ROSACEA

Background
1. Acneiform disorder of middle-aged adults with erythema and telangiectasia of cheeks, nose, and, in time, entire face
2. Chronic and recurrent (sometimes progressive) dermatosis

Pathophysiology
1. Pathology of Disease
   o Subtypes
     ▪ Erythematotelangiectatic
       • Flushing and persistent erythema on central face, commonly with telangiectasia, swelling, stinging, roughness.
       • Prolonged flushing of face >10 minutes, usually with associated trigger
       • Spares periocular area
     ▪ Papulopustular
       • Central erythema with papules and pustules
       • Acneiform without comedones
       • Usually seen in middle aged women
     ▪ Phymatous
       • Thickening of skin with nodules
       • May include rhinophyma with thickening of cheeks, chin, forehead
     ▪ Ocular
       • Bloodshot eyes, dryness, itchiness, conjunctivitis

2. Stages (6)
   o Pre-Rosacea
     ▪ Frequent flushing
     ▪ Irritation caused by topical preparations
   o Stage 1
     ▪ Transient facial erythema that becomes more persistent
     ▪ Slight telangiectasias
     ▪ Increased skin sensitivity
   o Stage 2
     ▪ Persistent, spreading erythema
     ▪ Edema, papules, pustules
     ▪ Enlarged pores
     ▪ Ocular changes
   o Stage 3
     ▪ Large inflammatory nodules and furuncles
     ▪ Tissue hyperplasia, fibroplasias
     ▪ Rhinophyma
3. Incidence, Prevalence
   - 14% in women, 5% in men
   - Affects estimated 13-14 million US adults between 30-60 y/o
   - General onset is in the 30s.
   - Occurs most recently in 1st/2nd degree relatives and Caucasians

4. Risk Factors
   - Sun exposure, stress, hot weather, alcohol, spicy foods, hot drinks, steroids

5. Morbidity / Mortality
   - Chronic condition with intermittent flares, non life-threatening

**Diagnostics**

1. History
   - The presence of one or more of these primary features with a central face distribution is indicative of rosacea
     - **Primary Features**
       - Flushing
       - Non-transient erythema
       - Papules and pustules
       - Telangiectasia
     - **Secondary Features**
       - Burning or stinging
       - Plaques
       - Dry appearance
       - Edema
       - Ocular manifestations
       - Peripheral location
       - Phymatous changes

2. Physical Examination
   - Flushing of face, increased warmth, non transient redness, papules, pustules
   - Grading used to rate severity of each primary feature as absent, mild, moderate, or severe
   - Secondary features described as absent or present

3. Diagnostic Testing
   - Clinical diagnosis based on history/exam and negative lab findings for other diseases

4. Laboratory evaluation
   - Laboratory evaluation used not for diagnosis but to investigate other diseases in the differential diagnosis
   - Normal ANA, inflammatory markers, and antibody profiles

5. Diagnostic imaging
   - None

6. Other studies
   - Histological appearance of perivascular and perifollicular lymphohistiocytic infiltrate of plasma cells, neutrophils, eosinophils, and multinucleated giant cells
Differential Diagnosis
1. Acne vulgaris
2. Polymyositis
3. Discoid lupus
4. Seborrheic dermatitis
5. Drug-induced acne, including chloracne (Viktor Yushchenko - dioxin poisoning, 2004)
6. Contact dermatitis
7. Photo dermatitis
8. Flushing with carcinoid or pheochromocytoma
9. Polycythemia Vera
10. Mixed connective tissue disorders
11. Dermatomyositis
12. Allergic conjunctivitis
13. Mastocytosis

Therapeutics (5)
1. Erythematotelangiectatic (Most difficult subtype to treat)
   - Topical – First-line therapy
     - Metronidazole gel
       - 0.75% cream or 1% gel
       - studies have shown no significant difference between the concentrations or the vehicle
     - Azelaic acid
       - 15% once or twice daily
     - Sodium sulfacetamide
       - 10%/5% once or twice a day
   - Secondary Topical (If the above fail)
     - Topical Clindamycin (Cleocin)
     - Pimecrolimus (Elidel)
     - Tacrolimus (Protopic)
   - Oral
     - Doxycycline 40 mg/daily (Oracea®) or (20-100mg generic once or twice daily)
     - Tetracycline 250 mg/two to three times daily
   - Other Treatment Modalities
     - Pulse Dye Laser
     - Intense Pulsed Therapy
2. Papulopustular
   - Topical
     - Metronidazole gel (better tolerated than azelaic acid)
       - 0.75% cream or 1% gel once or twice daily
     - Azelaic acid
       - 15% once or twice daily
     - Sodium sulfacetamide
       - 10%/5% once or twice a day
Secondary Topical
- Benzoyl peroxide/erythromycin (Benzamycin)
- Benzoyl peroxide/clindamycin (Benzaclin)
- Topical Erythromycin

Tertiary Topical
- Topical tretinoin (Retin-A)
- Benzoyl peroxide

Oral
- Doxycycline 40 mg/daily (Oracea® - time release form)
- Doxycycline 20-100mg once or twice daily as generic
- Tetracycline 250 mg/two to three times daily

Secondary Oral
- Oral azithromycin

Tertiary Oral
- Consider referral for oral isotretinoin (Accutane®)

Other Treatment Modalities
- Pulse Dye Laser
- Intense Pulsed Therapy

3. Phymatous
   Oral
   - Doxycycline 40 mg/daily (no difference between 40mg and 100mg with fewer adverse effects from 40mg time-release dose)
   - Tetracycline 250 mg/two to three times daily
   - Consider referral for oral isotretinoin (Accutane®)

   Other Treatment Modalities
   - Ablative/pulsed dye laser therapy
   - Electrosurgery

4. Ocular
   Topical
   - Metronidazole gel
   - 0.75% cream or 1% gel once or twice daily
   Oral
   - Doxycycline 40 mg/daily
   - Tetracycline 250 mg/two to three times daily
   Ophthalmic
   - Cyclosporine - 0.05% ophthalmic emulsion (Restasis)

Follow-Up
1. Return to Office
   - 4-6 weeks
2. Refer to Specialist
   - Need for phototherapy
   - Need for isotretinoin (Accutane®)

Prognosis
1. Progression from one subtype to another is possible; however, each individual characteristic may change from absent to severe. (4)

Prevention
1. No absolute preventative measure available. However, common triggers are:
   - Sun exposure - best avoided with:
     - SPF 15+
     - Sunscreens with simethicone or dimethicone base and contain titanium dioxide or zinc oxide are best tolerated
   - Emotional stress
   - Hot weather
   - Wind
   - Strenuous exercise
   - Alcohol consumption
   - Hot baths
   - Cold weather
   - Spicy foods
   - Humidity
   - Certain skin-care products (astringents and others containing alcohol, menthol, eucalyptus oil, clove oil, peppermint, witch hazel, or sodium lauryl sulfate)
   - Indoor heat
   - Hot beverages
   - Certain cosmetics
   - Medications (Niacin, nitroglycerin, tobacco)
   - Other factors (caffeine withdrawal, hormonal changes)

References
5. CONSTANCE GOLDGAR, MS, PA-C; DAVID J. KEAHEY, MSPH, PA-C; and JOHN HOUCHINS, MD. Treatment options for acne rosacea. Am Fam Physician. 2009 Sep 1;80(5):461-468.

Author: Joshua A. Motes, MD, Douglas Hendrex, MD, & Christopher Orendorff, MD
AHEC West FPR, AR

Editor: Robert Marshall, MD, MPH, MISM, CMIO,
Madigan Army Medical Center, Tacoma, WA