Scabies

- Highly contagious infestation caused by itch mite which burrows under skin
- Contracted by direct contact with infested humans- eruption 4-6 wks. after initial contact
- Intensely pruritic papules, vesicles, pustules, and linear burrows appear in finger and toes webs, the axillae, over flexor surfaces of wrists and elbows, around nipples and waist, and over groin and buttocks
- Eradication-topical application of 5% Elimite cream to all household members and a thorough cleaning of all dirty clothing, towels and bedding- may repeat in 7 days
- May need to use oral antipruritic agents and topical steroids for itching several days after Elimite treatment
Scabies
Ecthyma

- Microscopic break in skin with entire epidermis involved - Staph. aureus and Strep. pyogenes pathogens
- Ulcers form with a firm, dry, dark crust and surrounding erythema - usu. on legs - may occur simultaneously with impetigo
- Culture wound for C&S and MRSA (methicillin resistant S. aureus)
- Treated with topical and systemic antibiotics
- Hand washing of both caregiver and patient
Ecthyma
Pityriasis Alba

- Asymptomatic hypopigmented patches
- Face, neck, upper trunk, proximal extremities
- Circumscribed, scaly, 1 cm or more in size
Pityriasis Alba
Pityriasis Alba
Non-Specific Dermatitis

- With residual post inflammatory hypopigmentation
- Darker skin types
Treatment

- Low potency topical corticosteroids
- Calcineurin inhibitors (e.g., Elidel or Protopic) for a few weeks
- Emollients
- Repigmentation may take months to years
Meningococcal Meningitis

Cause: Neisseria meningitidis

- Most common cause of bacterial meningitis in children and adolescents and second most common in adults.
- Risk factors: recent exposure and recent upper respiratory infection.
- Occurs more often in winter or spring. May cause local epidemics in boarding schools, college dormitories, or military bases.
Symptoms of Meningococcal Meningitis

• Usually come on quickly and may include:
  • Fever and chills
  • Mental status changes
  • Nausea and vomiting
  • Purple bruise-like areas (purpura)
  • Rash, pinpoint red spots (petechiae)
  • Sensitivity to light (photophobia)
  • Severe headache
  • Stiff neck (meningismus)
Meningococcal Rash
Purpura
Meningococcal Rash
Meningococcal Meningitis
Signs of and treatment for Meningococcal Meningitis

Physical exam will show:

- Fast heart rate
- Fever
- Mental Status changes
- Rash
- Stiff neck

Tests performed once admitted to hospital:

- Lumbar puncture
- CSF exam for cell count glucose, protein, gram stain, other special stains, culture and sensitivity
- Blood culture
- CT of head
- CBC
Treatment for Meningococcal Meningitis

IV antibiotic treatment for 7-10 days:

Ceftriaxone, or
Penicillin in high doses, or
Chloramphenicol for resistant bacteria
Meningococcemia

- More serious and deadly illness caused by Neisseria Meningitidis bacteria which enter bloodstream and multiply, damage the walls of blood vessels and cause bleeding into skin and organs
- Spread person to person via respiratory secretions
- Patients may develop or present with meningitis
- Symptoms may include: anxiety, fever, fatigue, vomiting, cold hands and feet, severe aches and pain in muscles, joints, chest, or abdomen; rapid breathing, diarrhea, petechiae; in later stages changing level of consciousness, purpura, and shock
- Very serious can be fatal in as little as a few hours. In non-fatal cases can cause permanent disabilities-MR, seizures, severe scarring, or amputations
Exams and Tests for Meningococcemia

Blood culture
Complete blood count
Clotting studies (PT, PTT)
LP
Skin biopsy and gram stain
Urinalysis
Treatment of Meningococcemia

• Admitted to ICU and placed in respiratory isolation
  • IV antibiotics given immediately after stat labs
  • Breathing support
  • Clotting factors or platelet replacement if bleeding disorders
  • IV fluids
  • Medications to treat low blood pressure
  • Wound care for areas of skin with blood clots
Possible Complications of Meningococcemia

- Arthritis
- Disseminated intravascular coagulopathy (DIC)
- Gangrene due to lack of blood supply
- Inflammation of blood vessels in the skin
- Myocarditis
- Pericarditis
- Shock
- Severe damage to the adrenal glands that can lead to low blood pressure (Waterhouse-Friderichsen Syndrome)
Prognosis

- Early treatment = good outcome
- Life threatening if patient has:
  - Disseminated intravascular coagulation (DIC)
  - Kidney failure
  - Shock
- Patients who do not develop meningitis tend to have poorer outcomes
Texas Senate Bill 1107

- Texas legislature expanded requirements for student meningitis vaccinations, effective January 1, 2012
- Requires all students under the age of 30 entering an institution of higher education to be vaccinated against bacterial meningitis or meet specific criteria before the first day of class.
- Law requires incoming freshman and transfer students to receive the immunization.
Prevention of Meningococcal Meningitis and Meningococccemia

- Vaccine available to help prevent 4 of the 5 most common serogroups: A, C, Y, & W-135; does not cover serogroup B
  - MPV4, Menactra (MCV4) and Menveo
  - Menactra vaccine is recommended at age 11 years and a booster at 16 years of age.
  - People who have immune deficiencies or with missing or damaged spleens are at increased risk and should be vaccinated.
  - Prophylaxis for contacts Rifampin or Ciprofloxacin
Jamie Schanbaum, UT Austin student, who lost limbs to meningococcemia learns to ride a bike
Jenny McCarthy Anti-vaccine Advocate
Henoch-Schönlein Purpura (HSP)

- Consists of tiny non-thrombocytopenic purpura, arthritis, and arthralgia, GI symptomatology, and a variety of renal findings
- 75% of cases in children less than 10 y/o
- Syndrome occurs after URI or other viral infection, also reported after bacterial infections, insect bites, dietary allergies, immunizations, and use of numerous drugs
- Clinical picture: previously well child who acutely develops distinctive skin rash, arthritis, and abdominal pain
- 50% of patients present with rash which usu. involves buttocks, lower extremities, and hands (waist down distribution
Lesions begin as petechial or 0.5 cm purpuric areas which become confluent with nearby lesions-red macules/papules to purplish then brown lesions.

85% have some form of GI symptomology from colic to massive GI hemorrhage (seen in 5% of patients).

75% have arthritis or arthralgia-mostly in knees and ankles.

Renal involvement occurs in 50%- important because degree of renal pathology affects prognosis mild-hematuria severe-nephrotic syndrome, nephritis and 1% end stage renal disease.

Course varies with age- majority over initial illness in 4 wks.-50% have at least one reoccurrence.
H.S. Purpura

[Images of purpuric lesions on legs]
Varicella

- Brief prodrome of low grade fever, URI symptoms and mild malaise-followed rapidly with pruritic exanthem
- Initial crops involve trunk and scalp, then to extremities
- Lesion: tiny erythematous papules which enlarge to thin walled superficial vesicles with red halos, vesicular fluid changes from clear to cloudy, then drying with umbilicated appearance, erythema fades and scabs form, sloughing after several days
Varicella (cont.)

- Communicable 1-2 days before lesions and until all lesions are crusted over - Incubation period 10-21 days
- Secondary infections impetigo or cellulitis
- Super infections with Group A Beta Hemolytic Strep can lead to myositis, sepsis, and purpura fulminans
- Oral Acyclovir recommended for adolescents within 24-48 hours after onset of rash
- Calamine lotion and oral antihistamines to control itching  No ASA
Varicella
Varicella
Varicella

Complicated

Scarring
Kawasaki Syndrome

- Multi-system presentation leading to devastating cardiac sequelae
- Acute phase (7-14 days): fever, irritability, conjunctivitis, oropharyngeal edema, rash, lymphadenopathy, and distal extremity edema and erythema (may refuse to walk)
- Fever: mean duration 12 days-up to 30 days if untreated
- Conjunctivitis: non-exudative, non-ulcerative bulbar predominance (1-2 weeks, if untreated)
- Oral findings: red, cracked, fissured lips, “strawberry tongue” and diffuse mouth erythema
Kawasaki Syndrome (cont.)

- Rash: scarlatiniform, morbilliform, macular and papular erythema, multiform with target like lesions, urticarial plaques, even pustular—may be pruritic
- Rash noted in skin fold areas—neck and perineal area, skin peels several days before desquamation of fingers and toes
- Additional features: early and late forms of arthritis and arthralgia, urethritis and inflammation of urethral meatus, CNS findings: lethargy, meningismus, aseptic meningitis, facial nerve palsy, and paralysis of extremities, sensorineural hearing loss, diarrhea, vomiting and abdominal pain
Kawasaki Syndrome (cont.)

- Referral to cardiologist if suspect syndrome
- Current therapies: Aspirin and IV Immunoglobulins have significantly reduced the risk of cardiac complications
- Do not administer Varicella or Measles vaccines for at least 11 mos. after gamma globulin therapy; administer Flu vaccine annually
- Due to increased risk of Reyes Syndrome in patients with influenza or varicella receiving ASA; patients are to notify M.D. If exposed
Kawasaki Syndrome

- High persistent fever
- Enlarged lymph nodes & swelling of the neck
- Sore throat
- Joint pain
- Swollen hands & feet, peeling skin on hands, palms, toes, soles of feet
- Redness of the eyes
- Red, chapped, or cracked lips
- Patchy skin rash
- Coronary artery aneurysms
- Heart muscle inflammation
- Diarrhea
Kawasaki Syndrome
Kawasaki Syndrome
Kawasaki Syndrome
Kawasaki Syndrome
Follow Up and Prevention of Problems with Kawasaki Syndrome

If no coronary abnormalities 1 year after disease onset, no need for subspecialist care

Cardiologist follow up annually for children with coronary artery changes

20% of patients will experience cardiac problems throughout life
Methicillin Resistant Staph. Aureus (MRSA)

- Resistance shown to methicillin in 1961, but has increased in resistance to several antibiotics over the past several years
- Most MRSA infections are skin infections that produce the following signs and symptoms:
  - Cellulitis - infection of skin or fat and tissue beneath the skin that start as small red bumps in the skin
  - Boils - pus-filled infections of the hair follicles
  - Abscesses – collections of pus in or under skin
MRSA (cont.)

- Stye – infection of an oil gland of the eyelid
- Carbuncles – infections larger than an abscess, usu. several openings in skin
- Impetigo – skin infection filled with pus-filled blisters
- Rash – skin appears to be reddish

- Can spread to almost any other organ in body
An abscess is seen on the forehead of a 60-year-old man.
Transmission of MRSA

- Two major modes of transmission:
  
  Physical contact with someone who is either infected or is a carrier (people not infected but colonized with the bacteria on their body) of MRSA
  
  Physical contact with MRSA on any objects such as door handles, floors, sinks, or towels that have been touched by an MRSA infected person or carrier
  
- Normal skin tissue does not allow MRSA to develop, but if there are cuts, abrasions, or skin irritations, MRSA may proliferate
Diagnosis and Prevention of MRSA

- A skin sample of pus from a wound, or blood, urine or tissue biopsy is sent to the lab and cultured for S. Aureus and exposed to various antibiotics including Methicillin.

- Scrupulous hand washing, cover any breaks in the skin with an antiseptic cream/ointment and a band aid, wash clothes soon after contact with infected individual, and using disposables when in contact with an infected individual.
Treatment of MRSA Infection

- First line treatment for mild abscesses is incision and drainage
- Culture of wound taken and pt. started empirically on antibiotics
- Patient and family instructed in wound care, control of illness in the home
- Treated with p.o. Antibiotics, Bactroban (Mupirocin) ointment to wound, Mupirocin to nares, warm packs, drainage of wound, and dressing changes, in home bleach baths 1/8 cup bleach in 18 in. bath water
- F/U daily or Q.O.D. until resolution of abscess, if condition worsens hospitalization with IV antibiotics, surgical incision and drainage is warranted
Abdominal Complaints

- Acute Abdominal Pain
- Appendicitis
- Cholelithiasis
- Constipation
- Encopresis
Acute Abdominal Pain

- Pain located in abdomen of < 2 wks duration. Symptom can originate within or outside the GI tract (peritoneum), or referred areas

- Frequently caused by viral gastroenteritis, urinary tract infection and constipation

- Other causes in school aged children:
  - Preschool: appendicitis, intussusception, pneumonia, pharyngitis, trauma;
  - School age: appendicitis, pneumonia, pharyngitis, pancreatitis, trauma;
  - Adolescent: appendicitis, pancreatitis, cholelithiasis; Female: mittelschmerz, pelvic inflammatory disease, dysmenorrhea, ectopic pregnancy, ovarian cyst
Abdominal Pain

- A.G.E. and appendicitis most common causes
- **Manifestations:** Consider child's age and developmental level regarding location and duration of pain
  
  Associated symptoms: fever, vomiting, diarrhea, cough, anorexia depending on etiology
  
  Location, duration, frequency of pain
  
  Stool frequency, consistency, blood
  
  Vomiting: frequency, presence of bile or hematemesis
  
  Symptoms outside GI tract (cough, cong., dysuria, sore throat)
  
  Medication and diet history
  
  Sexual activity, vaginal discharge
  
  Alleviating and aggravating factors
Abdominal Pain Needing Referral to Health Care Provider

- **Appendicitis:**
  Vague periumbilical pain, located to right lower/middle quadrant
  Often associated with fever, vomiting
  Guarding rebound, signs of peritoneal irritation on abdominal exam

- **Pancreatitis:**
  Inflammation of pancreas from infection, medications, trauma,
  Epigastric pain often with nausea and vomiting

- **Cholelithiasis:**
  Epigastric or right upper quadrant pain, often radiates to back
**FIGURE 15-4**
Four quadrants of the abdomen.
From Thompson, Wilson, 1996.

**FIGURE 15-5**
Nine regions of the abdomen. 1, Epigastric; 2, umbilical; 3, hypogastric (pubic); 4 and 5, right and left hypochondriac; 6 and 7, right and left lumbar; 8 and 9, right and left inguinal.
From Thompson, Wilson, 1996.
<table>
<thead>
<tr>
<th>Right Upper Quadrant</th>
<th>Left Upper Quadrant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duodenal ulcer</td>
<td>Ruptured spleen</td>
</tr>
<tr>
<td>Hepatitis</td>
<td>Gastric ulcer</td>
</tr>
<tr>
<td>Hepatomegaly</td>
<td>Aortic aneurysm</td>
</tr>
<tr>
<td>Pneumonia</td>
<td>Perforated colon</td>
</tr>
<tr>
<td>Cholecystitis</td>
<td>Pneumonia</td>
</tr>
<tr>
<td><strong>Right Lower Quadrant</strong></td>
<td><strong>Left Lower Quadrant</strong></td>
</tr>
<tr>
<td>Appendicitis</td>
<td>Sigmoid diverticulitis</td>
</tr>
<tr>
<td>Salpingitis</td>
<td>Salpingitis</td>
</tr>
<tr>
<td>Ovarian cyst</td>
<td>Ovarian cyst</td>
</tr>
<tr>
<td>Ruptured ectopic pregnancy</td>
<td>Ruptured ectopic pregnancy</td>
</tr>
<tr>
<td>Renal/ureteral stone</td>
<td>Renal/ureteral stone</td>
</tr>
<tr>
<td>Strangulated hernia</td>
<td>Strangulated hernia</td>
</tr>
<tr>
<td>Meckel diverticulitis</td>
<td>Perforated colon</td>
</tr>
<tr>
<td>Regional ileitis</td>
<td>Regional ileitis</td>
</tr>
<tr>
<td>Perforated cecum</td>
<td>Ulcerative colitis</td>
</tr>
</tbody>
</table>

**Periumbilical**
- Intestinal obstruction
- Acute pancreatitis
- Early appendicitis
- Mesenteric thrombosis
- Aortic aneurysm
- Diverticulitis
Constipation

- **Difficult defecation for > 2 weeks, passage of hard and/or dry stools**

- **Functional**: most common, no underlying pathology
  - Diet low in fiber/fluids
  - Lack of exercise, obesity
  - Stool withholding; secondary to painful defecation
  - Family history

- **Other causes**: outlet dysfunction, hypothyroidism, hypercalcemia, C.F., medications, sexual abuse
Constipation (cont.)

- Clinical Manifestations:
  - Hard BMs - usu. infrequent, may be dry, small (due to incomplete evacuation)
  - Size, consistency, frequency of BMs
  - Stool-withholding symptoms (crosses legs, dances around)
  - Fecal soiling in underwear

- Associated symptoms: abdominal pain, poor appetite, irritability

- Important questions to ask: Diet history-any changes? Child on any medications? Any possibility of sexual abuse?
Encopresis

- Fecal incontinence in clothing-majority caused by chronic, functional constipation (retentive encopresis)

- Etiology:
  Stool accumulates in rectum, which subsequently leaks out through anus ("tip of iceberg")
  Soiling is not volitional/ intentional
  Underlying pathology rare
Encopresis (cont.)

- Occurrence:
  
  Stool incontinence, usually during day, of varying quantities

  Soiling has soft consistency and parents misinterpret this as diarrhea, child “can't make it to bathroom on time”

  Parents may believe cause to be volitional or laziness
Encopresis Occurrence (cont.)

- Important questions to ask parent:
  - Age of toilet training, was process difficult?
  - Frequency, consistency, size/amount of BM on toilet?
  - Any blood?
  - Does child hide soiled clothing?
  - How has family dealt with problem?
  - Ask about history of UTI and enuresis?
  - Any possibility of sexual abuse?

- Associated symptoms may include abd. pain, abd.distention, poor appetite, school avoidance

- Common pedi. problem: affects boys more than girls
Treatment for Encopresis

- All children with encopresis must first start with disimpaction “cleanout”. Soiling will not resolve without this. May need cathartics at H.S. for 1-3 nights in a row and up to 1 Fleet enema bid for 1-3 days in a row.
- After clean out child starts with daily stool softening.
- Keep track of BMs, soiling episodes on calendar.
Treatment for Encopresis (cont.)

- High fiber diet
- Toilet retraining child to sit on toilet after meals 2-3 times per day, work up to 5-10 minutes, provide footstool, ask child to try to have BM, to “practice”, not expected to have BM each time
- Positive reinforcement only! No punishment for soiling. Soiling should be cleaned up swiftly with child's assist.
Complications of Encopresis

- Low self esteem/shame
- Child abuse
- School avoidance
- UTI's due to proximity of stool in clothing to urinary tract
- Enuresis
FIGURE 14-1
How the School Nurse Can Help

- Follow H.C.P. orders:
  - Allow student to use restroom as adjusting to meds, etc.
  - Store change of clothes
  - Allow to drink H2O throughout day, may carry water bottle
  - Encourage high fiber diet/liquids, daily meds if ordered
  - Discuss need for more assistance with teacher
  - Please be compassionate!
Is this an encopretic elephant?
The Evolving School Nurse—Not Just Putting on BandAids Anymore!
References


References


Websites:

www.cdc.gov/meningitis/vaccines-info.html

Google Images for various photos