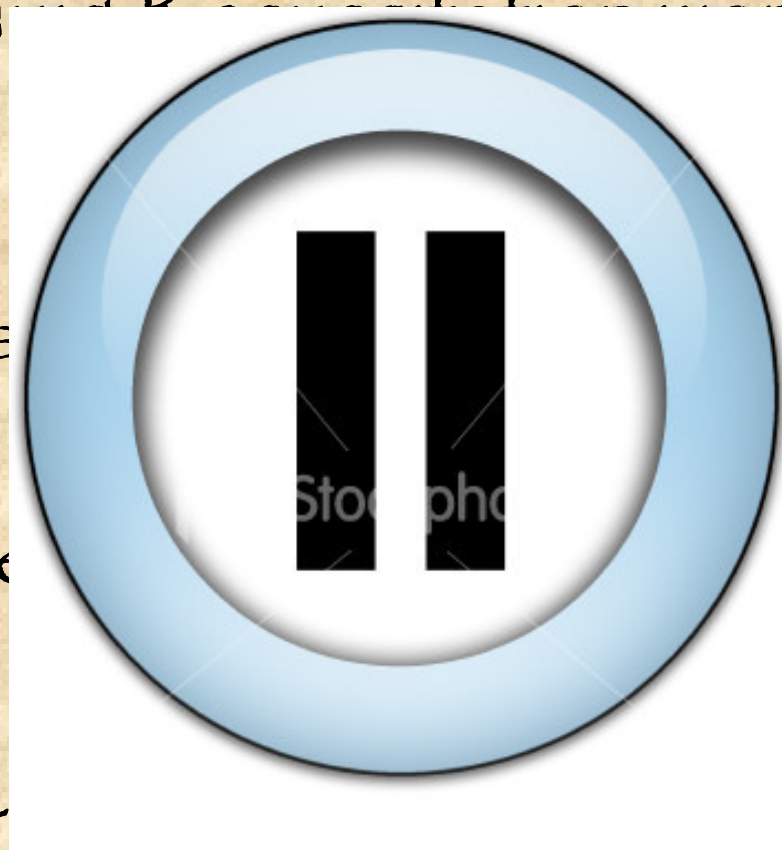


- Fluid P... ..ked

- Pa

- Re

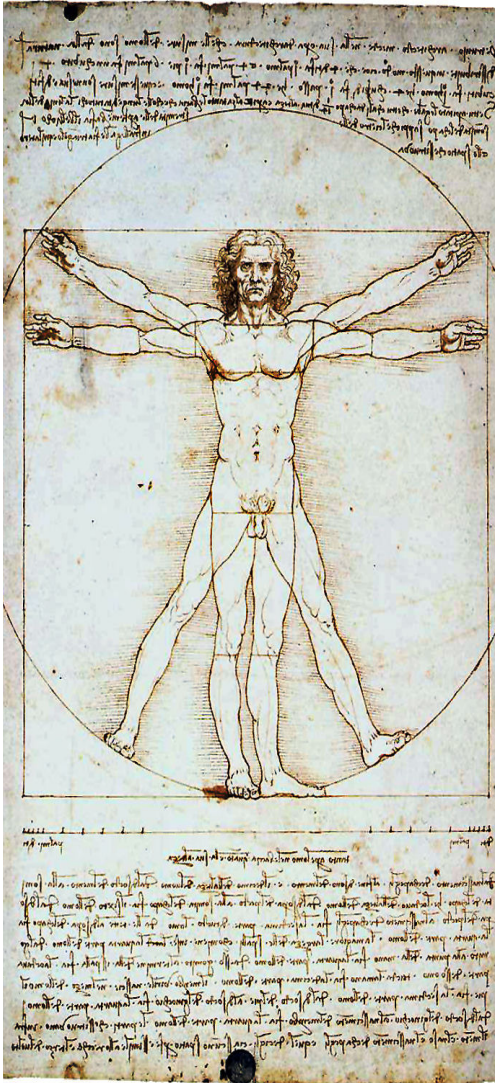
- C



ooo...

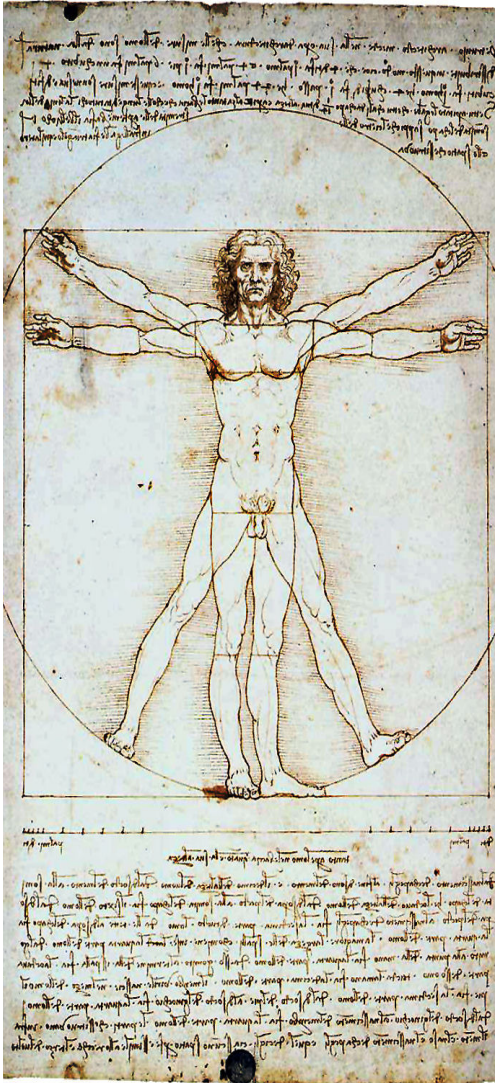
d

Specific Conditions



When you are called to a sick man, be sure you know what the matter is - if you do not know, nature can do a great deal better than you can guess.
~Nicholas de Belleville

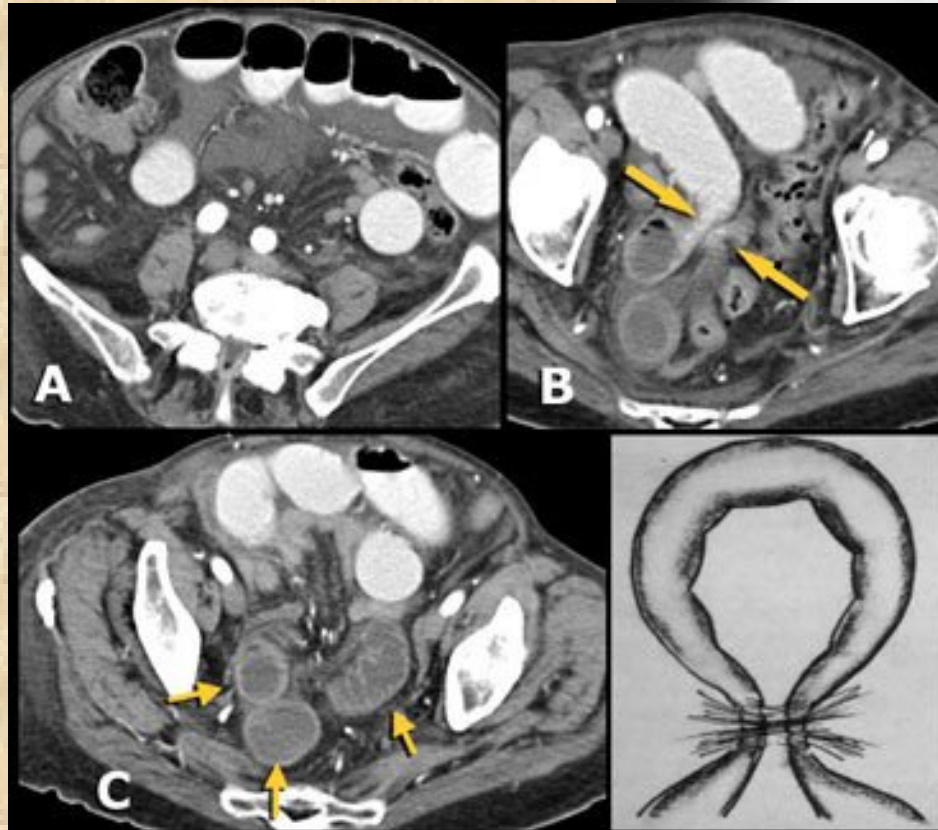
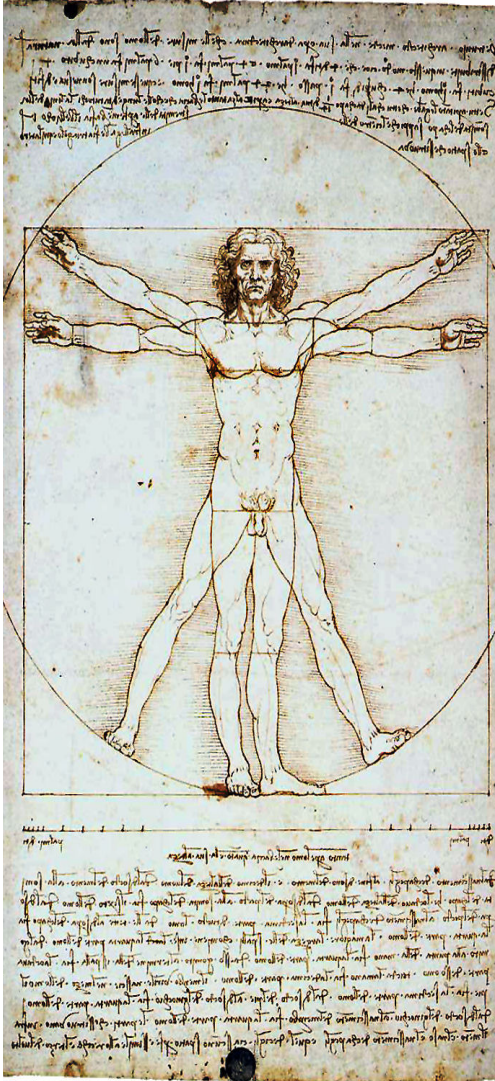
Small Bowel Obstruction



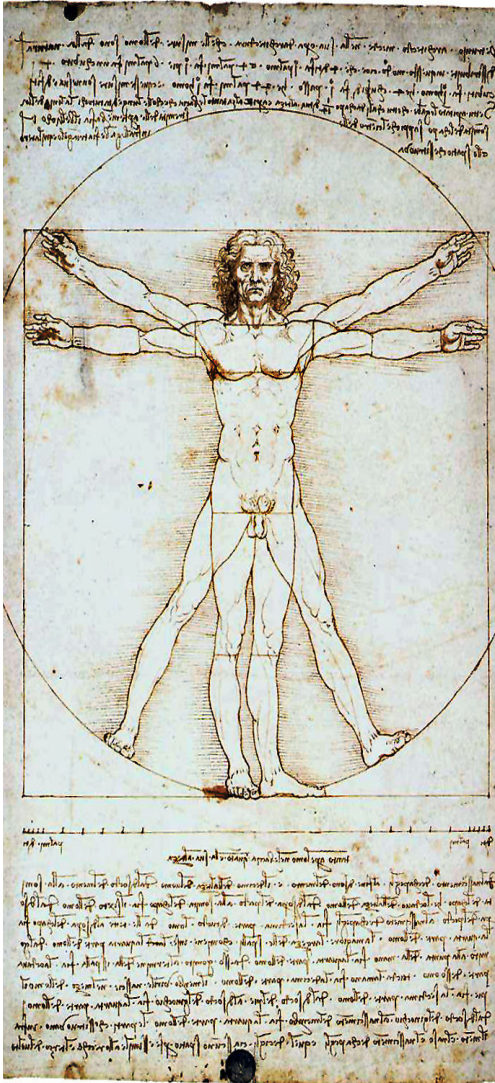
- Often an easy diagnosis
- More common in the elderly
 - Prior surgeries/adhesions
- Symptoms:
 - Abdominal Pain
 - Distention
 - Vomiting
 - Diarrhea early on
 - Guarding/RT late findings
- Plain radiographs adequate but CT best

SBO

EMBBS

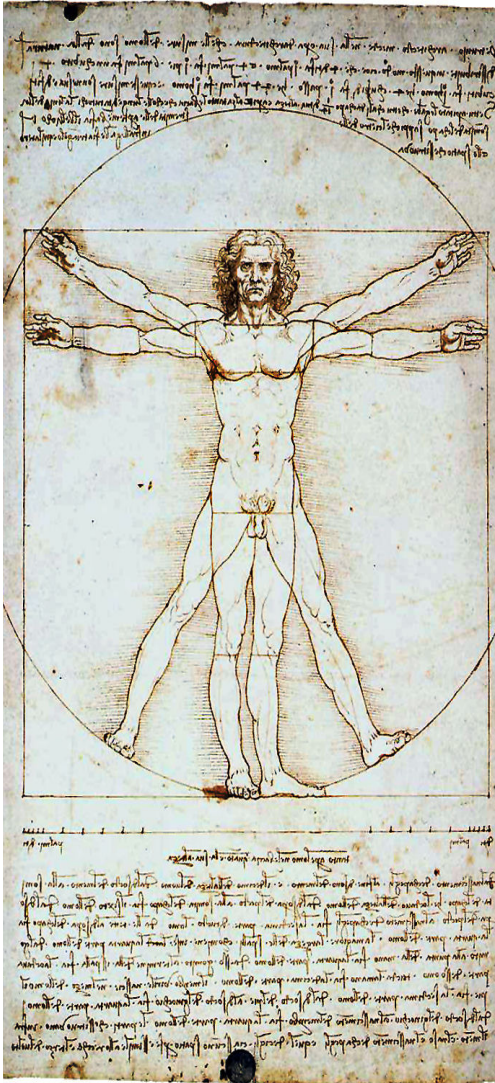


SBO - Management



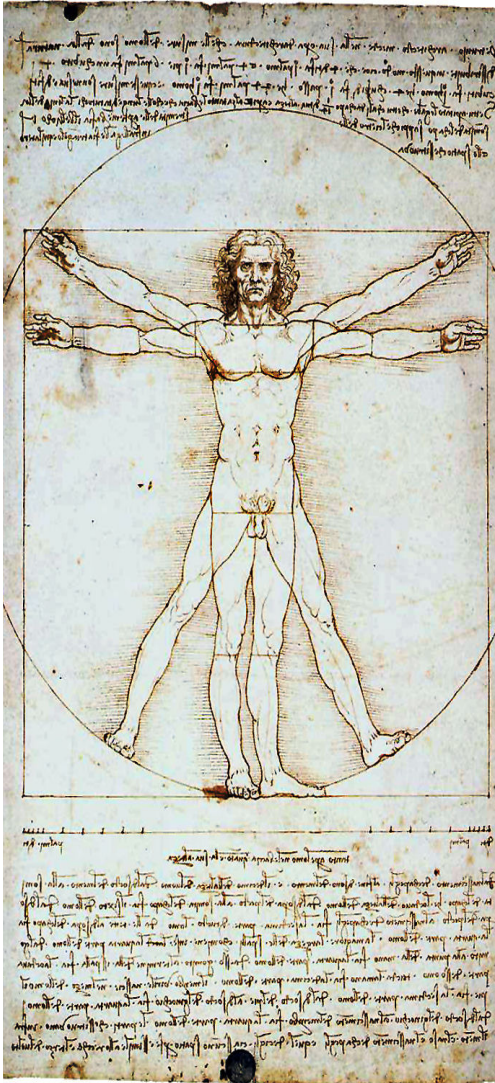
- Fluid resuscitation
 - Nasogastric decompression
 - Pain control
 - Surgical consult
 - Medical management for conservative therapy may increase M & M
- Schwab et al. Operative acute small bowel obstruction: admitting service affects outcome. Am J Surgery 2001.

Large Bowel Obstruction



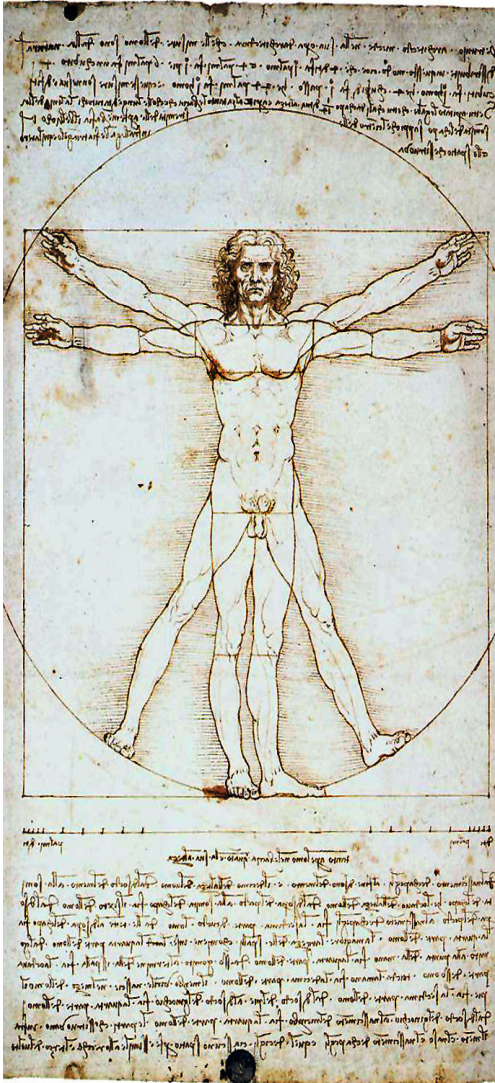
- Less common than SBO
 - High incidence in elderly
 - Mortality rate ~40%
- Difficult dx: non-specific sx
 - Pain, severe constipation, vomiting
- Cancer, diverticulitis, volvulus most common causes

Large Bowel Obstruction



- Cancer – question about recent weight loss, progressive change in bowels, fatigue
- Volvulus – only 15% of cases
 - Most likely to need emergent surgery
 - Sigmoid volvulus – 80%
 - Generally more gradual onset of pain
 - Vomiting less common
 - May be medically managed initially
 - Cecal volvulus
 - Acute onset of pain
 - Vomiting very common
 - Emergent surgical mgt

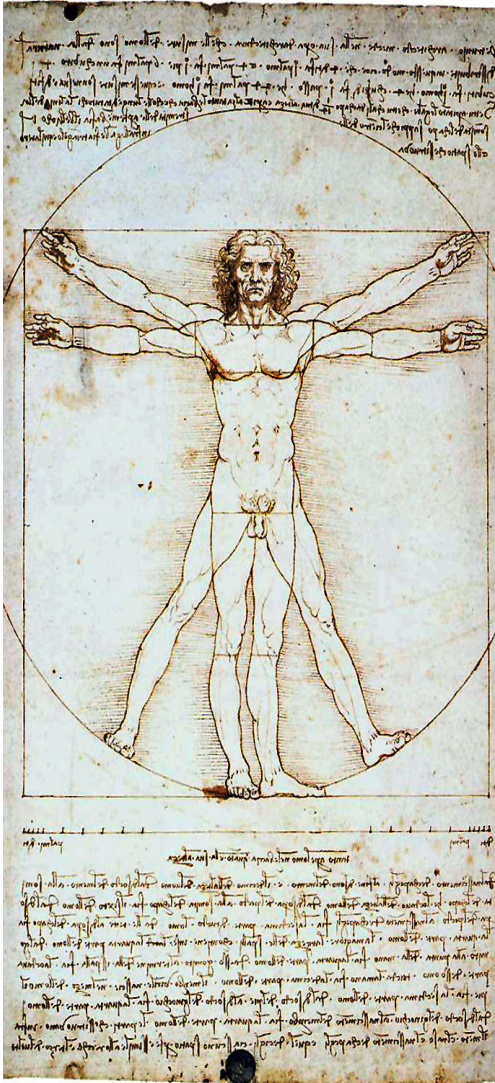
Biliary Tract Disease



- Biliary disease #1 cause of surgery
- Cholelithiasis in up to 28% >65
 - Complications much higher
 - Perforation
 - Gangrene
 - Cholecystitis
 - Ascending cholangitis
 - Gallstone ileus
 - Choledocolithiasis
 - Gallstone pancreatitis

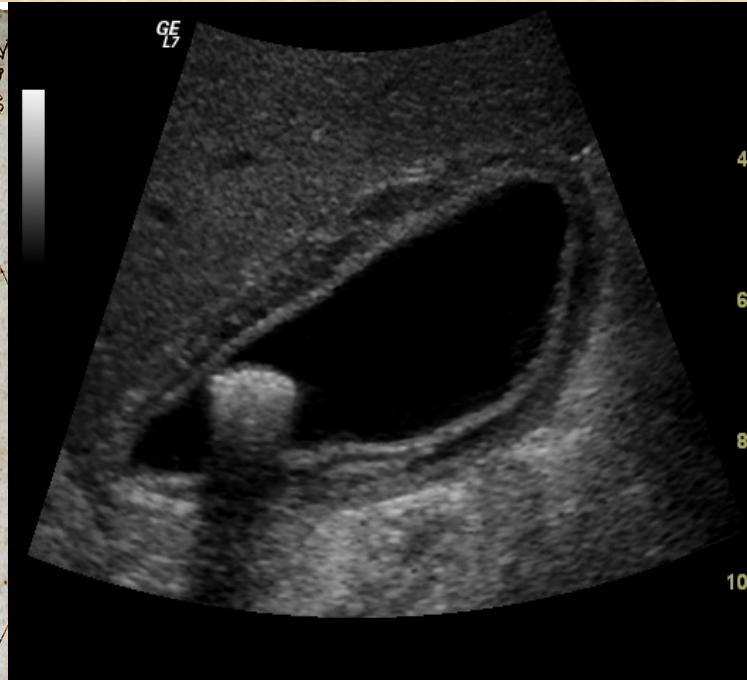
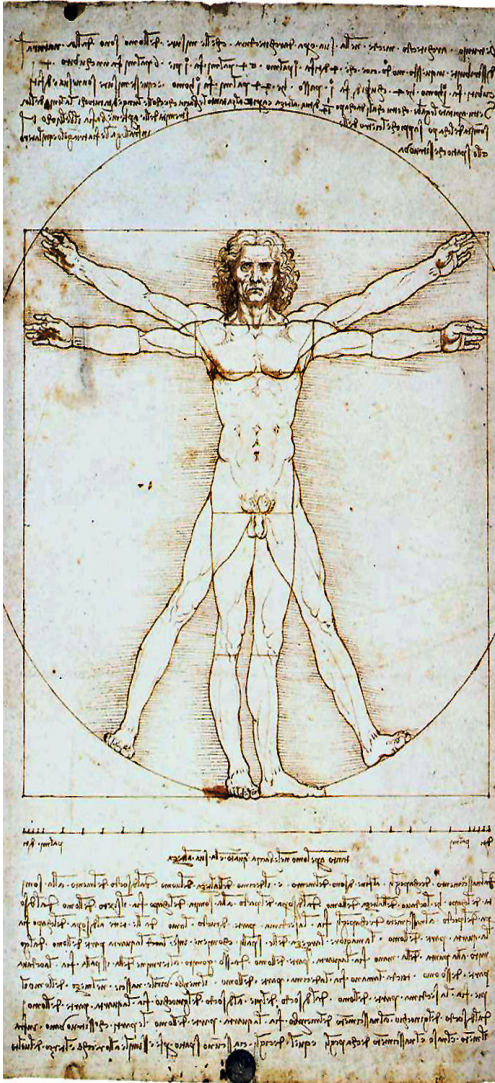
Bedirli A, Factors affecting complications in acute cholecystitis. Hepatogastroenterology 2001.

Biliary Tract Disease



- Presentation:
 - RUQ/Epigastric pain only reliable sign!
 - Other common signs often absent
 - 60% no nausea/vomiting
 - 70% lack fever
 - Even with gangrene/frank perforation!
 - 40% lack leukocytosis
 - 45% normal LFTs
- Ultrasound less reliable
 - Higher incidence acalculous cholecystitis
 - If negative, consider HIDA

Biliary Tract Disease

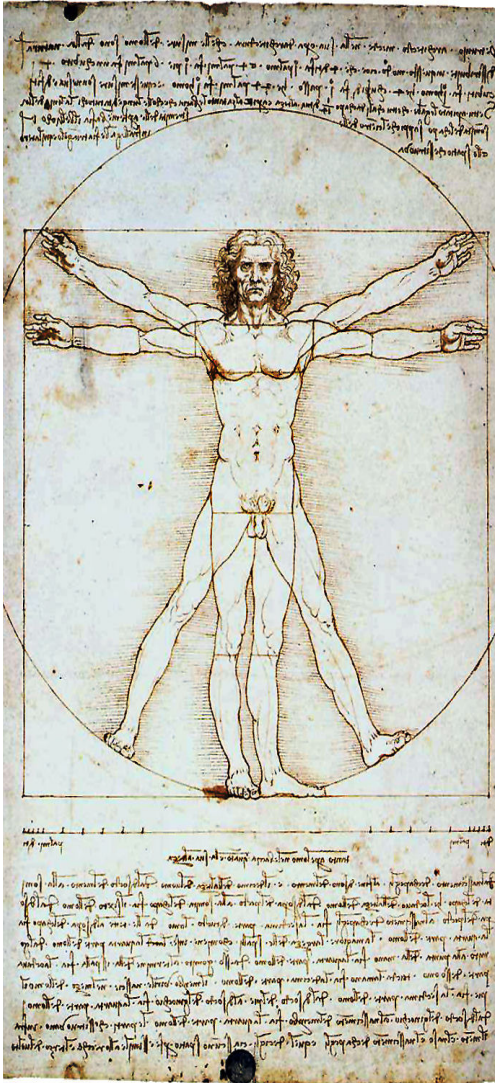


Ultrasound

HIDA Scan



Biliary Tract Disease



- ED Management

- Symptomatic cholelithiasis >65 yo is indication for surgical consult

- Even if no cholecystitis
- 17% mortality in non-op mgt

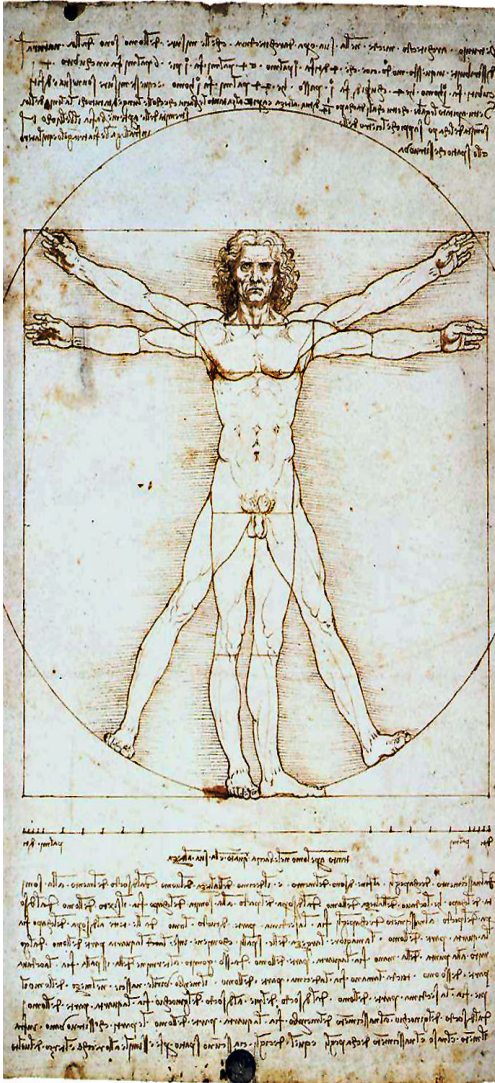
- Start broad spectrum antibiotics

- Gram negative and anaerobes

- Order coags

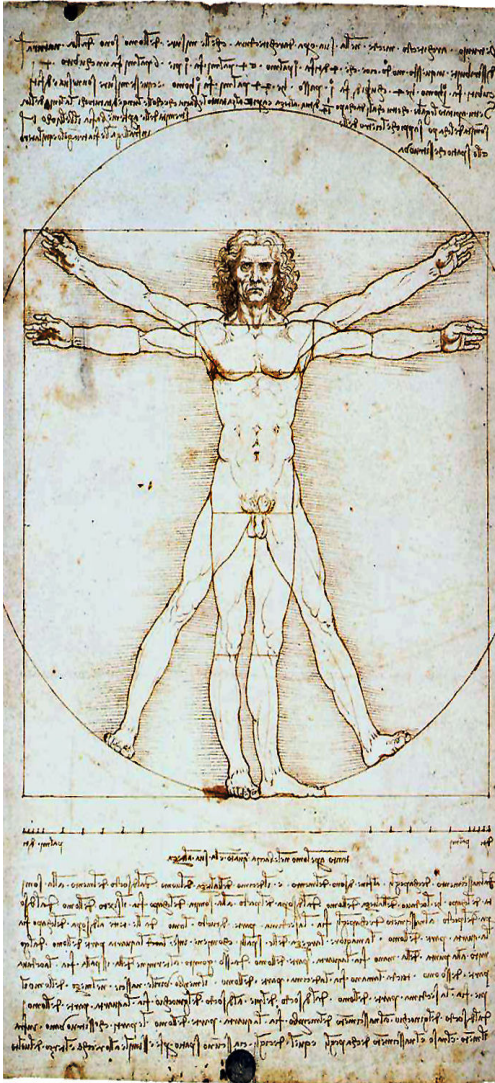
- DIC commonly occurs in elderly patients with choledocolithiasis and ascending cholangitis

Pancreatitis



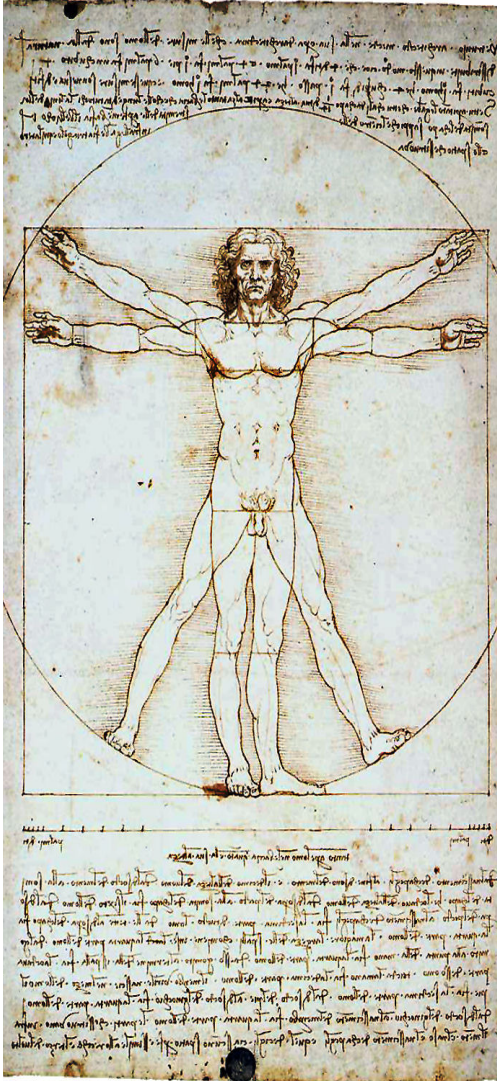
- Most common non-surgical abdominal condition in elderly
 - Increases 200-fold >65 yo
 - Mortality increased ~ 40% >70 yo
- Gallstones primary etiology
 - EtOH much less than younger pts

Pancreatitis

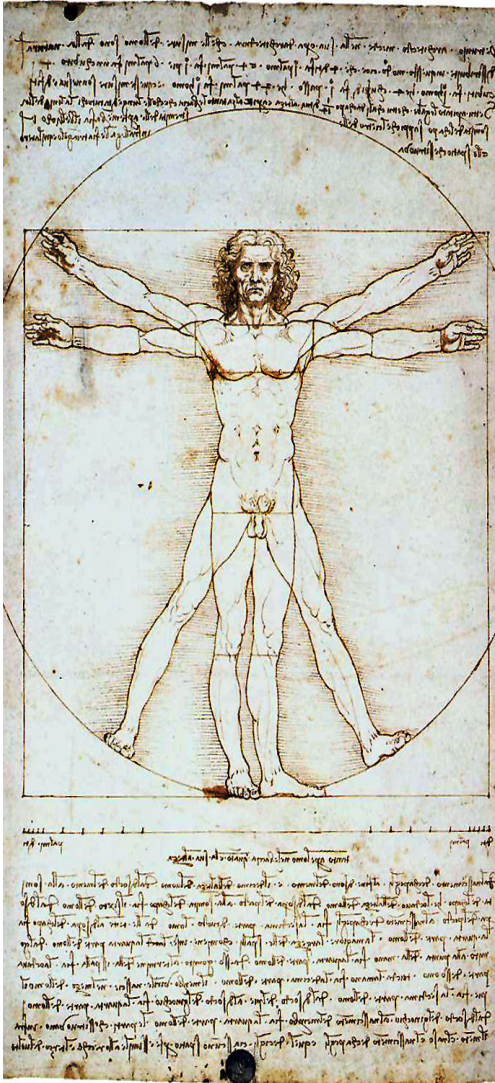


- Pain most common sign
 - Associated nausea/vomiting/dehydration
- SIRS criteria often present!
 - 10% present with shock
 - Hypotension / AMS
- Low threshold to CT
 - Remember lipase less sensitive
 - But still very specific

Pancreatitis - CT

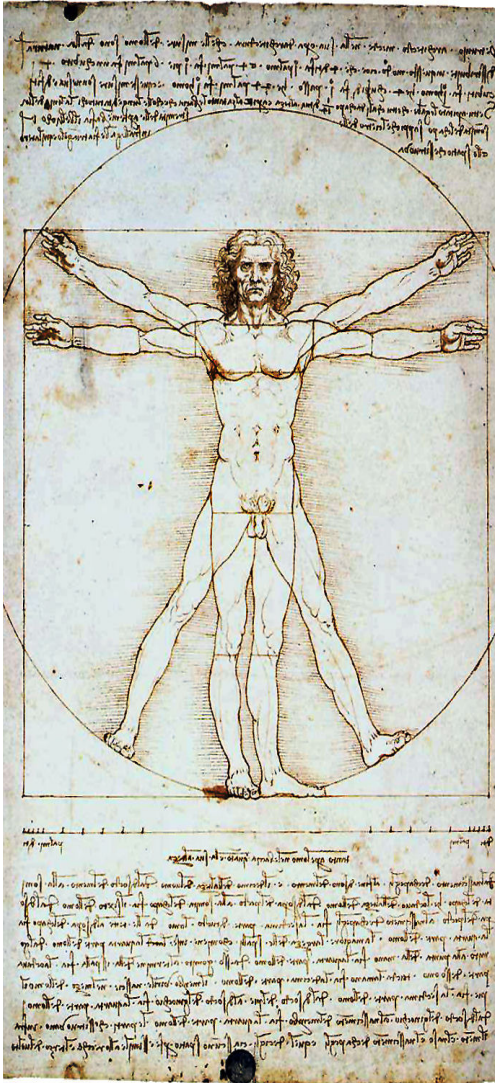


Pancreatitis – ED Mgt



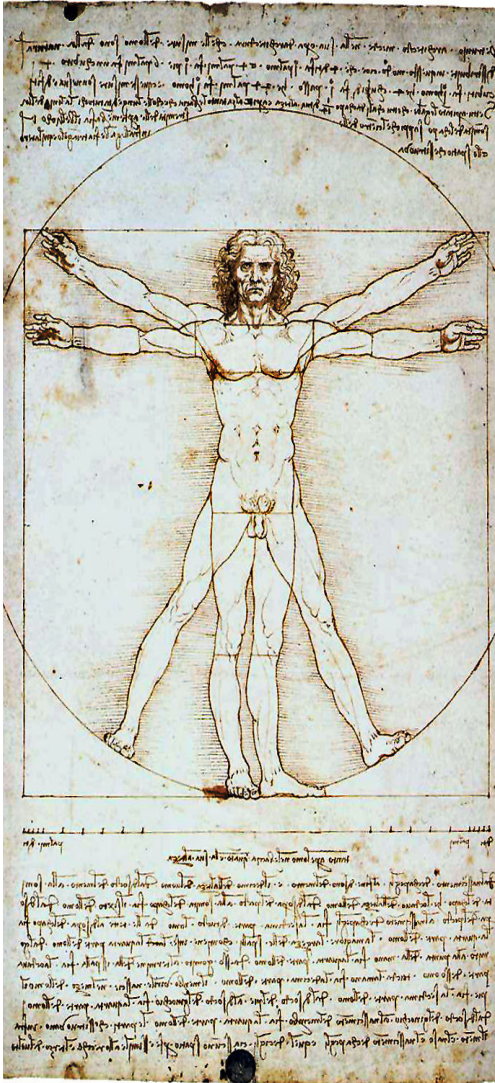
- Aggressive fluid resuscitation
- Electrolyte replacement
- Pain control
- Nasogastric decompression
- Aggressively seek complications
 - ARDS
 - Hemorrhagic pancreatitis

Peptic Ulcer Disease



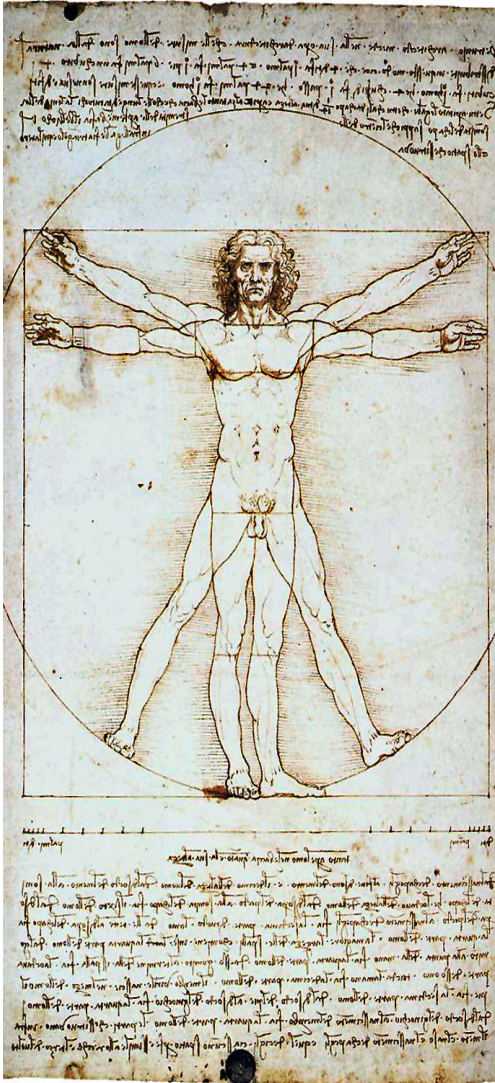
- 35% with disease painless!
 - Only 8% <60
- 50% present perforated
 - Many will report no h/o PUD
 - Pain usually abrupt onset
 - Mortality 30% >65
 - Increases 8-fold if dx delayed >24 hrs

Peptic Ulcer Disease



- Bleeding from PUD
 - More common in elderly
 - 20% report no h/o PUD
 - More likely to require transfusions
 - Fewer clinical signs
 - i.e. tachycardia often absent

Peptic Ulcer Disease



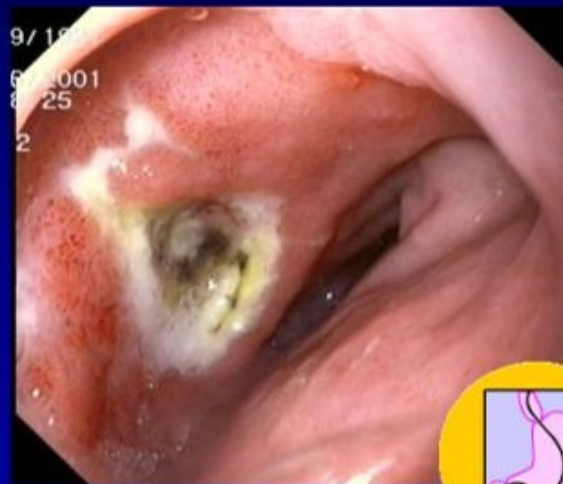
- If PUD suspected:
 - AAS - free air
 - Misses 40% of perforations!
 - CT much more sensitive
- Once dx made (clinically)
 - PPI, diet modification
 - >70 yo responds poorly to conservative tx
 - Surgical consult in this group!!

Crofts, TJ. A randomized trial of nonoperative treatment for perforated peptic ulcer. N Engl J Med 1989.

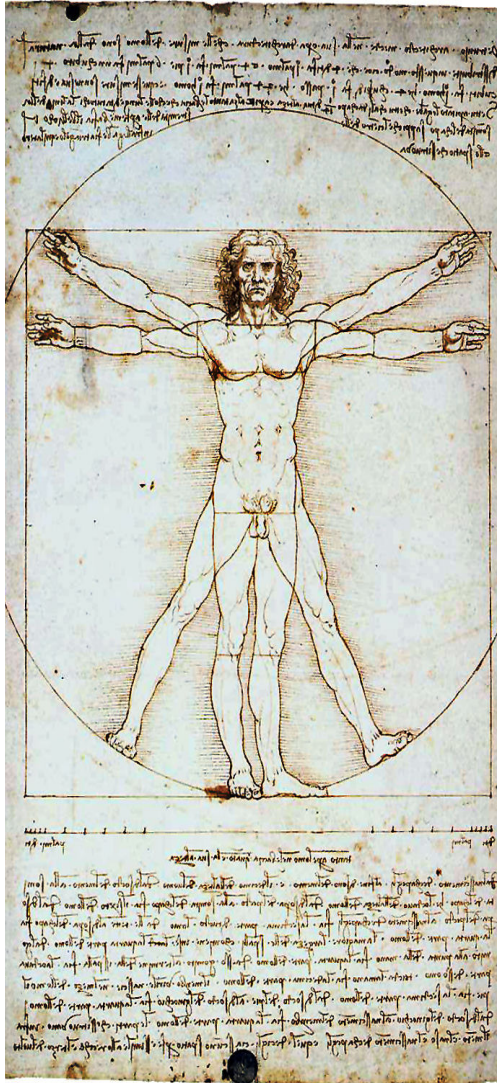
Peptic Ulcer Disease

ENDOSCOPY

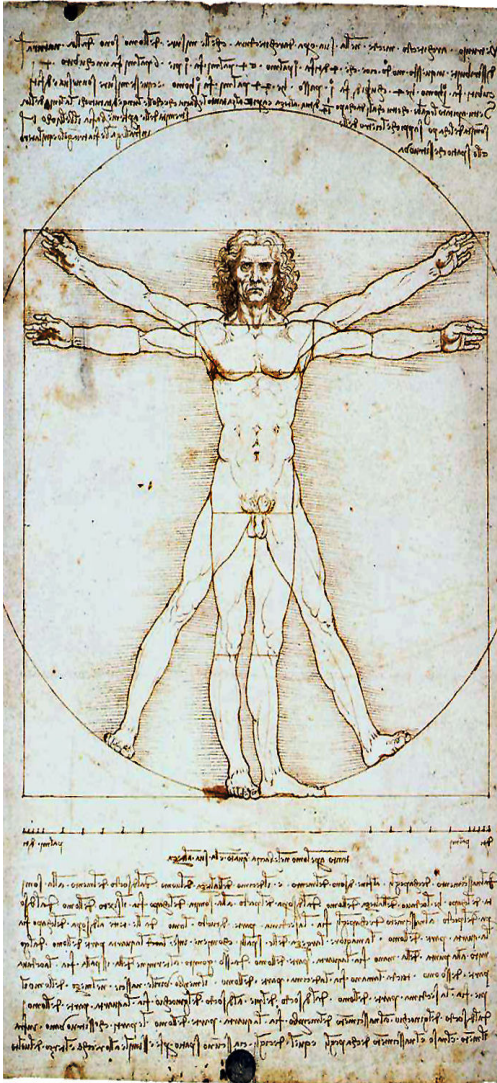
Duodenal Ulcer (DU)



Gastric Ulcer (GU)

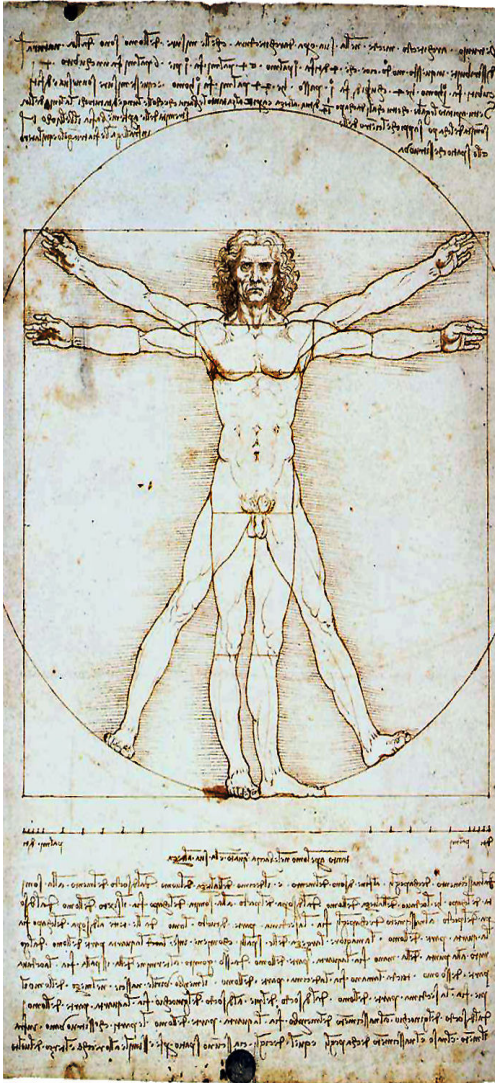


Diverticular Disease



- Incidence of diverticuli
 - 50% > 70 yo
 - 80% > 80 yo
- Diverticulosis
 - Most common cause of LGIB in elderly
 - 15% significant enough to require hospitalization
 - Usually resolves spontaneously
 - Up to 25% → shock or transfusion

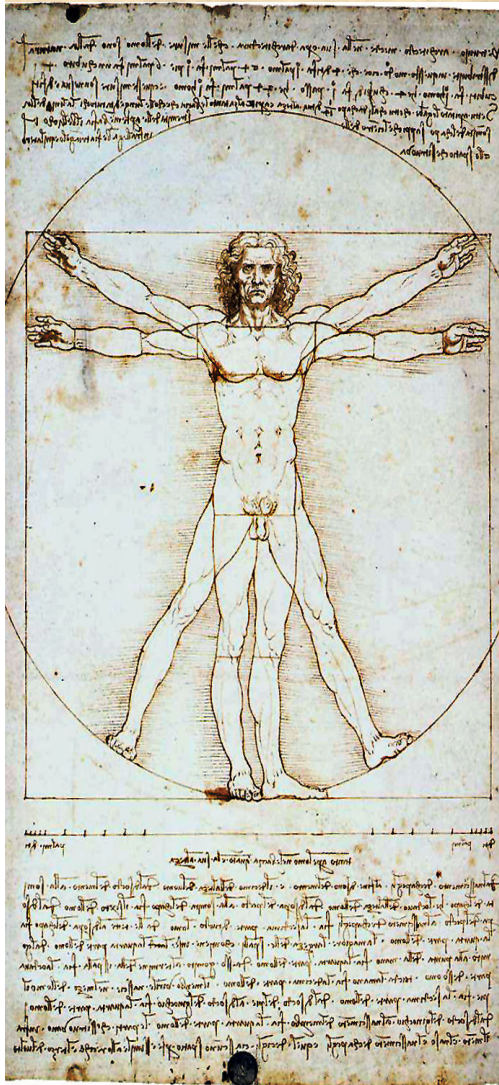
Diverticulitis



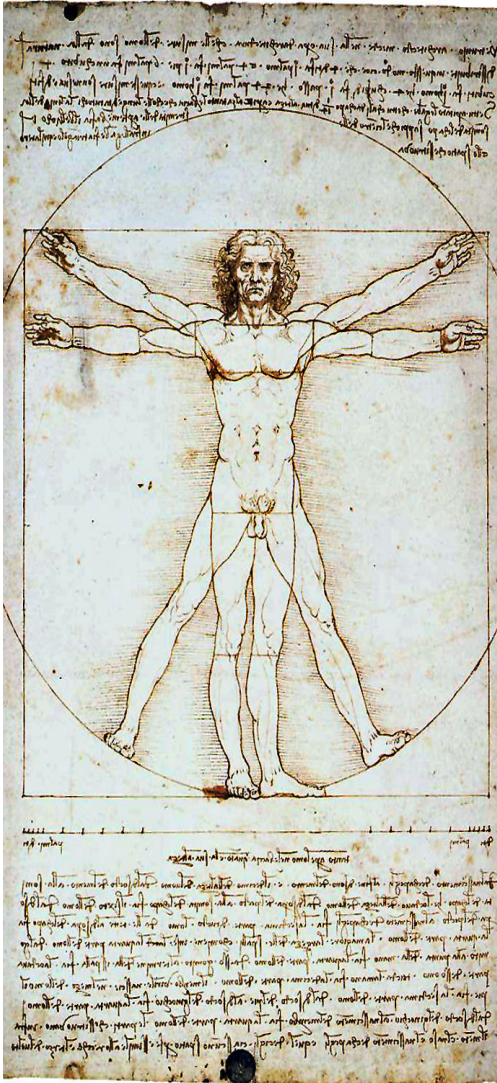
- More common complication than bleeding
 - Classic findings:
 - Nausea
 - Distention
 - Fever
 - LLQ pain/mass
 - Leukocytosis
 - Pyuria/Hematuria common
 - Often misdx as UTI/Nephrolithiasis
- Less than 50%!

Diverticulitis ~ ED management

- Despite common practice, CT is generally recommended
- Can easily be diagnosed clinically, but CT still recommended in elderly
 - High incidence of free perforation
 - Rapidly progress to gram negative sepsis



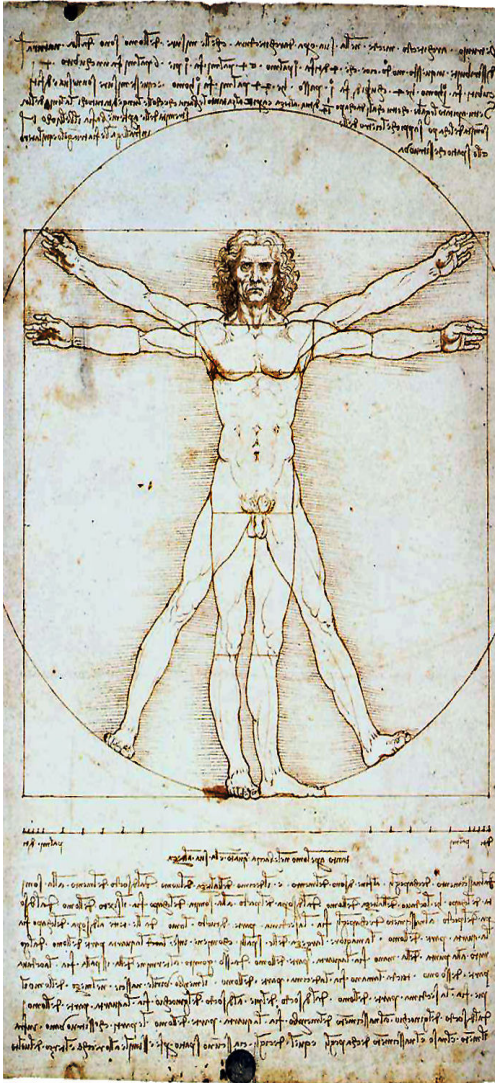
Diverticulitis ~ ED management



- If dx, admit with IV Abx
 - D/C on PO abx only if
 - CT proven mild disease
 - Reliable pt
 - Close followup

Farrell RJ, Diverticular disease in the elderly. *Gastroenter Clin North Am* 2001

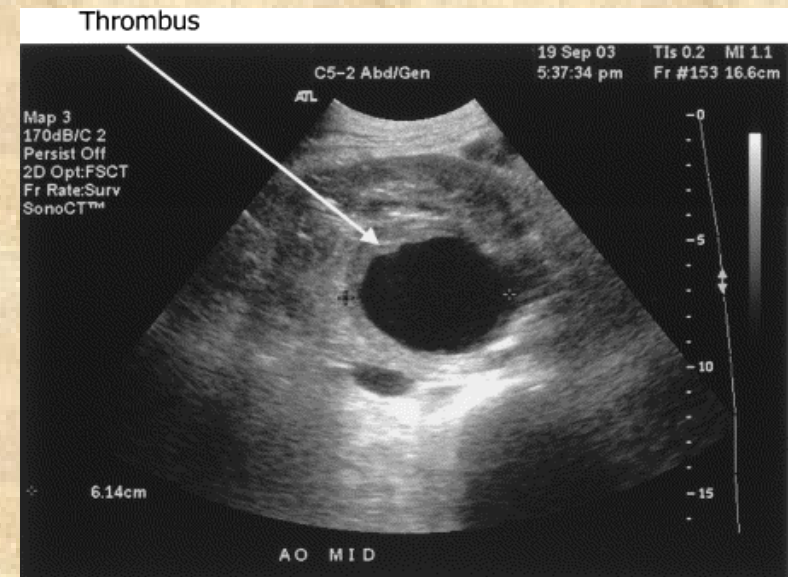
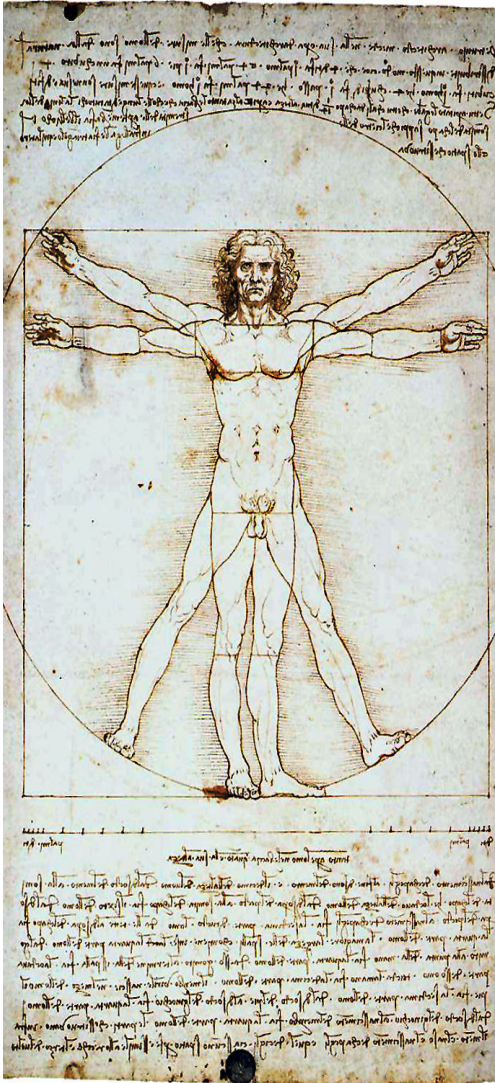
Ruptured AAA



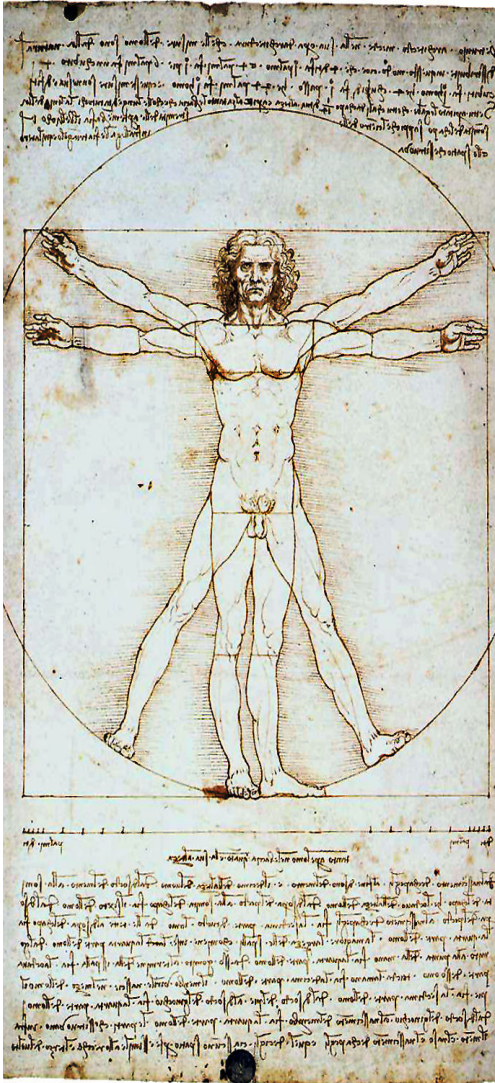
- Catastrophic
 - 70% mortality in ED patients
 - 31% misdiagnosed initially
 - Renal colic most common (hematuria)
 - 91% present with abd pain/back pain
- “Classic” presentation
 - Hypotension
 - Abdominal Pain
 - Pulsatile abdominal mass
 - Only present 35% of time!
 - If present, do not send for CT

Ruptured AAA

- Bedside Ultrasound critical
- 100% sensitive if aorta properly imaged
 - Only accurate for presence of AAA, not rupture
 - Free fluid = too late
 - Intraperitoneal rupture near 100% mortality

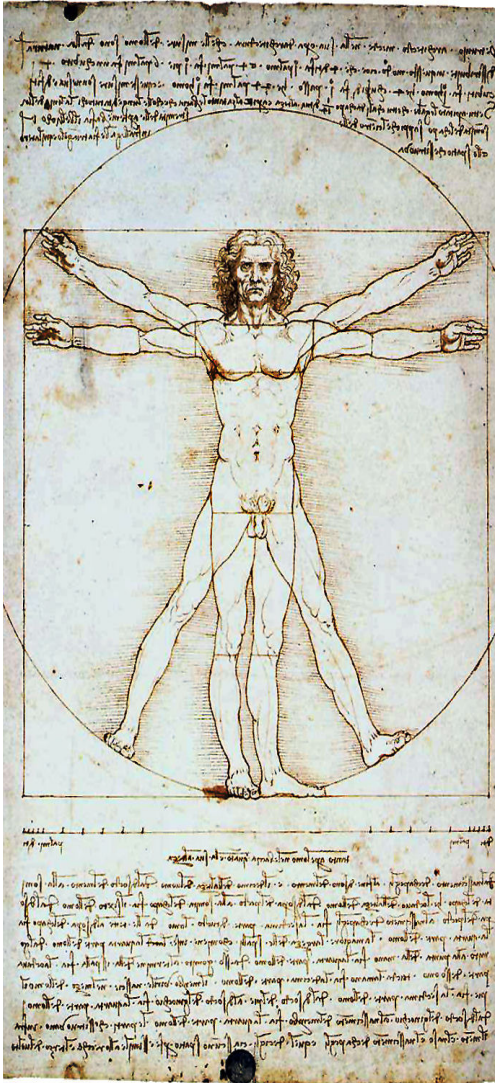


Ruptured AAA - ED mgt



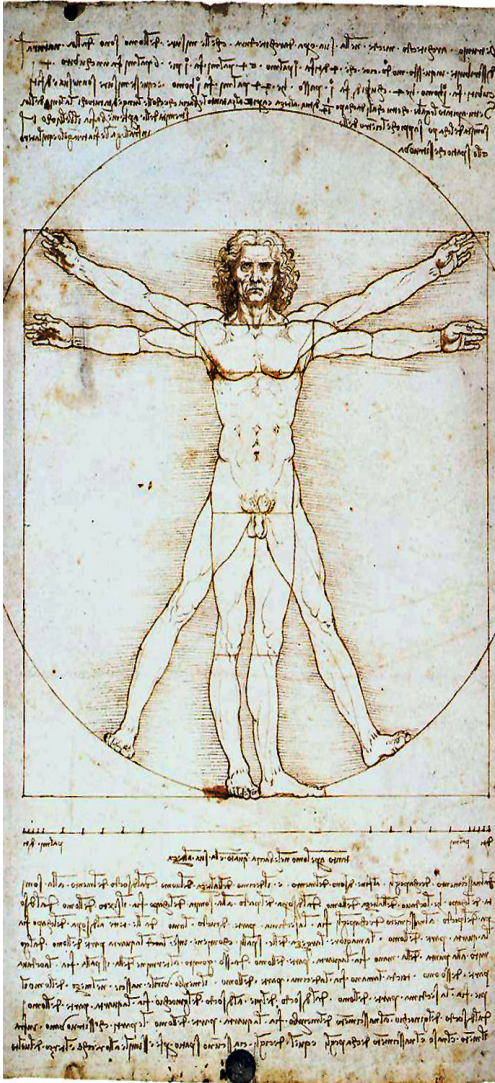
- If classic sx present
 - Emergent vascular consult/transport to OR
 - Multiple large bore IVs
 - Hold volume resuscitation if stable (why?)
 - T&C 6-10 units
- If dx uncertain, stable patient
 - CT
 - With contrast preferred
 - Without contrast acceptable
 - Manage as above depending on result

Mesenteric Ischemia



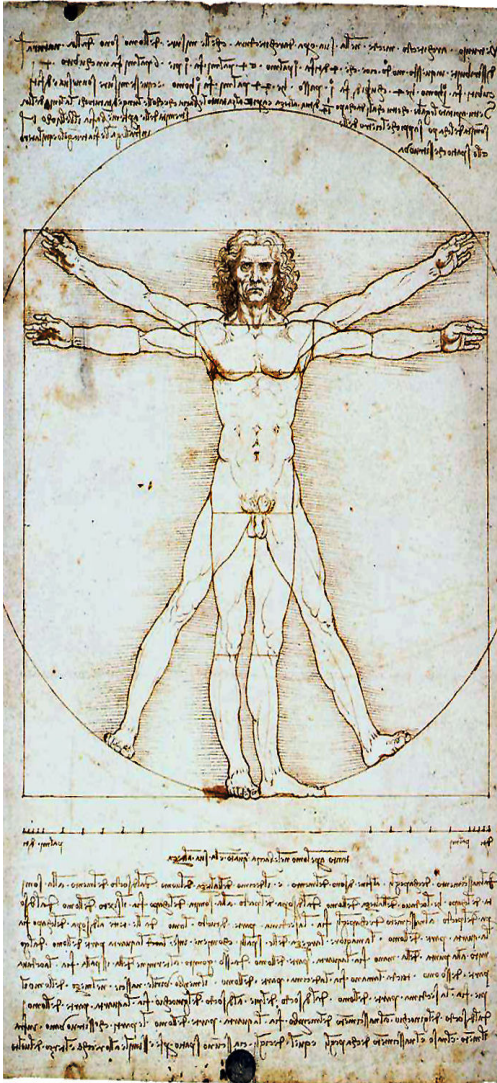
- Difficult to dx
- 4 etiologies:
 - SMA embolus (most common)
 - SMA thrombosis
 - Mesenteric venous thrombosis
 - Non-occlusive mesenteric ischemia (NOMI)

Mesenteric Ischemia



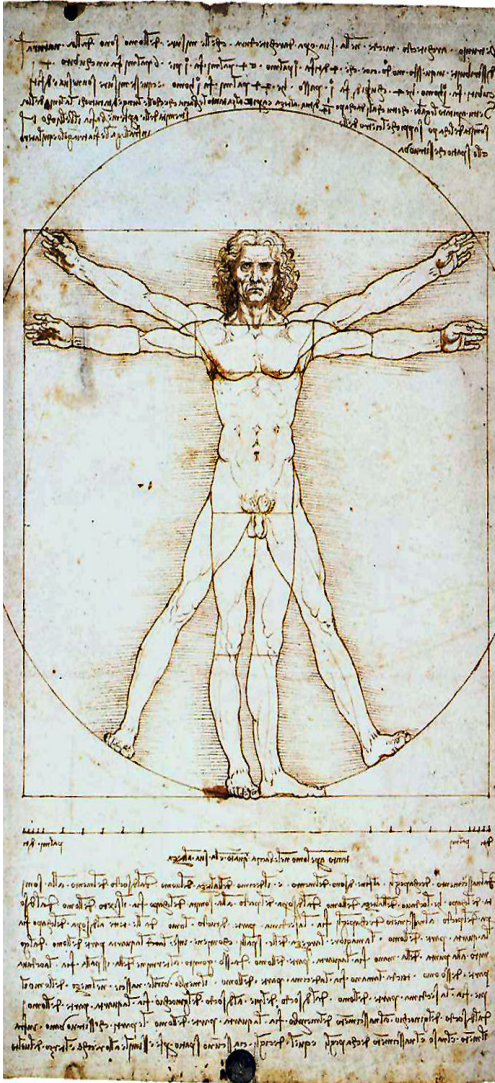
- Classically - severe abd pain out of proportion to exam
 - Vomiting / diarrhea common
- Embolic risk factors common
 - A. Fib most common
 - Still present <50%
 - Valvular disease
 - Ventricular aneurysm
 - Post-infarction ventricular thrombi

Mesenteric Ischemia



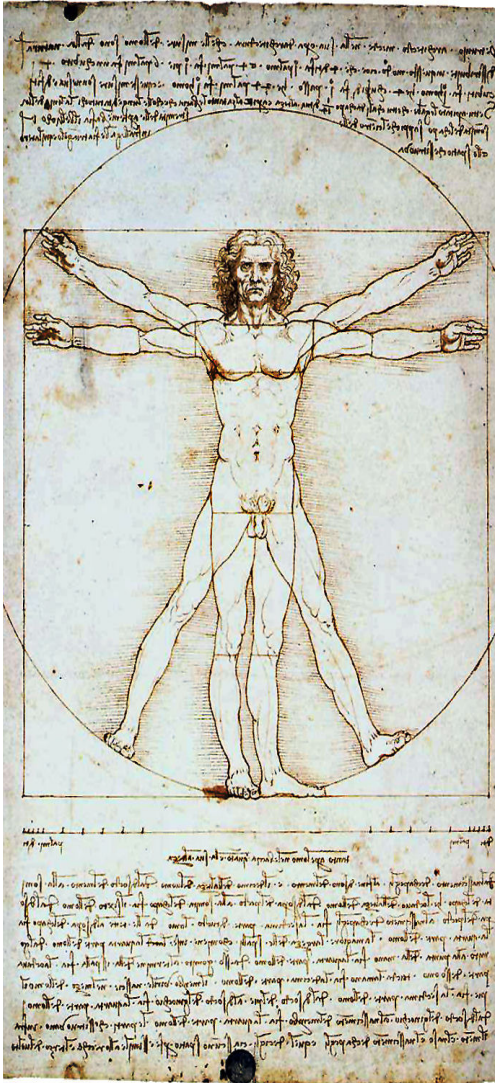
- SMA embolus
 - Acute pain
 - Acute GI emptying
 - Underlying cardiac disease
- SMA Thrombus
 - Preceding intestinal angina
 - Acute event similar to above (plaque rupture)

Mesenteric Ischemia



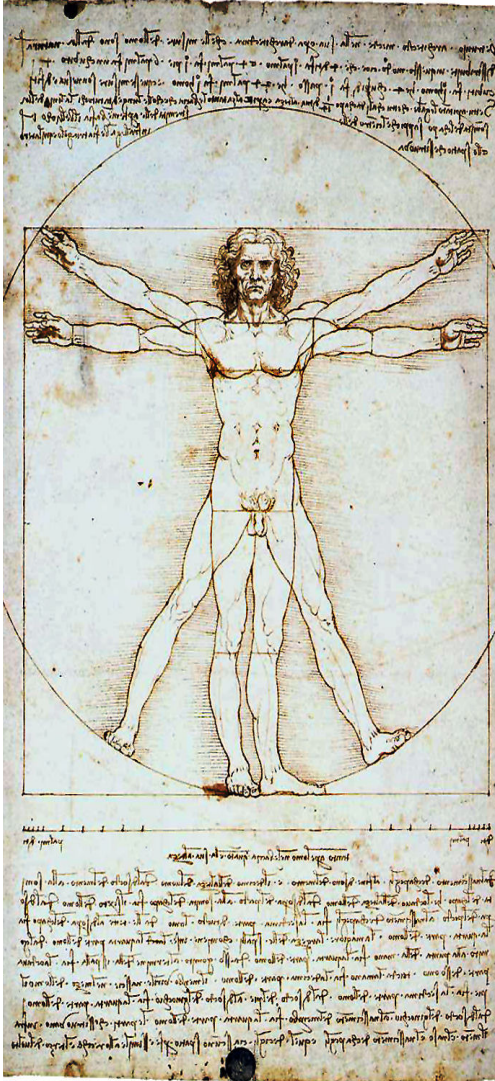
- Mesenteric Venous Thrombosis
 - H/O prior thrombosis/ coagulopathy
 - Progressive pain vice acute
- NOMI
 - Sustained decrease in cardiac output
 - CHF
 - MI
 - Cardiomyopathy
 - Valvular insufficiency
 - Sepsis
 - Medications
 - Treat underlying cause
 - Least common, but highest mortality!

Mesenteric Ischemia - Dx



- Lab values not specific, but...
 - Lactate
 - WBC
 - Metabolic acidosis
- Must have low threshold to image
 - Physical exam findings very non-specific
 - CT Angio preferred test

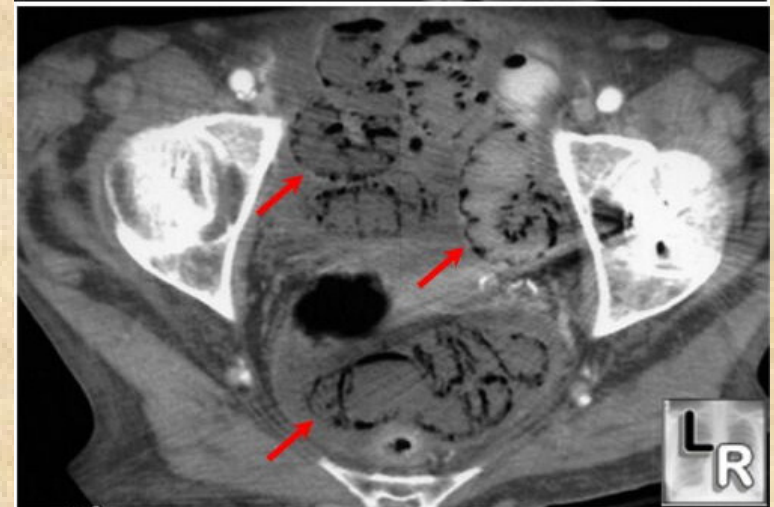
Mesenteric Ischemia - Dx



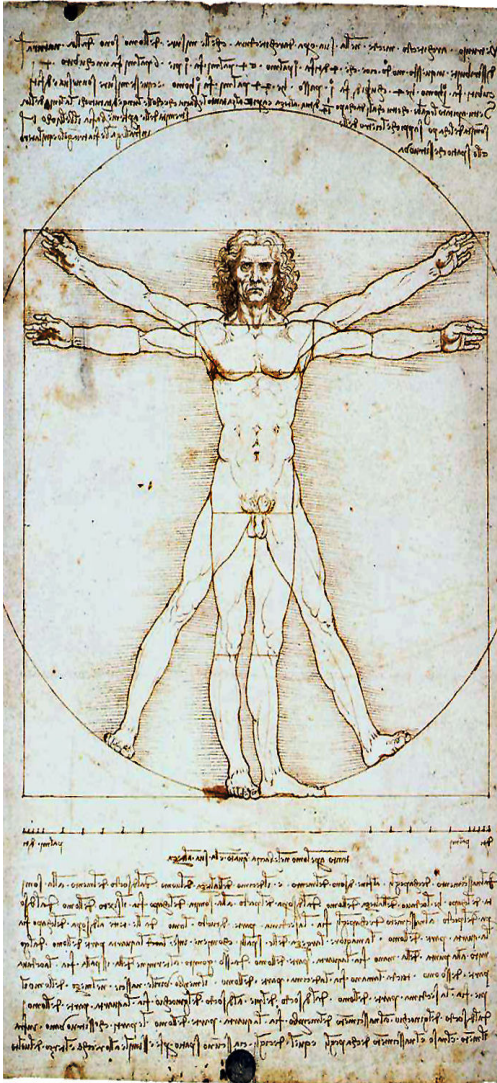
SMA Thrombus



Pneumatosis Intestinalis

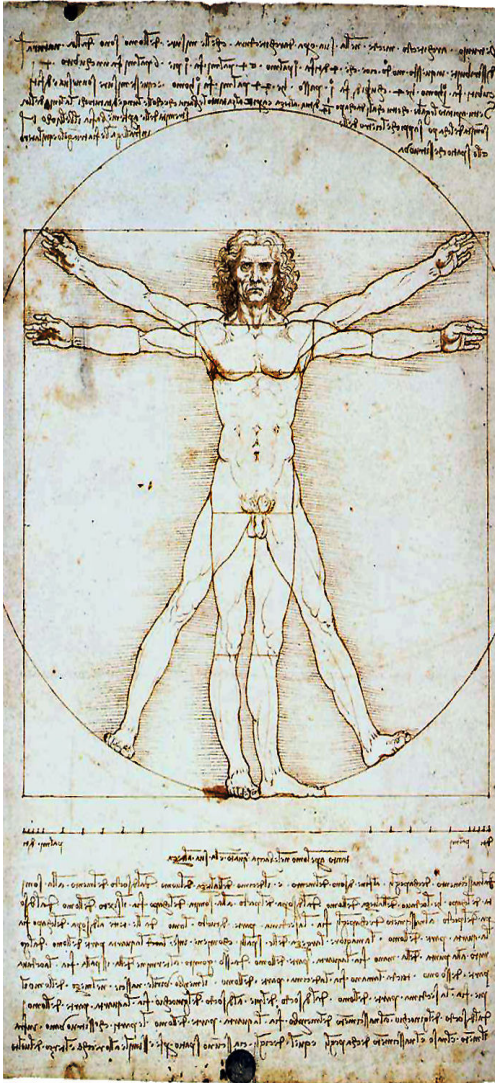


Mesenteric Ischemia - ED mgt



- Emergent surgical consult
- Correct underlying causes
- Fluid resusc
- Nasogastric decompression
- Broad spectrum IV Abx

Genitourinary Disease



- UTI

- 23-50% women greater than 80

- 20% of men over 70!!

- Obstruction secondary to BPH

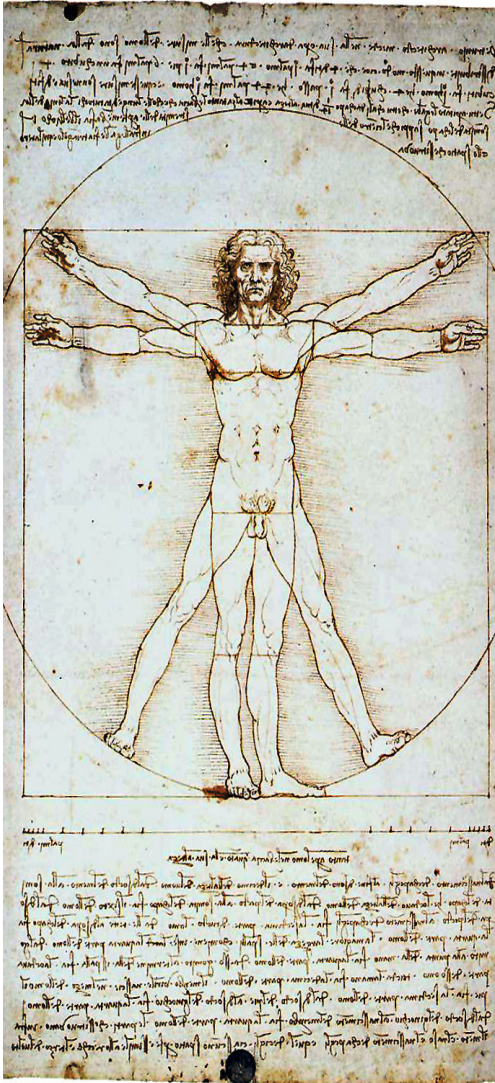
- Pyelonephritis

- Nephrolithiasis

- May be incidental!

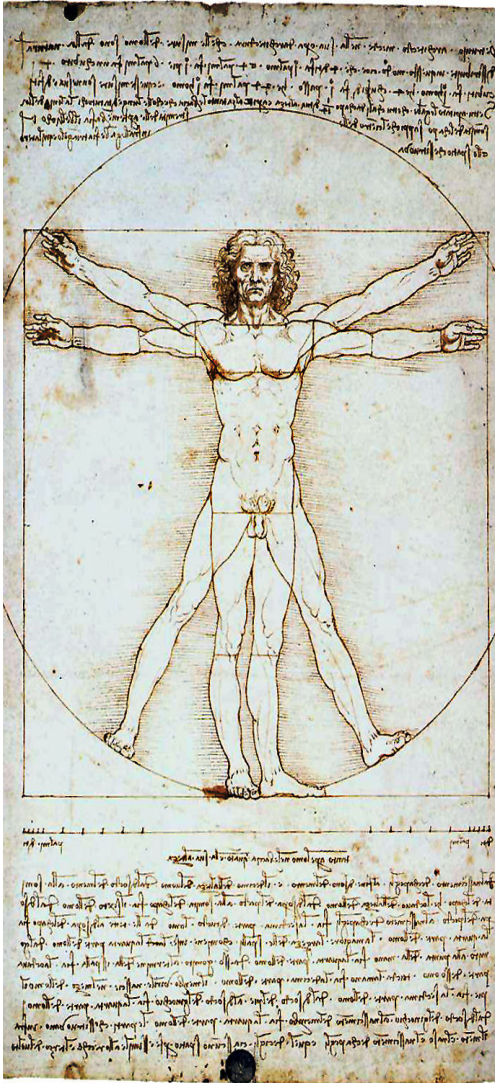
- Prostatitis (remember the rectal!)

Genitourinary Disease



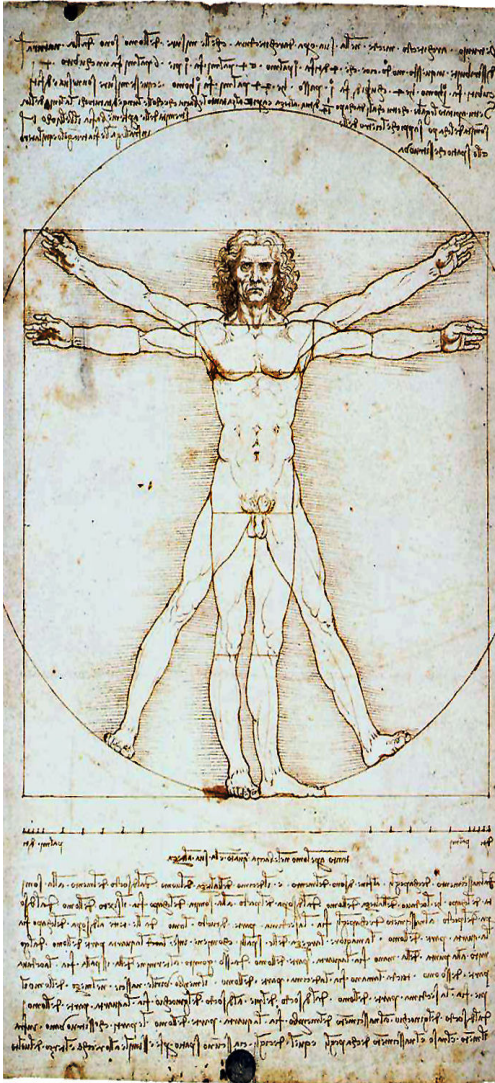
- Bladder rupture
 - Non-traumatic – can occur with obstructive uropathy
- Ovarian cancer – most common cancer in women >60
 - Commonly presents with mass, ascites, back/pelvic pain

Extra-abdominal causes



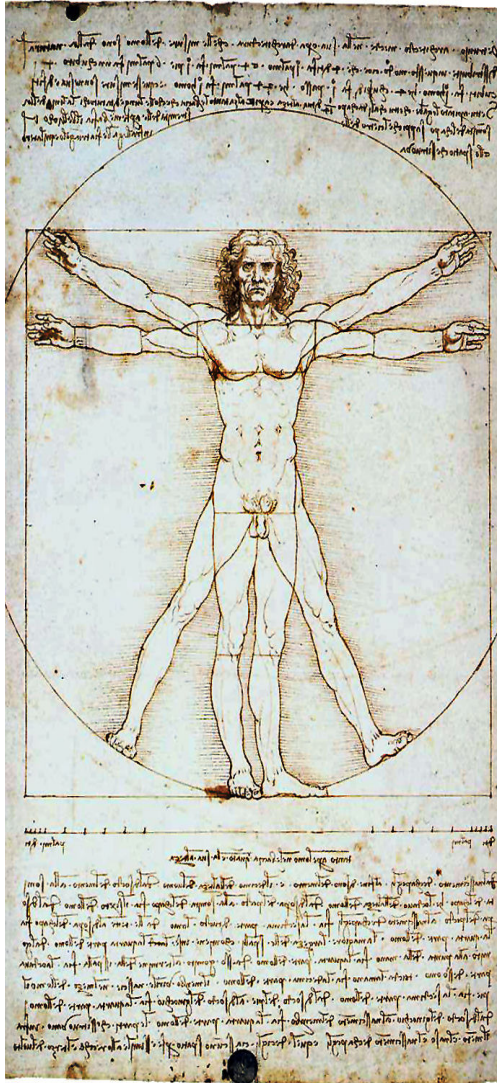
- Acute MI
 - 1/3 women >65 – abd pain presenting symptom
- Other cardiac etiologies
 - CHF, pericarditis, endocarditis
- Pulmonary etiologies
 - Pneumonia
 - PE
 - Pulmonary Effusion
 - Pneumothorax

Extra-abdominal causes



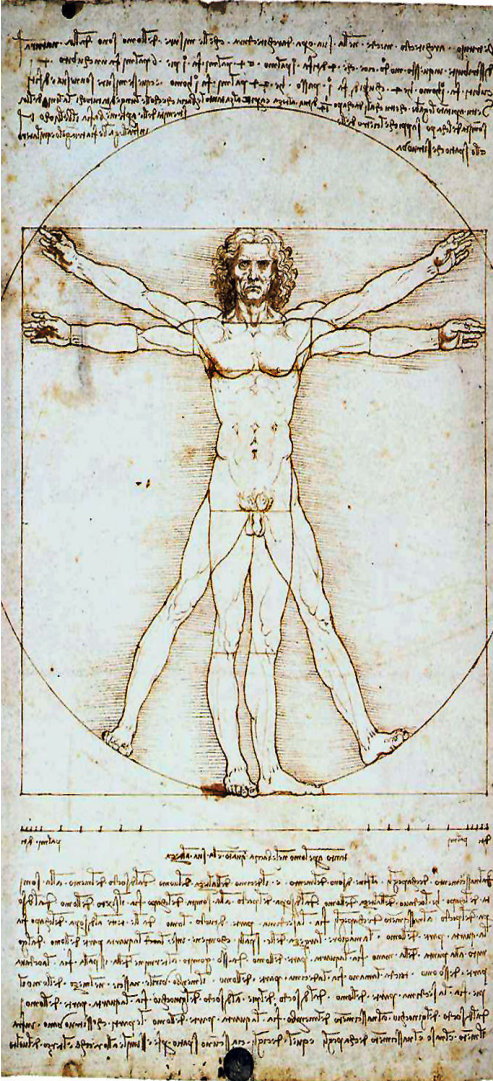
- Endocrine
 - DKA
 - Hypercalcemia
 - Vague abd pain
 - Anorexia
 - constipation
 - Adrenal crisis/Addisonian crisis
 - Especially if on steroids

So, what about our patient?





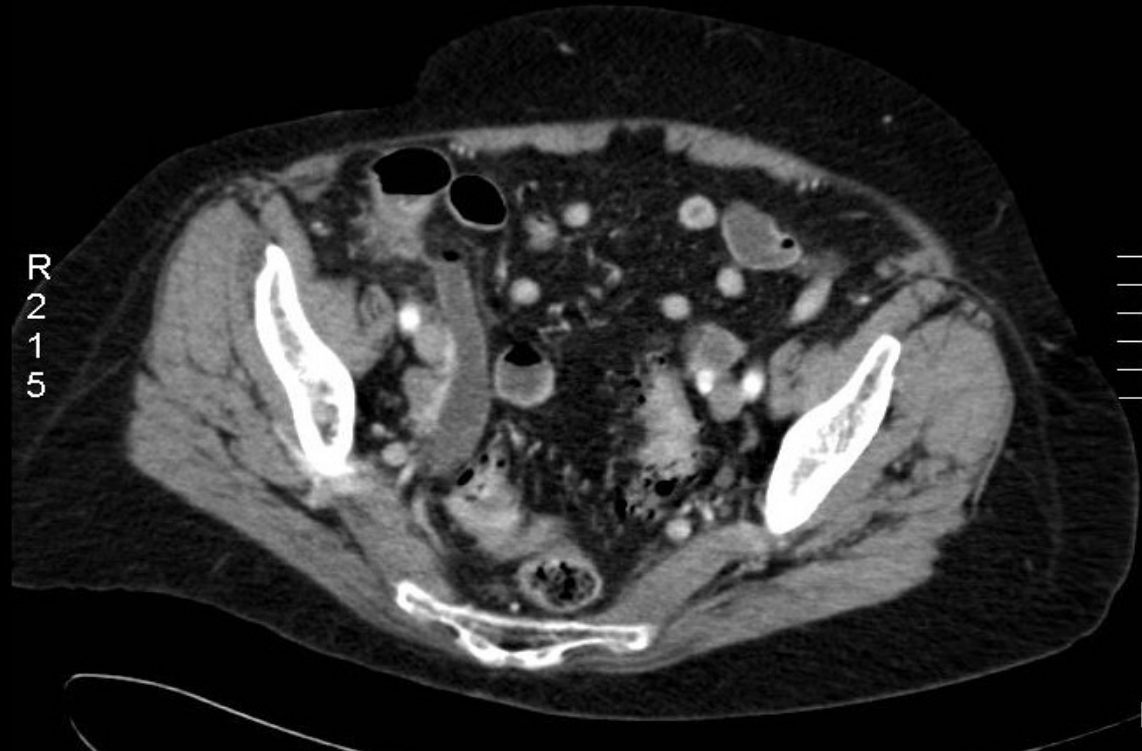
Case - CT



ACCES#CT07098085
50209898
07/01/1923
084Y
F

A355

CONTRAST:APPLIED
SE:4
IM:61
13:58:06



R
2
1
5

L
1
6
4

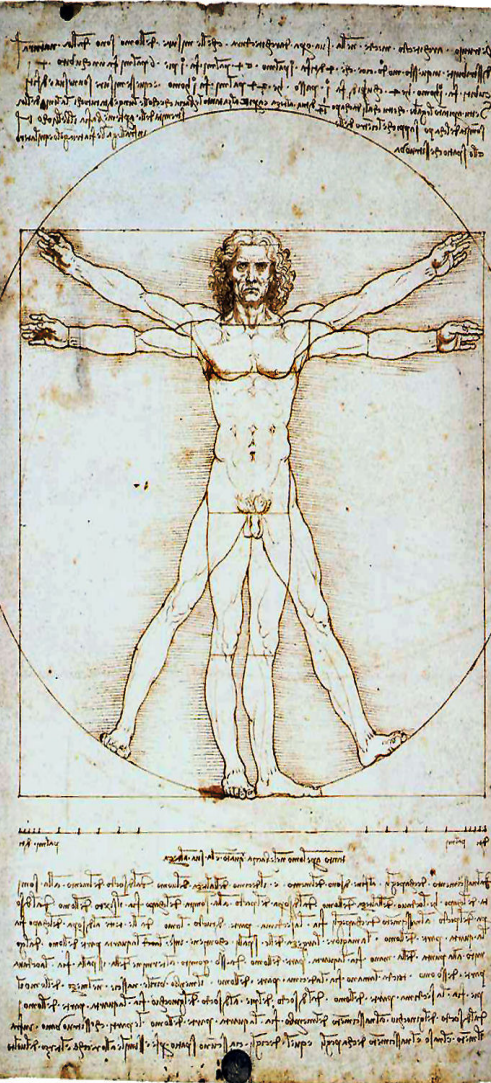
SLH
W 350 : L 40

P24

DFOV380
TILT:0
854.5
5mm



Case – Diagnosis



- Acute Appendicitis
 - In an 84 year old?
 - Third most common abd surgery
 - Incidence > age 50
 - 1:35 for women
 - 1:50 for men
 - >65 accounts for half of appendicitis deaths!
 - Perforation rates near 70%

Appendicitis

- Challenges to diagnosis

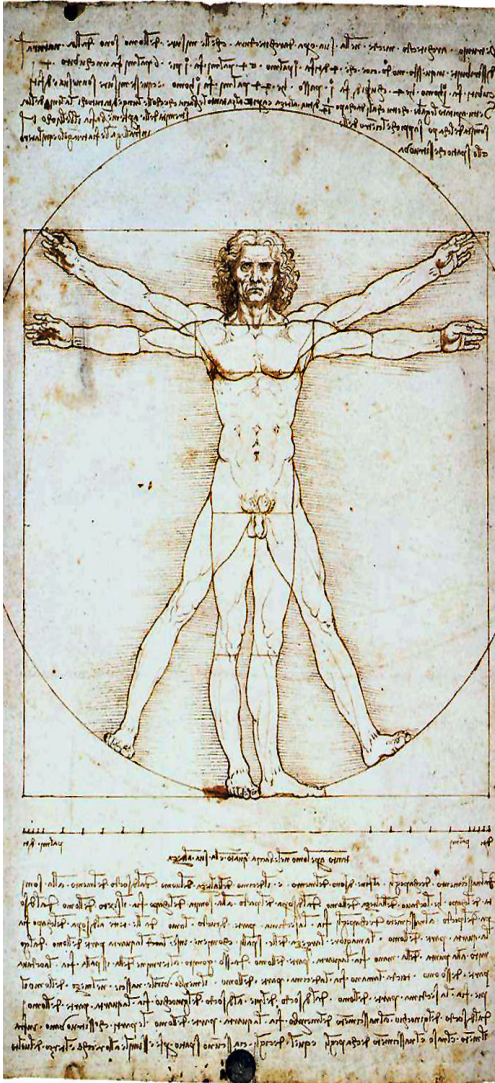
- Delayed presentation

- 25% present 3 days after sx onset
- 5-10% after one week

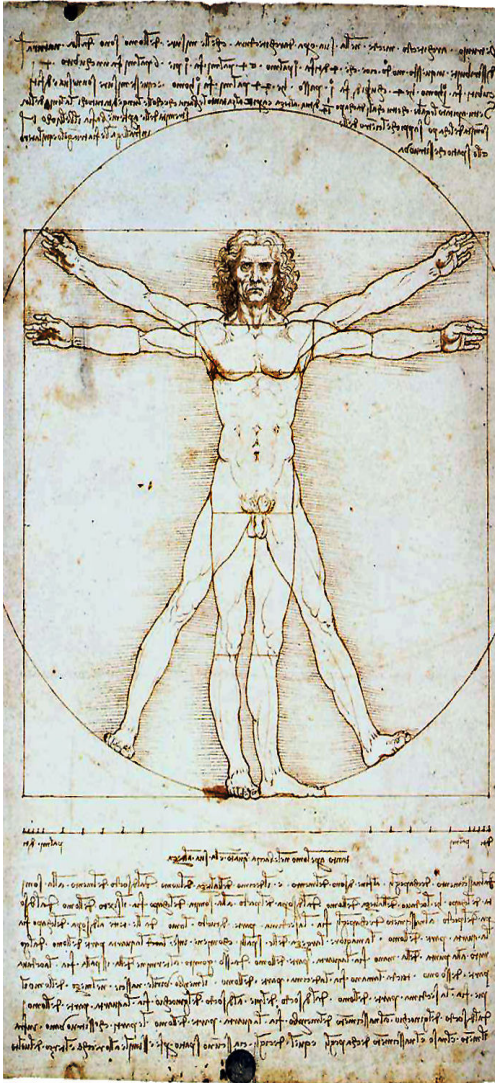
Storm-Dickerson. What have we learned over the past 20 years about appendicitis in the elderly? Am J Surgery 2003.

- Atypical presentations

- 60% afebrile
- 50% no RT or guarding
- 25% no RLQ TTP
- 1/3 with no leukocytosis

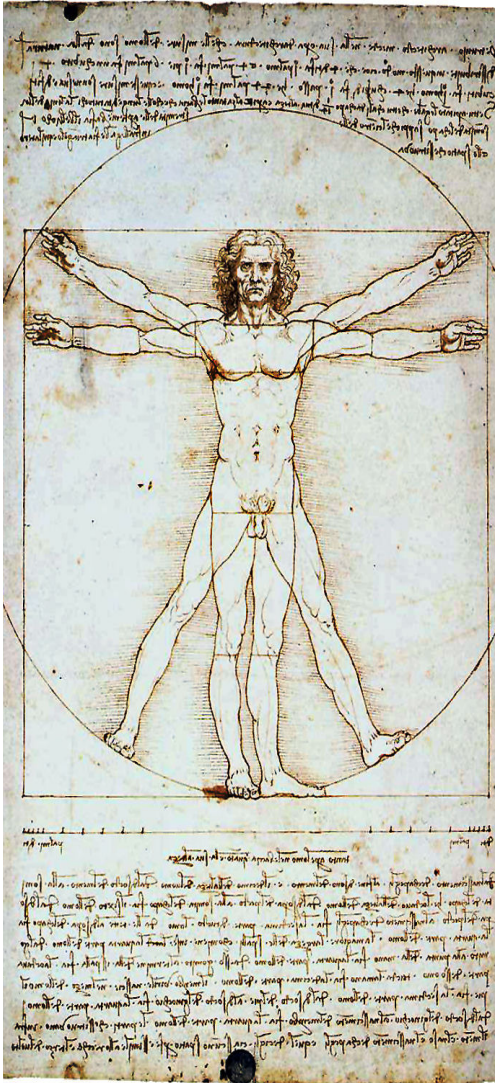


Appendicitis



- Bottom line:
 - Appendicitis is not uncommon in the elderly
 - Presentation is!
- AAS – misleading in 25%!
 - Incidental nephrolithiasis
 - Signs of obstruction
- Consider liberal use of CT if diagnosis possible
 - Sx consistent, pt has appendix
 - 54% of elderly with appy are initially misdiagnosed!

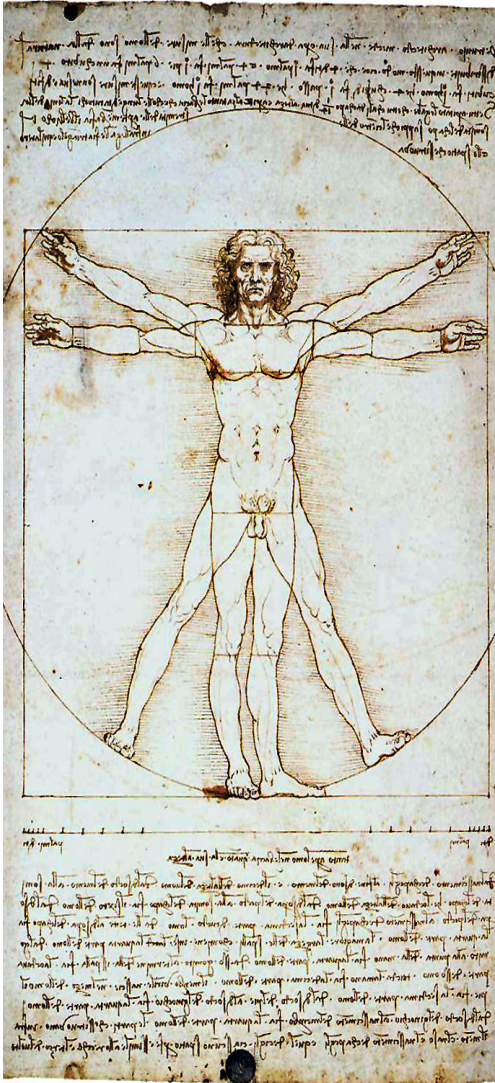
Final Thoughts



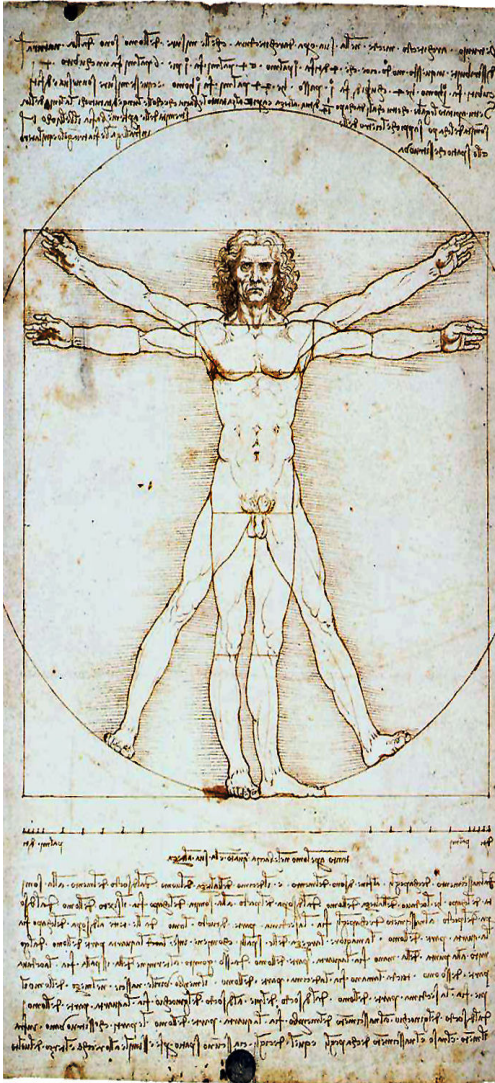
- As our population ages, geriatric pts increasing %
- History is difficult, but critical
- Missed dx carries high M&M
- Exam findings/lab values may be meaningless or misleading
- Look outside the abdomen
- Have a low threshold to CT and admit

Bottom Line

- Have a high index of suspicion
- Proceed with caution
 - Rely on history and clinical epidemiology
 - Less reliance on labs
- Impossible to eliminate bad outcomes
 - Understanding risk factors and applying systematic evaluation = Best chance for success



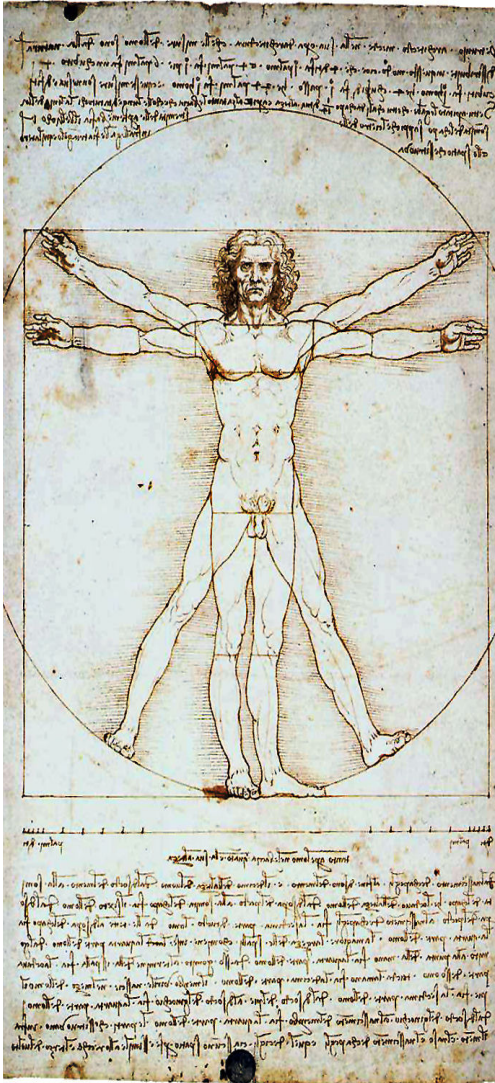
Final Thoughts



It is a good thing for a physician to have prematurely grey hair and itching piles. The first makes him appear to know more than he does, and the second gives him an expression of concern which the patient interprets as being on his behalf.

~A. Benson Cannon

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