Medical Potpourri

Diseases And Conditions You May Not Be Familiar With

Normal Human Physiology

- Body eats food
  - Carbohydrates - Starches
    - Broken into sugars
      - Mono, di and poly-saccharides
  - Body metabolizes carbs for energy
    - Krebs citric acid cycle
    - Left over metabolic wastes
      - Water (H₂O) and Carbon Dioxide (CO₂)
Normal Human Physiology

- Carbohydrates arrive via blood stream
- Carbohydrates burned INSIDE the cell
- Carbohydrates need help passing through the cell wall
  - Helper molecule - INSULIN

Normal Human Physiology

- Insulin is produced in the Pancreas
  - Islets of Langerhans
  - Beta cells - insulin
  - Alpha cells - glucagon
  - Delta cells - somatostatin
    - aka ‘growth hormone-inhibiting hormone’
    - Regulates alpha and beta cells
Blood Sugar Level

- Blood sugar & insulin production oscillates through out the day
- 'Normal' Blood Sugar Level:
  - 70-120 mg/dL
    - Insulin levels can't really be checked

Normal Diabetic Blood Sugar

- Normal Blood Sugar = 70-120 mg/dL
- Normal Blood Sugar for a diabetic?
  - 70-120 mg/dL
    - Hypo could kill before hyper so older DM Tx has taught to keep blood sugar 'a little high'
    - Modern DM Tx tries to keep BS no higher than 120 to avoid complications

Hemoglobin A1c test
- Some glucose is bound to Hemoglobin
- Reflects long term blood sugar levels
- Normal 4% - 6%
- Diabetic 7% or less
Diabetes? So What?

How diabetes impacts the entire body

*Being too sweet can make things go sour*

Long Term HYPERglycemia

- Long Term HYPER-glycemia alters cellular mitochondrial function
  - Endothelial proliferation – thickens walls of blood vessels
  - Alterations in lipid oxidation – increased blood cholesterols
  - Hypercoagulability – increase in micro clots
- All result in poor blood flow
  - Microangiopathy – capillaries
  - Macroangiopathy – arteries

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How Organs Are Affected

- Organs with smallest blood vessels most at risk for damage
- Kidneys
- Eyes
- Heart
- Skin
- Brain
- Peripheral nerves

How Organs Are Affected

- **Kidneys**
  - Destruction of vasculature
  - Malfunction of filtration process
- #1 cause of kidney failure leading to dialysis
How Organs Are Affected

- **Eyes**
  - Thin vessels
    - Overgrow
    - Bleed
  - #1 cause of preventable blindness

- **Heart**
  - Coronary artery disease - Atherosclerosis
    - Angina
    - Ischemia
    - Infarction
  - Diabetes major risk factor
How Organs Are Affected

• Brain
  - Inadequate perfusion leading to ischemic strokes

How Organs Are Affected

• Peripheral nerves
  - Poorly perfused
• Nerves die . . .
  - Numbness
  - Tingling
  - Lack of pain
    • No warning after injury
      - Skin breaks
      - Silent MI
    • No follow up treatment by patient
How Organs Are Affected

• Skin - Poor perfusion
  - Thinner
  - Easily torn & injured

Diabetic Amputations

• Nerve damage makes feet numb
• Injury occurs - no pain felt
• Wound poorly perfused
  - Less repair proteins
  - Few white blood cells
• High blood sugar feeds bacteria
  - Infection worsens
• Necrosis - Gangrene
• DM #1 cause of non-traumatic amputations
Diabetes and Prehospital Care

- Diabetes was once 100% fatal within weeks
  - Not understood - No treatments
- 1940s to 1970s diabetics survived but died from MI, renal failure, cancer, etc.
  - Some of these problems were caused by poor control
- Number of diabetics in society is increasing
- Greater chance of finding DM in patient’s history
  - It may or may not be related to the chief complaint
  - No longer can you just “give sugar” to all diabetics

- 21st Century Paramedics must truly UNDERSTAND diabetes pathophysiology in order to provide competent pre-hospital care when...

  ...**being too sweet can make things go sour**

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Stroke

Cerebral Vascular Accident
Brain Attack
Stroke Assessment and Management

- Cerebral Vascular Accident (CVA) defined:
- Interruption of normal brain perfusion
  - Bleed (hemorrhagic)
  - Ischemic perfusion
  - Infarction

- Prehospital Goals:
  - Recognize symptoms as a stroke
  - Transport to specialty center for specific treatment
    - “Time is brain cells”

Stroke Assessment and Management

- Stroke assessment
- Symptoms of Local Neurological Problems
  - Speech disturbances
  - Altered LOC
  - Paresthesias
- New onset: ‘Last known well’ important finding!
  - Seizures
  - Dizziness
  - Unilateral weakness
  - Visual disturbances
Stroke Assessment and Management

National Institutes of Health Stroke Scale
NIH Stroke Scale (NIHSS)
Zero to 42 points total

• LOC – responsiveness (0–3 points)
• LOC – questions (0–2 points)
• LOC commands (0–2 points)
• Horizontal eye movement (0–2 points)
• Visual field test (0–3 points)
• Facial Palsy (0–3 points)
• Motor arm (0–4 points)
• Motor leg (0–4 points)
• Limb ataxia (0–2 points)
• Sensory (0–2 points)
• Language (0–3 points)
• Speech (0–2 points)
• Extinction & inattention (0–2 points)

CINCINNATI PREHOSPITAL STROKE SCALE

• Facial Droop
  Normal: Both sides of face move equally
  Abnormal: One side of face does not move at all

• Arm Drift
  Normal: Both arms move equally or not at all
  Abnormal: One arm drifts compared to the other

• Speech
  Normal: Patient uses correct words with no slurring
  Abnormal: Slurred or inappropriate words or mute

Stoke Assessment and Management

FAST
Face
Ask the patient if they are aware of what is happening

Arm
Ask the patient to raise both arms

Speech
Ask the patient to repeat a simple sentence

Time
Time of symptom onset

Is it a stroke? Check these signs FAST! Call 9-1-1 at any sign of stroke.
Stroke Destinations in LA County

LA County Acute Stroke Center (ASC) policy:
"Modified Los Angeles Prehospital Stroke Screen"

- **MLAPSS** – *Includes time & age to decide destination*
  - Motor exam - Weakness or asymmetry in:
    - Smile or grimace
    - Grip
    - Arm strength
    - Speech? No - language barriers in LA area
  - Symptoms less than 2 hours
  - Age greater than 40
  - No Hx or seizures or epilepsy
  - Blood Glucose between 60 & 400
  - Patient not normally bedridden or wheelchair

- **Any of above? Transport to ASC**
  - Time is brain cells 😊

Where Do Stroke Patients Go?

**Primary Stroke Center:**
Hospital has met standards of Centers for Medicaid Services and is accredited as a Stroke Center

- **Joint commission Primary Stroke Center Certification**
  - 1000+ primary stroke centers certified in the USA
  - Standardize method of delivering care
  - Support patient self management activities
  - Tailor treatment to individual needs
  - Promote flow of information across settings & providers while maintaining privacy
  - Use and analyze standard performance indicators to improve care
  - Use clinical practice guidelines from AHA - ASA
Stroke Treatment (at a Stroke Center)

**Thrombolysis**
- Recombinant tissue plasminogen activators (rTPA)
- Must be given within 3 hours for best function and lowest mortality
  - 3-6 hours is of limited benefit
- **Contraindications?**
  - *Why tpa field use is controversial...*
  - Abnormal lab values, high blood pressure, or recent surgery

**Mechanical thrombectomy**
- Large vessels only
- Potential complications

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**Immunology**

The Immune System
Sometimes helpful . . .
Sometimes harmful . . .
### The Immune System

- **Probably the most complex and least understood body systems**
- **Intended to seek out and destroy things**
  - Bacteria, Viruses, Parasitic worms, etc.
- **Protection/Destruction occurs by:**
  - **Physical barriers**
    - Skin, nose hairs, mucus membranes
  - **Cleansing**
    - Tears, sneezing, urination

### The Immune System

Protection/Destruction occurs by:

- **Chemical barriers**
  - Enzymes in tears, saliva, breast milk, bodily secretions
  - Chemical changes:
    - Stomach acid, adding zinc or iron to secretions
- **Helpful bacteria**
  - Normal flora in gut and reproductive tracts
- **Inflammation response**
  - Increase blood flow and heat
  - Attracts white blood cells
The Immune System

Protection/Destruction occurs by:

• Cellular barriers
  A generic non-specific response
  - Phagocytes
    • macrophages, neutrophils, and dendritic cells)
  - Mast cells, eosinophils, basophils, and natural killer cells

• Adaptive immune system
  - Recognizes pathogens by their signature antigen
  - VERY specific responses – “immunologic memory”
  - Lymphocytes, killer T cells, helper T cells, antibodies

• Differentiates between ‘self’ and ‘non-self’ cells
Immunologic Problems

- **Too little immunity**
  - Normal aging, alcoholism, malnutrition, some cancers, congenital, AIDS
- **Too much immunity**
  - Hypersensitivity (anaphylaxis)
- **Manipulation**
  - Vaccines, intentional immunosuppression

Organ and Tissue Transplant

It ain't as easy as swapping parts in your car
Immunology - Transplant

• **Organ and tissue Transplant:**
  - Things that can be transplanted
    - Kidneys
    - Heart
    - Liver
    - Pancreas
    - Lung
    - Skin
    - Small intestine
    - Bone marrow
    - Corneas

• **First transplant (kidney) 1954**
  - Identical twins
    - No rejection

**The problem:**
• The immune system can attack the new organ (rejection)
  - Difference between ‘self’ and ‘non-self’

**The solution:**
• ABO-compatible/incompatible
  - Based on blood type
    - Children below 12 months few problems
  - Tissue typing
    - Serotyping
Immunology - Transplant

- **S/S of rejection:**
  - Organ malfunction
  - General 'feeling sick'
  - Lab and chemical tests become abnormal
- **Solution = Suppress the immune system**
  - Anti rejection drugs
    - Steroids (Prednisone)
    - Ciclosporin (Cyclosporine)
    - Many others

Transplant – Issues & Problems

- Organ transplant does NOT cure the original underlying condition!
- What caused the organ to fail?
  - Kidneys & diabetes?
  - Livers and hepatitis/alcoholism?
  - Hearts and atherosclerosis (smoking?)
Transplant – Issues & Problems

Anti rejection medications can CAUSE:
- Diabetes, kidney failure, cholesterol issues, cardiovascular disease, metabolic bone disease, new onset cancers . . . .

Transplant – Issues & Problems

- Anti rejection meds 'destroy' the immune system
  - Transplant patients extremely susceptible to infection!

Transplant recipients must:
- Avoid sick people (especially children)
  - Stay away from undeveloped countries
- Wash & treat minor cuts
- Wash hands frequently (before eating or taking meds)
Transplant – Issues & Problems

Psychological issues
Dealing with the fact that someone lost their life just when they regained theirs

Post-traumatic Stress Disorder
Depression, anxiety
- “What just happened?”
- Face & hand transplants
  - “I see a dead man’s face”
  - “This is not my hand”
- Penis transplant rejected after 2 weeks by the recipient’s wife(!)

Transplant – Issues & Problems

Psychological issues
- Transitioning from being critically ill or dying to being ‘healthy’
  - Return to work?
  - “You now have to wash the dishes!”
- Family caregivers becoming less illness-focused
  - Relationships change
- Financial and economic issues
  - Costs of medications
  - Costs of travel to transplant center
Transplant and EMS

- **Heart Transplant**
  Survival in the U.S. is nearly 90 percent after one year
  74 percent after five years.

- **EKG**
  - Original atria is left so extra P wave remains

Also new heart is unresponsive to atropine (no vagus nerve)
Transplant and EMS

Kidney Transplant
- Old kidneys not removed
  - Can bleed in trauma
- New kidney located in abdomen
  - May be palpable on exam
- Will have a history of dialysis
  - Shunts or peritoneal access

Liver
- Abdominal exam may be affected
  - Partial organ transplant
- 65-70% develop post transplant hypertension
Collagen Diseases

When the stuff that holds you together starts to come undone

Collagen Vascular Disease

- Group of diseases
  - (aka Connective tissue disease)
  - Attacks on molecules collagen and elastin

Collagen creation and disposal
Collagen Vascular Disease

- Entire group of diseases!
  - Attacks on molecules collagen and elastin
    - Medical specialty = Rheumatology
  - Exact cause unknown
    - Autoimmune activity is common
    - The body attacks itself
      - The body produces antibodies (autoantibodies) against its own antigens.

Ankylosing Spondylitis

- Inflammation of the joints between the spinal bones, and the joints between the spine and pelvis
Eventually the affected spinal bones join together
  - Low back pain that comes and goes
    - Pain and stiffness are worse at night, in the morning, or when you are not active
    - Pain typically gets better with activity or exercise.
Dermatomyositis

- Muscle disease characterized by inflammation and a skin rash
- A type of inflammatory myopathy
  - Proximal symmetrical muscle weakness
    - Unable to raise arms or comb hair
    - Can affect speech and swallowing
    - Can cause respiratory compromise
  - Specific skin rashes
    - Gottron's papules
    - Heliotrope
      - Redness & swelling of eyes

Polyarteritis Nodosa

- Blood vessel disease in which small and medium-sized arteries become swollen and damaged.
  - aka Kussmaul's disease
- Inflammation of medium to small arteries
  - Serial bubbly aneurysms - look like "like beads on a Rosary"
- Ischemic damage to organs, skin, heart, kidneys, and nervous system
- Some S/S:
  - Weight loss
  - Mottled purplish skin discoloration over the extremities or torso
  - Testicular pain or tenderness (disease more common in men)
  - Muscle pain, weakness, or leg tenderness
  - Nerve disease
  - Diastolic blood pressure greater than 90mmHg
Psoriatic Arthritis

Type of arthritis that often occurs with psoriasis of the skin

- Pain, swelling, or stiffness in one or more joints
- Joints that are red or warm to the touch
- Sausage-like swelling in the fingers or toes
- Pain in and around the feet and ankles, especially tendon or in the sole of the foot.
- Changes to the nails
- Pain in the sacrum

Rheumatoid arthritis - ‘Rheumatism’

- Long-term disease that leads to inflammation of the joints and surrounding tissues. It can also affect other organs
- Signs & Symptoms
  - Joint pain - swelling tenderness, warmth
  - Can be affected by time of day and weather
- Treatment is management
  - Exercise
  - NSAIDs - Motrin
  - Disease-modifying antirheumatic drugs
    - Methotrexate
Scleroderma

- Thickening & hardening of skin
- Raynaud’s phenomenon
  - Poor blood flow to hands
- Damage to:
  - Heart - HTN to CHF
  - Kidneys - acute renal failure
  - Lungs - SOB, cough, pneumonia, cancer
  - Esophagus - difficulty swallowing, poor digestion, diarrhea
  - Joint pain stiffness
- Cause - Autoimmune?
- Cure - none - treat symptoms

Systemic Lupus Erythematosus

- aka SLE or ‘Lupus’
  - Autoimmune disorder
    - Affects: skin, joints, kidneys, brain, and other organs
- S/S - ‘the great imitator’
  - Hard to diagnosis - Can look like many other diseases
    - Fever, malaise, joint pains, myalgias, fatigue . . .
  - Skin - butterfly rash+
  - Joint pain - (less than RA)
  - Inflammation of heart, lung, kidney+
    - Arrhythmia, SOB, headache+
    - Blood clots, embolism+
- Treatment
  - Anti-rheumatic anti immune drugs anaegics
Demyelinating diseases

Stripping away the insulation from the wires

Neuro Anatomy

Neuron Anatomy
- Neuron
- Dendrite
- Axion
- Synapse
Neuro Anatomy

Afferent - impulse INTO the CNS
Efferent - impulse OUT of CNS

Neuro Anatomy

- Myelinated Nerves found in:
  - The peripheral nervous system
    - especially the sensory and motor neurons
  - ‘White matter’ of central nervous system
**Myelinated Nerves**

- "Myelination"
  - Fatty material
  - Produced by Schwann cells

- Myelin is an 'insulator' for nerves
- Can guide axon regrowth

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**Demyelinating diseases**

- Myelinated nerves
- Can guide axon regrowth
Demyelinating diseases

- Myelinated nerves
- Myelination insulates and speeds impulses

Demyelination

Myelin sheath intact
Axon of a normal neuron
Demyelination in progress

Healthy Nerve
nerve
cell

Damaged Nerve
nerve
Fibre
myelin sheath
scarred myelin
Demyelinating diseases . . .

... of the Central Nervous System:
- Multiple sclerosis
- Central pontine myelinolysis
- Myelopathy

Multiple Sclerosis

Refers to scars (sclerae) in the white matter of the brain and spinal cord
  - Resulting in almost any neurological symptom or sign
    - autonomic, visual, motor, and sensory problems being the most common
  - No two people have exactly the same experience of MS, the disease course may look very different from one person to another
Multiple Sclerosis

**Signs & Symptoms:**
*Generally come in symptomatic attacks*
- Tingling, pins and needles, numbness, muscle weakness,
- Very pronounced reflexes, muscle spasms, difficulty in moving: coordination and balance (ataxia)
- Problems with speech or swallowing
- Visual problems
- Fatigue, acute or chronic pain
- Depression, mood difficulties
- Bladder and bowel difficulties
- Etc, etc, etc.

**NOT paralysis!**

**Multiple Sclerosis**

- **Cause?**
  - Environmental factors?
  - Infectious agents?
  - Genetics?
  - Combination of above?
- **Unknown!**
- **Treatment?** - No known cure
  
  The primary aims of therapy:
  1. Returning function after an attack
  2. Preventing new attacks
  3. Preventing disability
Multiple Sclerosis

- Treatment? - No known cure
- Medications; Steroids . . . . ???
- 8 different other treatments/drugs have been approved
  - As of 2012 the cost effectiveness is unclear

NOT A Demyelinating disease:

**MS is NOT Muscular Dystrophy**
- MD is genetically inherited defect
- MD Happens generally to boys
  - Generally diagnosed in childhood
- Impairment of muscle tissue to properly create functional proteins
- Becoming muscle degeneration & weakness
  - Frequent falls
  - Inability to walk
  - Difficulty swallowing & walking
Central Pontine Myelinolysis

• Severe damage of the myelin sheath in the brainstem (especially the pons)
  - Acute paralysis
  - dysphagia (difficulty swallowing)
  - dysarthria (difficulty speaking)
  - Other neurological symptoms

Central Pontine Myelinolysis

Predominately of iatrogenic etiology

• Complication of treatment of profound, life-threatening hyponatremia (low sodium)
• Consequence of a rapid rise in serum tonicity for treatment of severe hyponatraemia
  • Infusion of Na brings excess water into cell leading to multiple cerebral hemorrhages
  • Also possible with history of chronic alcoholism or other decreased liver function
Central Pontine Myelinolysis

- Overall prognosis is poor
- Permanent disabilities range from
  - Minor tremors and ataxia
  - S/S of severe brain damage
  - Spastic quadriplegia
  - Locked-in syndrome - aka TOTAL paralysis
- The extent of recovery depends on how many axons were damaged.

Myelopathy

Spinal cord injury:
- Trauma

Spinal cord inflammation:
- Autoimmune disorders
- Viral disease
  - Poliomyelitis, West Nile, Encephalitis
- Bacterial
  - Mycoplasma, tuberculosis, syphilis, brucellosis
- Fungal and Parasite Myelitis
- Meningococcal Myelitis - lesions in the meninges
Myelopathy

- Signs & Symptoms:
  - Numbness, tingling, weakness, paralysis, burning sensations, pain
  - Bowel & bladder problems
  - Fever
  - Respiratory problems

Demyelinating diseases . . . .

. . . of the Peripheral nervous system:

- Guillain-Barré syndrome
- Charcot-Marie-Tooth disease
Guillain–Barré Syndrome

- Autoimmune response directed against Schwann cell membranes
  - Unknown cause - Might be triggered by an infection(?) flu like symptoms
- Attacks the peripheral nerves only
  - Does not damage CNS or spinal cord
- Myelin sheath is lost
  - Axon may or may not remain intact
    - Recovery can be quick if remyelination occurs
  - Axon may have to regrow

Guillain–Barré Syndrome

- Ascending paralysis over hours to days
  - Weak ‘rubbery’ legs
  - Arms & facial muscles
  - Dysphagia
    - Difficulty swallowing (Drooling)
    - Difficulty maintaining an open airway
  - Difficult respirations
    - Respiratory failure
    - Ventilator
Guillain–Barré Syndrome

- **Treatment?**
- **Intravenous immunoglobulins**
- **Plasmapheresis**
  - Filtering antibodies from the blood stream
- **Airway and ventilation**
  - ETT & tracheostomy
- **Problems associated with long term bed rest**
  - Weakness, bedsores, contractures

Guillain–Barré Syndrome

- **Recovery generally begins after 4 weeks**
  - 80% have complete recovery within 1 year
  - 2%–3% death rate
Charcot–Marie–Tooth Disease

- Genetically inherited disorder of the peripheral nervous system
  - 9 different types - destruction of myelin sheath or the axon
- Generally appears in adolescence or early adulthood

<table>
<thead>
<tr>
<th>Signs &amp; Symptoms:</th>
<th></th>
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<tbody>
<tr>
<td>Foot drop &amp; deformities</td>
<td>'on and off' painful muscle spasms</td>
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<tr>
<td>Scoliosis is common</td>
<td>Hip sockets can be malformed</td>
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Charcot–Marie–Tooth Disease

- Loss of balance - difficulty walking
  - Gastrointestinal problems
  - difficulty chewing, swallowing, and speaking
    - due to atrophy of vocal cords
- A tremor can develop as muscles waste

Charcot–Marie–Tooth Disease

- No cure / No treatment
  - Ascorbic acid (vitamin C) has been studied
- Keep active
  - maintain existing movement, muscle strength & flexibility
    - Personalized PT program
- Corrective surgery & braces
Musculoskeletal Injuries

When it was just simple common trauma, the world was a whole lot easier

Musculoskeletal injuries

- Assessment of a M-S complaint
- Spine
- Joint abnormalities
- Muscular abnormalities
- Overuse syndrome
Musculoskeletal injuries

Muscular-Skeletal assessment

- Physical examination
  - Assess for strength
    - Squeeze, push, pull
  - Bilateral comparisons
- Assess for range of motion
  - Is ROM affected by pain?
  - Is ROM affected by immobility
    - NEVER force a joint!
- Reflex testing of limited value in prehospital setting
- Deformities?

Patient history

- What is wrong today?
- Is problem new or old?
  - Any recent trauma or unusual chronic disease?
- What can you do?
- What can't you do?

- Medications might give clue to a disease
- Recent mechanism of injury?
  - Can worsen a chronic condition
‘Simple’ Can Hide the ‘Serious’

Simple Cramps could be:
- Pinched nerve?
  - Joint dislocation - especially spinal bones
  - Tumor
- Electrolyte imbalance?
  - Dehydration (heat stroke? Diuretics?)
  - Low - Sodium? Calcium? Magnesium? Hypocapnia?
- Poisoning?
  - Heavy metals

Musculoskeletal injuries

Overuse syndrome - Repetitive strain injury
- Tendinitis, carpal tunnel syndrome, golfer's elbow, tennis elbow Blackberry thumb, iPod finger, gamer's thumb, etc.
M-S Injuries and EMS

Medical-legal:

- Mechanism of injury may quickly become a lawsuit
  - Direct liability?
  - Workmen’s compensation claim?

Documentation of your encounter can become critical

Abdominal and GI Pathology

A Quick Trip Down The Alimentary Canal
Abdominal and GI pathology

- **Mesenteric ischemia (infarction)**
- Reduced or stopped blood flow to intestines/GI tract
  - 'Gut attack' - 'abdominal angina'

  [Image of superior mesenteric vein with blood clots and necrotic areas of small intestine]

**Mesenteric Ischemia**

- **Not common -- High mortality**
- **Risk factors**
  - Age over 60
  - Smoker
  - high cholesterol
- **Causes**
  - Atherosclerosis
  - Embolus
  - Low blood pressure (shock)
  - Congestive heart failure
  - Aortic dissection
  - Occlusion or blockage of the veins in the bowel
Mesenteric Ischemia

• **Signs & Symptoms:**
  - Abdominal pain starting 15-60 minutes after eating lasting 30-90 minutes after eating
    • ‘gut angina’?
  - Diarrhea
  - Nausea
  - Vomiting
  - Flatulence
  - Constipation

• **Diagnosis:**
  - Ultrasound, CT scan, Angiography

• **Treatment:**
  - Angioplasty
  - Stenting of the mesenteric arteries
  - Open surgical repair
    • Malnourishment common - high surgical risk

• **Worst that could happen:**
  - Acute infarction, perforation, sepsis, and death
Rectal Abscess

Anorectal abscess - Perirectal abscess

- Infection and pus collection adjacent to the anus
  - Commonly bacterial
    - Intestinal flora - E.coli
    - Possibly MRSA?

- Infected anal glands - Infected anal fissure

- May happen or worsen with:
  - Crohn’s disease or diabetes
  - Anal sex
  - Use of prednisone
Rectal Abscess

- **Signs & symptoms**
  - “bad case of hemorrhoids”
  - Dull aching pain especially at time of bowel movement
    - Pain may increase suddenly over 2-3 days
  - Constipation, drainage from rectum, fever, chills

Rectal Abscess

- **Diagnosis:**
  - Visual exam (not paramedic scope of practice)
- **Treatment:**
  - Incision & drainage
  - Oral antibiotics
  - Sitz baths
Rectal Foreign Body

Items intentionally inserted for erotic sensual pleasures:
- Dildoes, vibrators, light bulbs, candles, shot glasses, soda or beer bottles, cucumbers, carrots, axe handles, broomsticks, etc. etc. etc.

Rectal Foreign Body

• INSERTION MIGHT BE AN ASSAULT
  - Was the act consensual?
  - Is legal notification required?
Rectal Foreign Body

*Items inserted for concealment:*
- Drug packets, weapons
- Beware: Prisoners and Psych patients!

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Rectal Foreign Body

*‘Geriatric’ type insertions:*
- Prostate massage
- Items to break up impactions
- Thermometers? Enema tips?
Rectal Foreign Body

Swallowed items:
Toothpicks, seeds, bones, camera pills

- More common in males than females (28:1 ratio)
- More common in the age range of 20s (eroticism) & 60s (prostate massage)
  - No racial or ethnic differences reported

Embarrassment may have delayed treatment
- Serious complications may result
Rectal Foreign Body

Rectal foreign body Signs & Symptoms:
- Patients generally are requesting removal
  - Rectal pain & bleeding?
  - S/S of perforation? – fever vomiting abdominal pain
- May be too embarrassed to mention foreign body to anyone except the MD
  - They may not tell YOU the real problem . . .

Rectal Foreign Body

• Prior attempts at removal may complicate issue
  - Muscle spasm
    - Spasm may result in intestinal ischemia
  - Perforations/ lacerations
Rectal Foreign Body

Removal based on multiple factors
- Size, shape & composition of object
  • May be easy (sigmoidoscope)
  • May require surgery
    - Colostomy may be necessary

Rectal Foreign Body

Role of Paramedic:
DO NOT EMBARRASS THE PATIENT!!
“Tell me again, how did this happen?”

• Be careful about sharing the story!
  - Common breech of patient confidentially
  - Prevent privacy invasion by curious staff
• HIPPA laws apply - huge medicolegal issue
  Just Transport the patient!
Conclusion

21st century Paramedics are expected to evaluate and possibly treat conditions that were never part of the original DOT plan for prehospital care

There are many things you may not be familiar with

Society is demanding more . . .

. . . Paramedics must deliver more

Get Ready