

## Management of Acne and Rosacea

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## Acne is Common!

- 7 #1 Derm Condition
- 7 >60 million Americans
  - >20 million have permanent scars
- 7 85% of patients 12-24 y/o
  - 25% develop permanent scars
    - 7 Only 16% seek medical advice
- 7 Affects 25% of adults
- 7 Significant social, psychological, and economic impact!!

## Famous people get acne!



John Cusack



Leonardo DiCaprio



Britney Spears



Catherine Zeta-Jones



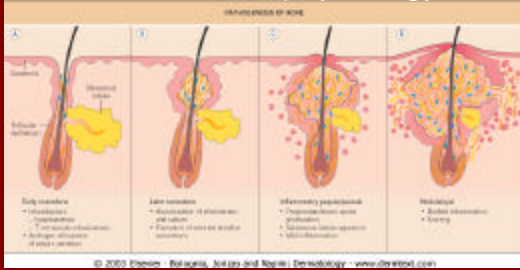
Brad Pitt

## Not so famous people get acne, too



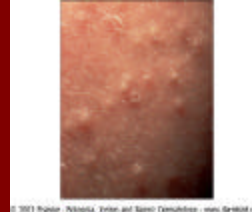
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## Acne Pathophysiology



1. Follicular duct hyperkeratinization
2. Increased sebum production
3. P.acnes colonization and proliferation
4. Inflammation

## Acne Lesions - Comedones



Closed Comedones



Open Comedones

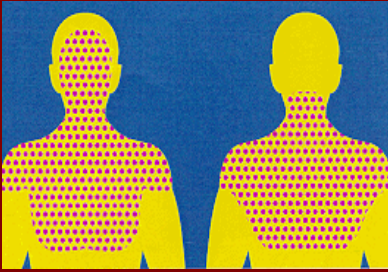
## Acne Lesions - Papules/Pustules



## Acne Lesions - Nodules/Cysts



## Acne Distribution



Areas of increased sebaceous gland concentration

## Differential Diagnosis

### ? Face

- Folliculitis (Gram +/-)
- PFB
- Rosacea
- Perioral Dermatitis

### ? Discrete Lesions

- Staph abscess
- Furuncle/Carbuncle
- Ruptured Epidermal Cyst
- Dental Sinus Cyst

### ? Trunk

- Pityrosporum Folliculitis
- Pseudomonas Folliculitis
- Steroid Folliculitis

### ? Other

- Topical Steroid Acne
- Acne Aestivalis

## Acne Variants

- ? Neonatal acne
- ? Infantile acne
- ? Occupational acne
- ? Chloracne
- ? Drug induced acne
- ? Acne conglobata
- ? Acne fulminans
- ? Solid facial edema
- ? Acne mechanica
- ? Acne excoriee' des jeunes filles
- ? Steroid acne

## Neonatal and Infantile Acne

### ? **Neonatal**

- 20% of newborns
- 2 weeks – 3 mos
- Malassezia furfur
  - ? 2% ketoconazole



### ? **Infantile**

- 3 mos – 1 yr
- ^ LH and DHEA-S
- BP or tretinoin

## Occupational Acne

- ? Exposure to insoluble substances that occlude follicular ostia
  - Comedones >> Inflammatory lesions
  - Cutting oils, petroleum products, hydrocarbons, coal tar derivatives
  - Machine tool operators, mechanics, construction workers, roofers, road pavers,
  - Chloracne = halogenated aromatic compounds

## Chloracne

Viktor Yushchenko



Before Dioxin      After Dioxin

- ? **Exposure to hydrocarbons**
  - Insecticides, fungicides, herbicides
  - Wood preservatives
  - Electrical insulators
- ? **Different distribution**
  - Face, Retroauricular, Axillae, Scrotum
- ? **Tx: Retinoids, Antibiotics**

**Know who your friends are!**

## Drug Induced Acne

- ? Acute onset
- ? Monomorphic inflammatory lesions
- ? Trunk > Face
- ? Anabolic steroids, lithium, phenytoin, phenobarbital, bromides, iodides, INH, Imuran, Cyclosporine, PUVA, others



## Acne Conglobata

- ? Severe eruptive nodulocystic acne without systemic manifestations
- ? Follicular Occlusion Tetrad
  1. Dissecting scalp cellulitis
  2. Hidradenitis suppurativa
  3. Pilonidal cysts
  4. Acne conglobata



## Acne Fulminans



- ? **Abrupt onset of severe nodulocystic lesions**
- ? **Osteolytic bone lesions**
  - Clavicle, sternum
- ? **Systemic manifestations**
  - Fever, arthralgias, myalgias, HSM, prostration
- ? **Treatment**
  - Steroids, isotretinoin, Dapsone?

## Solid Facial Edema



- ? "Morbihan's Disease"
- ? "Woody" induration without scale
- ? Midline face and cheeks
- ? **Treatment**
  - Low dose isotretinoin

## Acne Grading

- ? **Grade I – superficial non-inflammatory**
  - comedones, flesh-colored papules
- ? **Grade II – superficial inflammatory**
  - comedones, few papules/pustules
- ? **Grade III – deep inflammatory**
  - moderate papules/pustules, few nodules
- ? **Grade IV – severe nodulocystic**
  - papules/pustules, multiple nodules and cysts
- ? Also consider distribution, scarring, PIH

## Actions of Acne Treatments

	Sebum	Comedones	P. acnes	Inflammation
Benzoyl peroxide	----	?	??	??
Topical antibiotics	----	?	??	??
Topical retinoids	----	???	----	??
Isotretinoin	???	??	???	???
Tetracycline	----	?	???	???
Antiandrogens	??	----	?	??

## Treat According to Grade

### ? Grade I – Superficial Non-Inflammatory

#### ? First Line

- Topical retinoids
- Benzoyl peroxide
- Comedone extraction

#### ? Second Line

- Alpha hydroxy acid products
- Salicylic acid products



## Treat According to Grade

### ? Grade II – Superficial Inflammatory

#### ? First Line

- Topical retinoids
- Benzoyl peroxide
- Topical antibiotics

#### ? Second Line

- Azelaic acid



## Treat According to Grade

### ? Grade III – Deep Inflammatory

#### ? First Line

- Topical retinoids
- Oral antibiotics

#### ? Second Line

- Benzoyl peroxide
- IL steroid injections
- Hormonal therapies
- Isotretinoin



## Treat According to Grade

### ? Grade IV – Severe nodulo-cystic

#### ? First Line

- Isotretinoin, isotretinoin, isotretinoin...
- Oral contraceptives
- Prednisone?

#### ? Second Line

- IL steroid injections
- I&D cysts/abscesses



## Acne Treatment Topical Comedolytics

- ⌚ **Retinoids (Cat. C)**
  - tretinoin (cream, gel) - various
  - Differin (cream, gel, pledgets) - 0.1%
  - Retin-A Micro (gel) – 0.04%, 0.1%
  - Tazorac (cream, gel) – 0.05%, 0.1% (Cat. X)
- ⌚ **Benzoyl Peroxide (Cat. C)**
  - Triaz, Brevoxyl, Zoderm
- ⌚ **Azelaic Acid (Cat. B)**
  - Azelex, Finacea, Finevin
- ⌚ **Alpha and Beta Hydroxy Acids**

## Proactive = Benzoyl Peroxide



"Operators are standing by ..."

- ⌚ **Active Ingredient:**  
benzoyl peroxide 2.5%
- ⌚ **Inactive Ingredients:** water (aqua), cyclomethicone, ethoxydiglycol, propylene glycol, glyceryl stearate, PEG-100 stearate, cetearyl alcohol, dimethicone, panthenol, allantoin, carbomer, ceteareth-20, xanthan gum, triethanolamine, diazolidinyl urea, methylparaben, propylparaben, fragrance (parfum).

## Acne Treatment Topical Antibiotics

- ⌚ Erythromycin - Cat. B
- ⌚ Clindamycin - Cat. B
- ⌚ Metronidazole 0.75, 1.0% - Cat. B
- ⌚ Sodium Sulfacetamide – Cat. C
- ⌚ Combinations (Benzaclin, Duac) – Cat. C
- ⌚ Dapsone? (Aczone) – Cat. C
- ⌚ Tetracycline? (Topicycline) – Cat ?

## Acne Treatment Oral Antibiotics

- ⌚ **Tetracycline (Cat. D) – 500mg BID**
  - Pros: cheap, effective
  - Cons: empty stomach, candidiasis, GI upset
- ⌚ **Doxycycline (Cat. D) – 100mg BID**
  - Pros: taken with meals
  - Cons: photosensitizing, esophagitis
- ⌚ **Minocycline (Cat. D) – 100mg BID**
  - Pros: taken with meals
  - Cons: cost, lupus-like rxn, discoloration, vertigo, hepatitis

## Acne Treatment Oral Antibiotics (Cont'd)

- ? **Erythromycin (Cat. B) – 500mg BID**
  - Pros: take with meals, cost
  - Cons: GI upset, less efficacy, ? Safety in pregnancy
- ? **SMX/TMP (Cat. C) – 160/800 BID**
  - Pros: cost, effective in inflammatory acne
  - Cons: SJS, TEN
- ? **Keflex (Cat. B) – 500mg BID**
  - Pros: safety, cost
  - Cons: less efficacy?

## Acne Treatment Isotretinoin

- ? Standard of care for severe acne
- ? Variable dosing (0.5-2.0 mg/kg/d for 16-20 wks)
  - Cumulative goal 120-150 mg/kg
- ? Well-known teratogenicity problems (Cat X)
  - Numerous other side effects
- ? Controversies and things to watch for:
  - Mood changes, vision changes, severe headaches, flares on therapy, hypertriglyceridemia

## Special Considerations Hormonal Acne

- ? **Females only? - NO!**
- ? **Endogenous excess conditions**
  - PCOS (Stein-Leventhal) syndrome
  - HAIR-AN syndrome
  - Adrenal genital syndrome
  - Virilizing tumors
- ? **Chemically normal, functionally abnormal**
  - AKA = "Hormone Imbalance"

## Hormonal Acne – Labs

- ? **DHEA-S, 17-hydroxyprogesterone, LH, FSH, free/total testosterone**
  - Check 2 weeks before menses
  - Confirm abnormalities
- ? Testosterone 150-200ng/ml ?PCOS
- ? LH/FSH ratio >3:1 ?PCOS
- ? 17-hydroxy >3ng/ml ?Adrenal hyperplasia
- ? DHEA-S 4000-8000 ng/ml ?Adrenal hyperplasia
- ? DHEA-S >8000 ng/ml ?Adrenal tumor

## Acne Treatment Hormonal Options

### ? Oral Contraceptives

- Ortho Tri-cyclen (ethinyl estradiol/norgestimate)
- Yasmin (ethinyl estradiol/drospirenone)
- Estrostep (ethinyl estradiol/norethindrone acetate)
  - ? Avoid Ovral, LoOvral, Depo-provera, Norplant

### ? Spironolactone 25-200 mg/day BID – Cat D

- Irregular menses, breast tenderness, feminization of male fetus, hyperkalemia (rare), HA, fatigue

### ? Others: Flutamide, Cyproterone acetate, minoxidil, finasteride

## Special Considerations - Pregnancy

### ? Treatment options

- Azelaic acid – Cat B
- Benzoyl peroxide – Cat C
- Topical erythromycin – Cat B
- Topical clindamycin – Cat B (beware of colitis)

### ? Treatment Avoidances

- Spironolactone – ambiguous genitalia
- Tetracycline family
- Salicylic acid – salicylism (bleeding, PDA)
- Isotretinoin – NO, NO, NO!!!!

### ? Controversies – tretinoin, PO erythromycin

## Acne Treatment Adjunctive Options

- ? Acne surgery
- ? Chemical peels
- ? Lasers and Blu-light therapy
- ? Dermabrasion and laser resurfacing
- ? Intralesional injections (Kenalog 2.5 mg/cc)



## Things I've Learned...

1. Take the psychological component seriously
2. See patients frequently and treat aggressively
3. Think positively and motivate your patient
4. Give realistic expectations
5. Focus on the patient, not the parent
6. Be empathetic – use personal stories
7. KISS principle
8. Use everything – including isotretinoin

## Rosacea – Epidemiology

- 7 Rosacea is common, too!
  - ~10% of the population; 14 million in U.S.
  - 3<sup>rd</sup> and 4<sup>th</sup> decades of life, and elderly
  - Females > Males
  - SFT's 1,2, and 3 (light skinned)
  - Celtic, Northern European, or Scandinavian
  - No relationship to alcoholism or wealth

## Famous people get rosacea!



W.C. Fields



Sen. Ted Kennedy



Renee Zellweger



J.P. Morgan



Pres. William J. Clinton

Cameron Diaz

## Rosacea – Common Triggers

Sun Exposure	Indoor heat
Emotional Stress	Skin care products
Hot Weather	Heated beverages
Heavy Exercise	Skin care products
Alcohol consumption	Medications
Hot baths	Medical conditions
Cold Weather	Certain fruits and veggies
Spicy Foods	Other
Humidity	

## Rosacea – Differential Diagnosis



Systemic Lupus Erythematosus



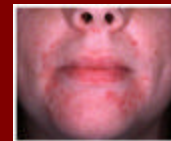
Seborrheic Dermatitis



Acne Vulgaris



Lupus Miliaris Disseminatus Faciei



Perioral Dermatitis

## Rosacea – Subtypes and Variants

- 7 **Vascular Rosacea**
  - flushing, central erythema, +/- telangiectasia
- 7 **Papulo-pustular Rosacea**
  - central erythema, papules, pustules
- 7 **Phymatous Rosacea**
  - skin thickening with irregular surface nodularity
- 7 **Ocular Rosacea**
  - burning, stinging, grittiness, dryness, styes
- 7 **Granulomatous Rosacea**
  - firm red, brown, or yellow papules and nodules

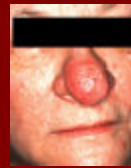
## Rosacea Subtypes and Variants



Vascular



Papulo-pustular



Phymatous



Ocular

## Rosacea Treatment Topical Options

- 7 **Metronidazole (.75%, 1%) lotion, cream, gel**
  - Metrogel, Metrocream, Metro lotion, Noritate
- 7 **Azelaic acid (15%, 20%) cream, gel**
  - Azelex, Finacea
- 7 **Sodium sulfacetamide cream, lotion, wash**
  - Rosac, Rosula, Sulfacet, Novacet, et.al.
- 7 **Tretinoin cream, gel**
  - Retin-A, Differin, Tazorac, Avita
- 7 **Benzoyl peroxide cream, gel, wash**
  - Triaz, Benzac, Brevoxyl, et. al.
- 7 *erythromycin, clindamycin, tetracycline are less useful*

## Rosacea Treatment Systemic Options

- 7 **Minocycline or doxycycline – 100mg BID**
- 7 **Tetracycline – 500mg BID**
- 7 **Sepra DS or Bactrim DS – 160/800mg BID**
- 7 **Cipro – 250-500mg BID**
- 7 *Macrolides, penicillins, and cephalosporins are less effective*
- 7 **Isotretinoin 0.5-1.0 mg/kg/d**
  - Best for refractory rosacea
  - Low doses for long periods

## Rosacea Treatment Surgical Options

- ? Vascular rosacea
  - Various lasers (pulsed dye, KTP)
  - Intense pulsed light
  - Electrocoagulation of telangectasia
- ? Phymatous rosacea
  - CO2 laser
  - Hot loop recontouring

## Routine Skin Care for Acne and Rosacea

1. Wash face twice daily using fingertips with a mild soap or non-soap cleanser
2. If dry, apply a moisturizing lotion after applying topical medication
3. Apply SPF  $\geq 15$  sunscreen 30 minutes before sun exposure
4. If flushed, apply cool compresses for 15 min