



Dermatologic Emergencies

Date 10/10/2026

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Objectives

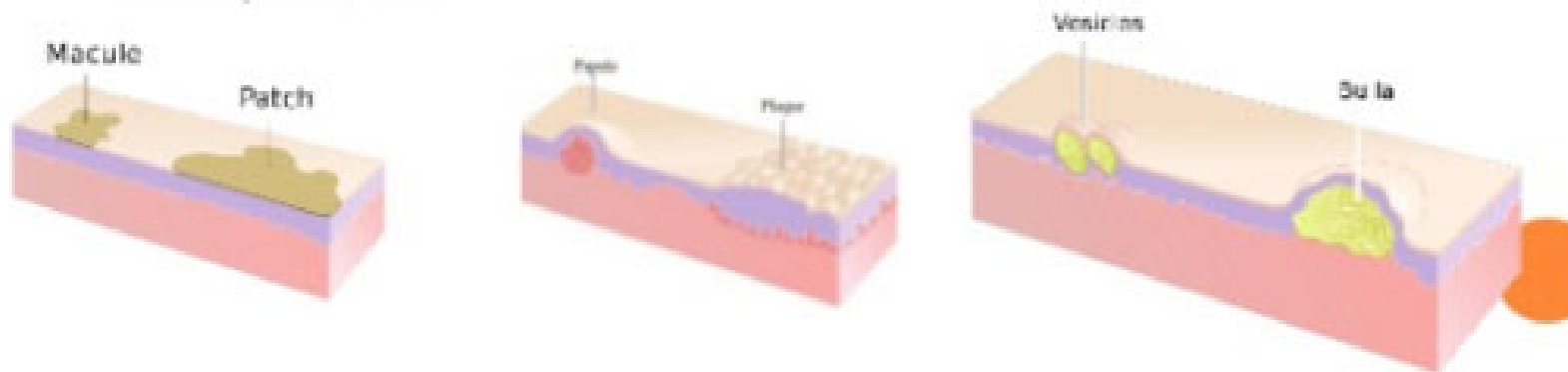
- Review the approach and evaluation of patients that present with dermatologic complaints
- Identify and distinguish the morphology of unknown skin lesions
- Discuss and address the dangers of relying solely on pattern recognition to make the diagnosis
- Utilize cases to discuss the pearls and pitfalls of representative dermatologic emergencies

Dermatology Emergencies

- How do we define a dermatologic emergency?
 - ❖ Medical emergencies with dermatologic findings
 - ❖ Primary dermatologic emergencies
- Morbidity and mortality is via fluid loss, vasomotor instability, infection, or airway compromise
- Is the patient clinically sick?
- Appropriate and expedient consultation and disposition is often the more important than the diagnosis!

Morphology Terminology

- **Macule** - flat, <1cm
- **Patch** - flat , >1cm
- **Papule** - solid elevation, <1cm
- **Plaque** - elevation, >1cm
- **Vesicles** - elevation with clear fluid
- **Bullae** - containing serous or sero-purulent fluid, >1cm



Dermatology Morphology



- Petechia: Pinpoint nonblanching spots < 2 mm in size
- Purpura: nonblanching spots $>$ than 2 mm in diameter
- What is the significance?

Case #1

The Old Lady With the Painful Rash

- A 68 yo female presents with a hx of developing painful mouth lesions which have progressed to involve her back, chest, and groin
- “It is painful to eat”
- Vitals 110/60, 90, 18, afebrile
- PMHx: HTN
- Meds: clonidine
- Allergies: NKDA, no food or environmental allergies

Case #1

The Old Lady With the Painful Rash



Case #1

The Old Lady With The Painful Rash

- Afebrile
- Multiple painful erosions of the skin and mucous membranes which developed over the last month
- There are no blisters evident on her skin

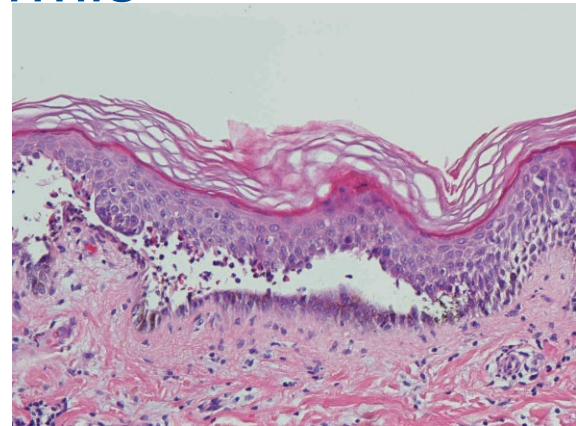
Diagnosis Case #1

Pemphigus Vulgaris

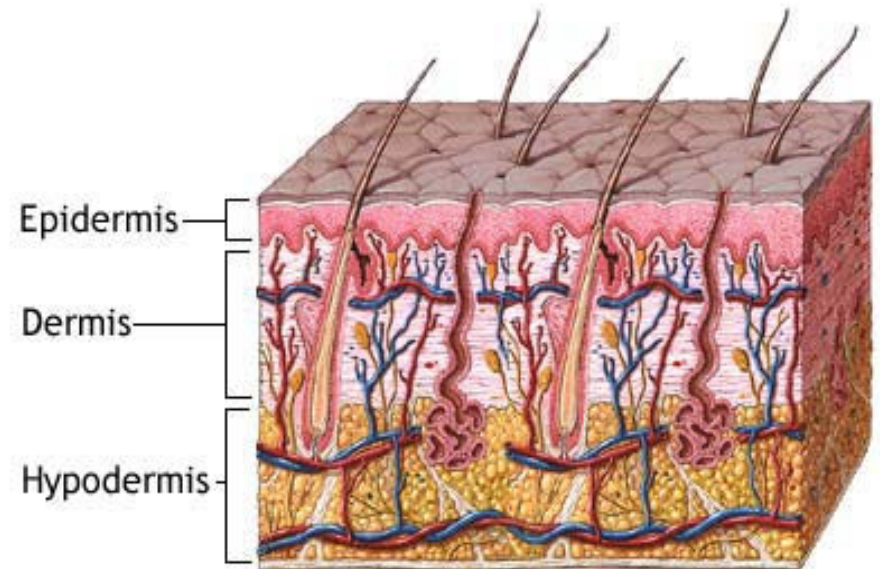
- Rare autoimmune illness
- Mucocutaneous blistering disease
- 4 different subtypes of pemphigus
- Mean age of presentation is the 6th decade of life
- More common in patients with Jewish, Indian, or Middle Eastern ancestry
- Starts in the mouth in 50% of patients

Pemphigus Vulgaris

- Pemphigus vulgaris is the most common subtype (70%)
- The epidermis is composed of keratinocytes which are held together by desmosomes and desmoglein
- IgG autoantibodies attack desmoglein
- Blistering disease with the split low in the epidermis
- Positive Nikolsky's sign



Nikolsky's Sign



ADAM.

Pemphigus Vulgaris

- Definitive diagnosis requires a biopsy
- Mortality rate has fallen from 99% to 5-15%
- Treatment:
 - ❖ Steroids
 - ❖ Rituximab
 - ❖ Mycophenolate
 - ❖ Azothioprine
 - ❖ Plasmapheresis

Pemphigus Vulgaris



Pemphigus Vulgaris

Pearls And Pitfalls

- Uncommon disease
- Frequently misdiagnosed
- Stomatitis in the elderly?????
- Blistering disease but the blisters are fragile and may be absent
- Dermatology referral and biopsy

Case #2

“The Painful Dark Pimple”

- A 66 yo male presents with the CC of a painful area on his left leg and buttock which began as a “dark pimple”
- The patient is complaining of severe throbbing pain, 10/10
- Initial vitals 110/80, 100, 20, temp is 101.8 °F
- WBC count is 11,500 $10^9/L$, with 20% bands, and toxic granulation present??????

Case #2

“The Painful Pimple”



Case #2

Necrotizing Fasciitis



Case #2

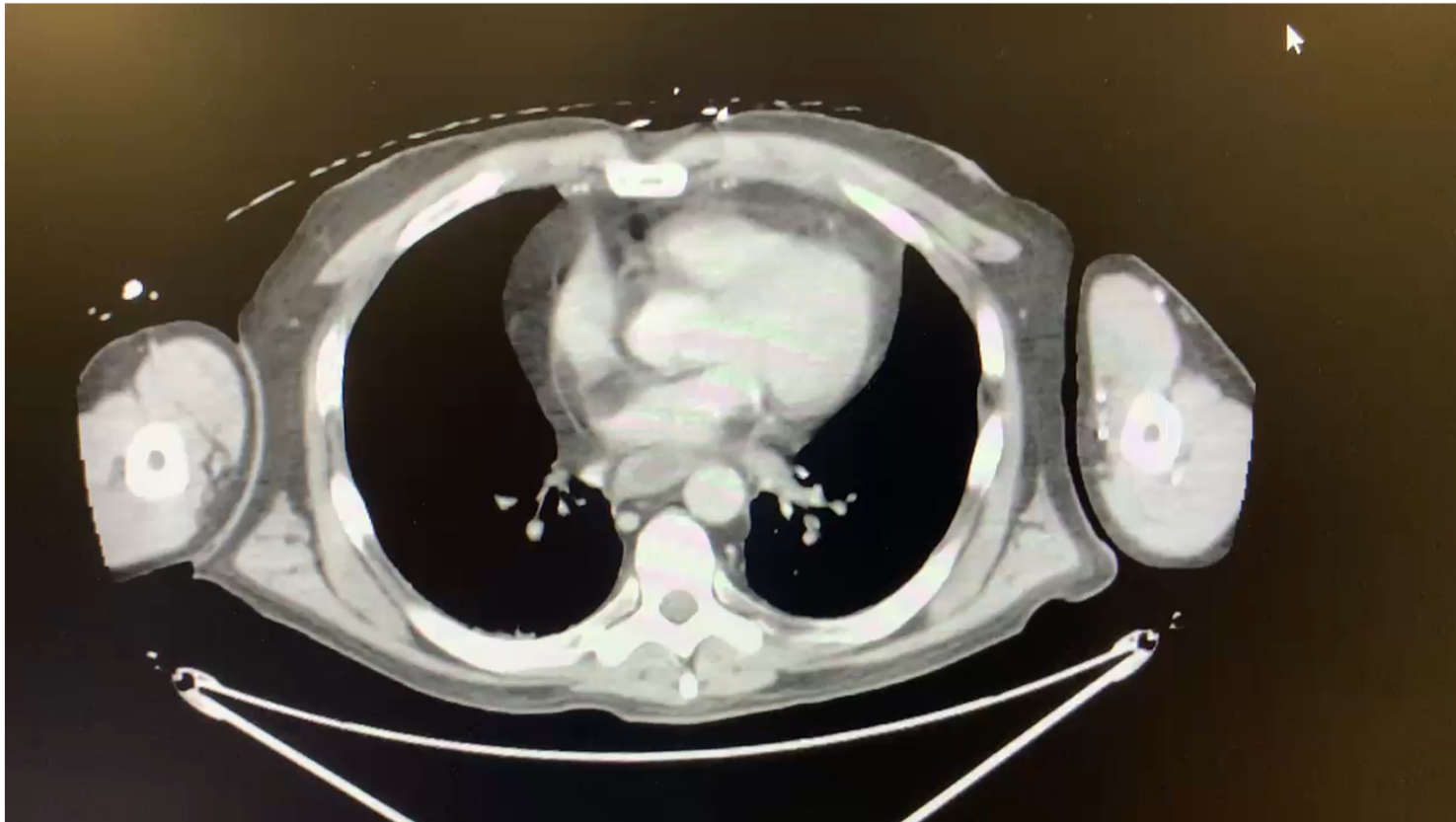
Necrotizing Fasciitis

2 forms described:

- Type 1 polymicrobial, anaerobic and aerobic bacteria
- Type 2 Group A strep most common
- Virulent infection of skin, subcutaneous tissue, and fascia characterized by rapid extension
- DM, PVD, IVDA, and trauma predispose particularly with Type 1
- Pain out of proportion to physical exam****

Case #2

Necrotizing Fasciitis



Case #2 Necrotizing Fasciitis Poor Prognostic Indicators

- Age > 60 or < 1 year old
- Bacteremia
- Intravenous drug use
- Trunk or perineal involvement
- Comorbidities

Case #2

Necrotizing Fasciitis Treatment

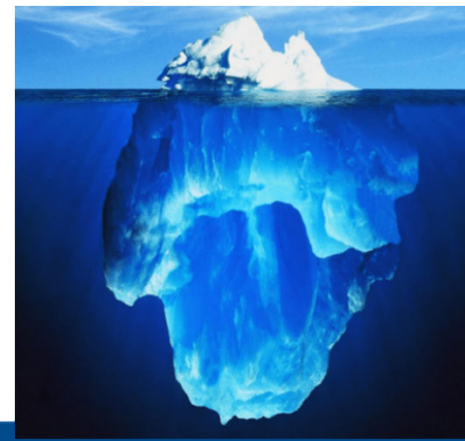
- Broad spectrum parenteral antibiotics
- Early surgical consultation and debridement
- Prepare for trouble
- Consider hyperbaric oxygen



Necrotizing Fasciitis

Pearls And Pitfalls

- The early presentation may be unimpressive
- Abnormal vital signs and pain out of proportion to exam findings are often early clues*****
- CT imaging reveals the extent of the pathology
- Necrotizing fasciitis is a surgical emergency



Case #3

The Sick Eczematous Guy

- A 35 yo male presents to the ED with the CC of a diffuse, painful, progressive rash and feeling general malaise and fever x 5 days
- Denies antecedent or provoking factors
- PMHx: atopic eczema
- Medications: Denied
- Allergies: NKDA

Case #3

The Sick Eczematous Guy

- Vitals 100/60, 120, 24, Temp of 102.5
- Derm: widespread, painful, diffuse tense vesicles surrounded by a halo of erythema
- Cervical, axillary, and inguinal lymphadenopathy present
- Eczema involving elbows bilaterally

Case #3

The Sick Eczematous Guy



Diagnosis Case #3

Kaposi's Varicelliform Eruption

- AKA eczema herpeticum
- Secondary infection seen most frequently in patients with a history of atopic eczema
- Etiology is Herpes simplex virus (HSV-1)
- Viremia may lead to CNS involvement
- Prompt intravenous antiviral therapy is critical

Kaposi's Varicelliform Eruption *Predisposed Populations*

- Neonates or adults with atopic eczema
- HIV disease
- Malignancy
- Immunosuppression
- Transplant patients

Kaposi's Varicelliform Eruption AKA Eczema Herpeticum



Kaposi's Varicelliform Eruption Pearls And Pitfalls

- A history of eczema or immunocompromise with the development of a diffuse, painful, vesicular rash should suggest the diagnosis
- Uncommon disease
- Early initiation of antiviral treatment
- Hospital admission is indicated for the majority

Case #4

An Old Man with “Psoriasis”

- A 75 yo male presents to the ED with a history of being treated by his physician for the last 6 months for psoriasis with little improvement. He is in your office for a “second opinion” - rash has spread from abdomen to shoulders over the past 2 months
- The plaques are painless and moderately pruritic
- Topical steroids were initially helpful
- PMHx: denied, no meds

Case #4

The Old Man with “Psoriasis”



- Vitals are 140/80, 72, 18, afebrile.
- Derm multiple erythematous scaled plaques in a truncal distribution that he describes as mildly pruritic
- Further exam reveals diffuse lymphadenopathy

Case #4

The Old Man with “Psoriasis”



Diagnosis Case #4 *Mycosis Fungoides*

- Skin biopsy with routine histology is required to confirm the diagnosis
- Cutaneous T-cell lymphoma
- Males 2:1
- Wide age range with a peak between 55-60
- Limited treatment options
- Accounts for 1% of lymphoma deaths

Mycosis Fungoides Pearls and Pitfalls

- Relying solely on pattern recognition to make a dermatologic diagnosis is associated with errors
- The initial diagnosis of psoriasis in an elderly patient should be suspicious
- Topical steroids will improve a wide range of inflammatory skin conditions, but they can interfere with biopsy interpretation and may delay diagnosis

Case #5

The Student With a Rash and Fever

- A 16 yo female presents to the ED with the CC of a diffuse, progressive, rash and fever x 5 weeks, denies provoking factors, nothing makes rash better, not painful or pruritic
- PMHx: acne
- Meds: minocycline, (started 2 months ago)

Case #5

16 yo female with a Rash and Fever

- Vitals: 100/60, 80, 18, 38.5
- Diffuse adenopathy
- Derm: diffuse maculopapular eruption, erythroderma

Case #5

The Student With a Rash and Fever



DRESS: Drug Reaction with Eosinophilia and Systemic Symptoms

- First described in 1996
- Estimated to occur in 1 in 1,000 high risk drug exposures
- Long latency between initiation of inciting drug and the development of symptoms (3-12 weeks)
- Liver failure is responsible for the greatest M&M
- Mortality rate of 2-10%

DRESS Classification

To meet the definition of DRESS, patients must meet 3 of the 4 criteria:

1. acute rash
2. fever $> 38^{\circ}\text{C}$
3. lymphadenopathy at two or more sites with involvement of at least one internal organ
4. abnormalities in lymphocyte and eosinophil counts > 700 cells per microliter

DRESS Pathophysiology

- 1) Defect in drug metabolism resulting in the failure to eliminate toxic reactive intermediates
- 2) Reactivation of human HHV-6 or HHV-7, EBV, or CMV
- 3) Genetic predisposition that alters immune response

DRESS Syndrome Associated High Risk Medications

[CLOSE WINDOW]

Table. Drugs associated with DRESS in two or more cases

Abacavir	Lamotrigine
Allopurinol	Mexiletine
Amitriptyline	Minocycline
Captopril	Nevirapine
Carbamazepine	Oxcarbazepine
Cefixime	Phenobarbital
Celecoxib	Phenytoin
Dapsone	Sulfasalazine
Hydroxychloroquine	Sulfamethoxazole
Ibuprofen	Vancomycin

DRESS Treatment

- Immediate withdrawal of the inciting medication
- Steroids are considered first line therapy
- Immunosuppressants are second-line
- Avoid liver toxins

Drug Reaction with Eosinophilia and Systemic Symptoms Pearls and Pitfalls

- Failure to take a complete medication history
- Not knowing the criteria for DRESS
- Not appreciating the latency between the initiation of inciting drug and the development of symptoms****
- Failure to obtain a CBC with differential and a comprehensive metabolic profile in a patient that meets 2 or 3 of the DRESS criteria

Case #6

20 yo Male with a Rash and Fever

- 2-day history of a nonpainful rash, started on arms and legs, then spread to hands and feet
- Fever started 2 days prior to rash with a T_{max} 102°F, denies close contacts with similar, denies other provoking factors, nothing seems to improve symptoms
- UTD on vaccinations
- Denies new sexual partners
- Enjoys hiking and camping – went camping in Great Smoky Mountains National Park 2 weekends ago

Case #6

20 yo male with a Rash and Fever

- Vitals: 110/60, 110, 18, 101.8F
- Diffuse macular eruption involving the hands and feet and clearing centrally****

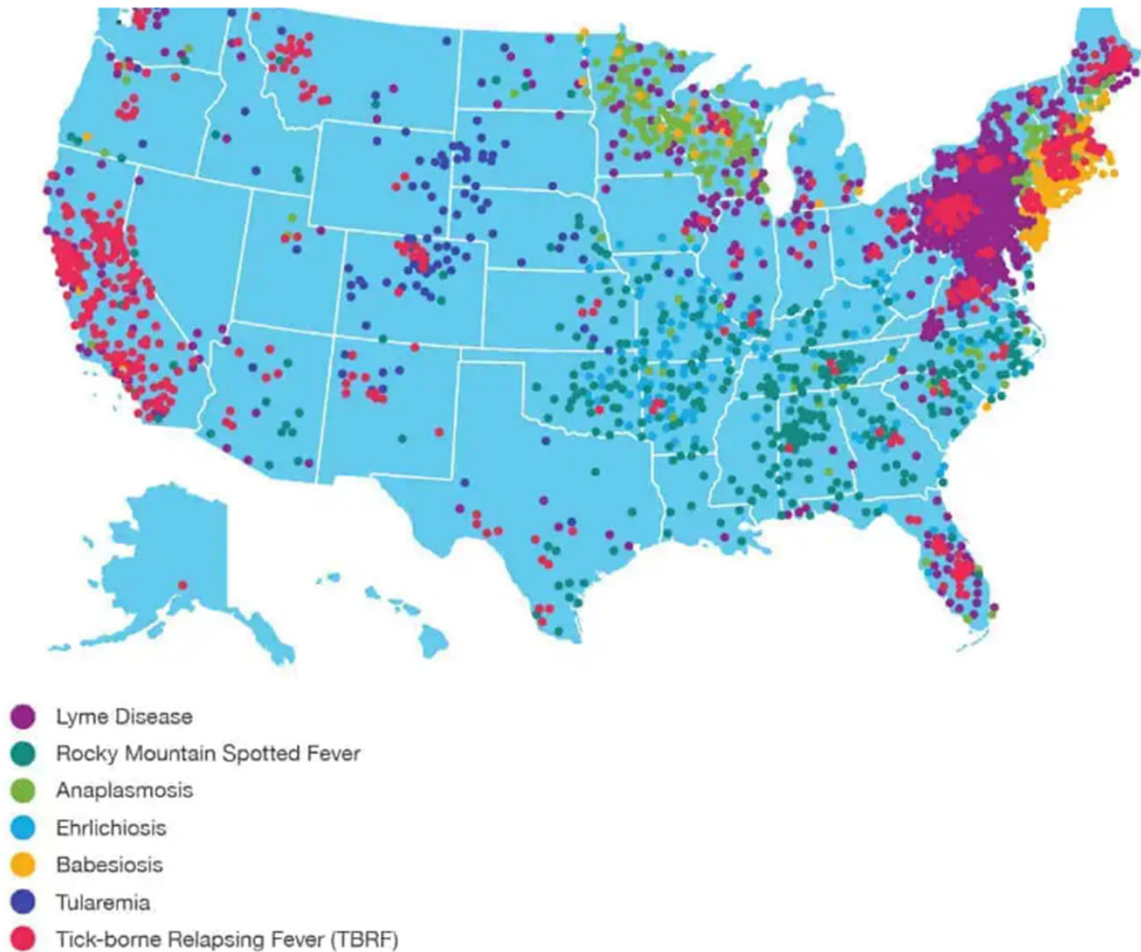


Case #6

Rocky Mountain Spotted Fever

- Rickettsia rickettsii is the etiology
- 60% of cases occur in NC, TN, AR, MO, OK
- Tick bite reported in 70%
- American dog tick is the primary vector (Dermacentor)
- Incubation is 2-14 days
- Fever and headache are the prominent initial symptoms
- Rash characteristically starts peripherally and spreads centrally, petechial in 50%

Distribution of Tickborne Disease



Case #6

Rocky Mountain Spotted Fever

- Rash is often absent during the the initial phase of the illness
- The diagnosis is initially made clinically
- Antibodies are not detected in the first week of illness in 85%
- 10% don't develop a rash
- Mortality rate is $< 1\%$ in the US



Male & Female American Dog Tick, (*Dermacentor variabilis*)
Rocky Mountain Spotted Fever

Rocky Mountain Spotted Fever

- **Labs**-thrombocytopenia, hyponatremia, and elevated AST/ALT are common
- **Diagnosis**-immunohistologic (including PCR) studies of skin biopsies
 - Must do as soon as skin lesions are apparent and before antibiotics
 - Indirect immunofluorescence (IFA) tests confirm the diagnosis but are not valid early (4X rise in IgG titers between acute and convalescent period)

Rocky Mountain Spotted Fever Pearls and Pitfalls

- Treatment should be initiated promptly if Dx suspected
- Relying on a history of tick bite to make the diagnosis
- The rash may be initially absent
- Not appreciating the rash distribution and characteristic rash morphology***
- Understanding local tickborne disease prevalence

Case # 7

The Infant With “Spots”

- 2 yo white male presents with a history of being seen earlier in the day by his pediatrician for a fever. He was diagnosed with otitis media and prescribed Amoxicillin
- The child presents to the ED with a rash, fever, and lethargy
- Vitals 70/50, 150, 38, 102.5°F rectal

Case #7 *The Infant With “Spots”*



Case # 7

The Infant With “Spots”

- What now?
- What therapy?
- What diagnostic tests?
- What disposition?
- Pitfalls?

Final Diagnosis Case # 7

Meningococcal Sepsis

- 3,000 cases of meningococcal sepsis/year
- 50% will develop meningitis
- Infants 6 months to 1 year are most susceptible
- Those that are asplenic or have complement or protein C&S deficiency are particularly vulnerable
- Presentation is variable but usually begins as a URI
- Treatment: antibiotics, fluids, PICU

Meningococcal Sepsis

Pearls and Pitfalls

- Efforts to make the diagnosis should not interfere with treatment
- Kernig and Brudzinski's sign are helpful only if present
- Don't delay IV or IO access, antibiotics, fluids, and steroids
- A petechial or purpuric rash with a fever deserves special attention
- Prepare for and anticipate trouble and anticipate the development of DIC, hypoglycemia, and shock
- Close contacts of someone with *Neisseria meningitidis* should be prophylaxed

Case #8

The Ugly Persistent Pimple



- A 60 yo African American women presents with an asymptomatic, nonpruritic lesion of her scalp

Case #8

The Ugly Persistent Pimple

- What is your differential diagnosis?
- What tests would you consider?
- How would you treat?
- What morbidity is involved?
- Pitfalls?

Case #8

Malignant Melanoma

- The incidence of melanoma has risen faster than any other malignancy in the US
- Represents the fifth most common cause of cancer in men and women in the US
- 50% will develop from preexisting moles
- Scalp involvement is a poor prognostic factor
- 5-year survival is related to thickness

Case #8 *Malignant Melanoma*



Asymmetry



**Border
irregularity**



Color



**Diameter:
1/4 inch or
6mm**

Case #8 *Malignant Melanoma*



Malignant Melanoma

Pearls and Pitfalls

- Not appreciating the ABCDE's of skin lesions
- Nodular melanomas represent 15-30 percent
- 8 to 12 percent of patients with melanoma will have a family history
- An atraumatic apparent subungual hematoma may represent melanoma
- Early referral to a dermatologist for evaluation and biopsy is indicated for high-risk lesions

Conclusions

- The accurate diagnosis of dermatologic disease requires an organized and systematic approach
- Don't forget the history & vital signs
- Formulate a differential diagnosis based on the characteristics and distribution of the lesions
- Is the patient clinically ill?
- Use consultants wisely and actively seek their feedback

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