

# **Atopic Dermatitis**

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# **Study Goal**

- **Definition & Etiology**
- **Epidemiology**
- **Clinical Manifestations**
- **Diagnosis & Differential Diagnosis**
- **Treatment & Complications**
- **Prognosis & Prevention**

# **Atopic Dermatitis : Definition & Etiology**

- **Chronic Inflammatory Skin Disease**
- **Multifactorial Patho-Mechanism ;**
  - **Genetic Susceptibility : Immune System & Skin**
  - **Environmental Factors**
- **Hyperirritable Skin : Allergens – Irritants**

# **Atopic Dermatitis : Definition & Etiology**

- **Immune System Abnormalities ;**
  - **Acute Lesion :**
    - **Type 2 Helper T-cell Dominant Inflammation**
    - **IL-4 , 5 , 13 Production**
    - **Eosinophilic Inflammation - IgE Production**
  - **Chronic Lesion :**
    - **Type 0-1 Helper T-cell Dominant Inflammation**

# **Atopic Dermatitis : Definition & Etiology**

- **Environmental Triggers ;**

- **Anxiety - Stress**

- **Cold - Dry Weather**

- **Skin Infections and Bacterial Colonization**

- **Irritant : Detergents (Frequent Hand-Washing)**

- **Allergens :**

- **Dust Mites , Animal Dander , Environmental Pollens , Molds**

- **Food Allergen (Only 30 % of Severe - Early Onset)**

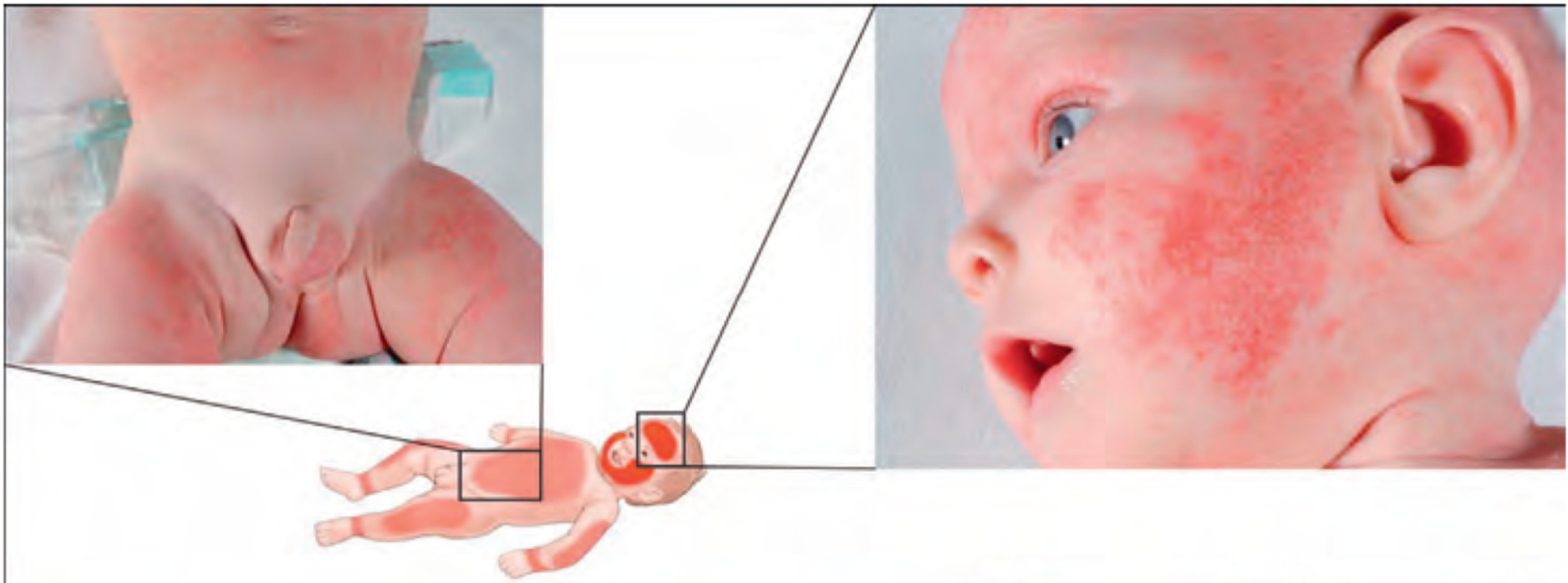
# **Atopic Dermatitis : Epidemiology**

- **Prevalence : 15–20% Of Children , 2–10% Of Adults**
- **Age Of Onset in 80 % : Before 5 Years–Old**
- **80% Of Atopic Dermatitis Patient Develop Other Allergic Disease**

# **Atopic Dermatitis : Clinical Manifestations**

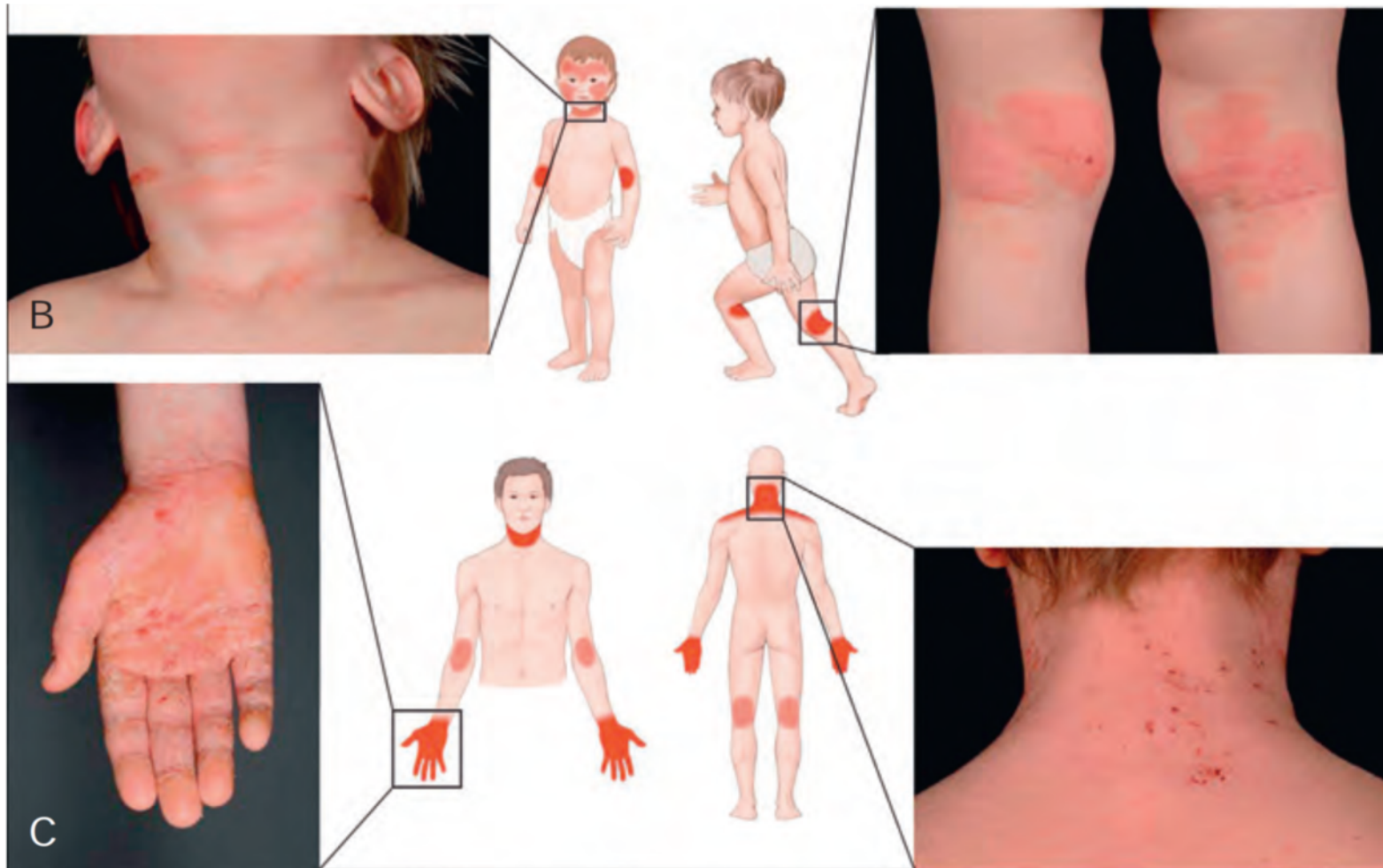
- **4 Major Features ;**
  - **Pruritus**
  - **Typical Morphology & Distribution**
  - **Chronic - Relapsing Inflammation**
  - **Personal - Family History Of Atopy**

# Atopic Dermatitis : Typical Morphology & Distribution Infancy





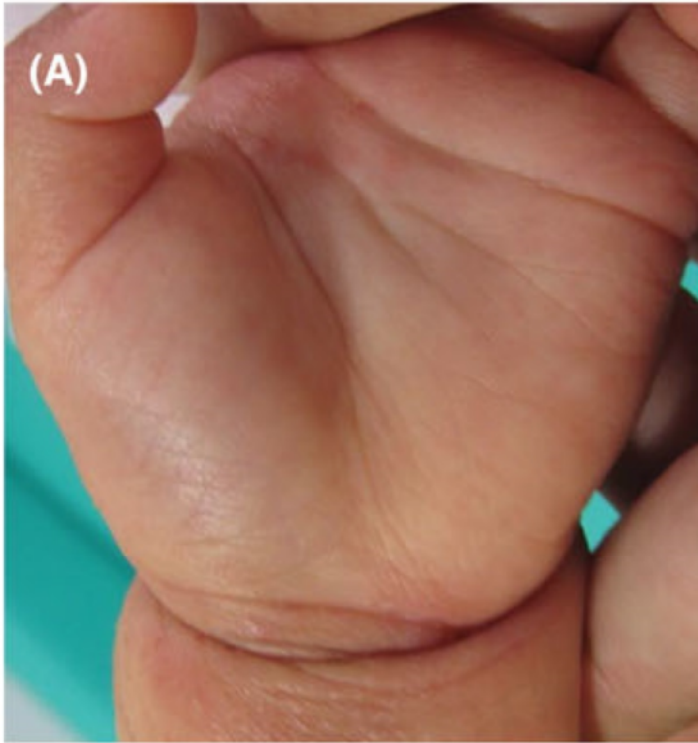
# Atopic Dermatitis : Typical Morphology & Distribution Older Children – Adults



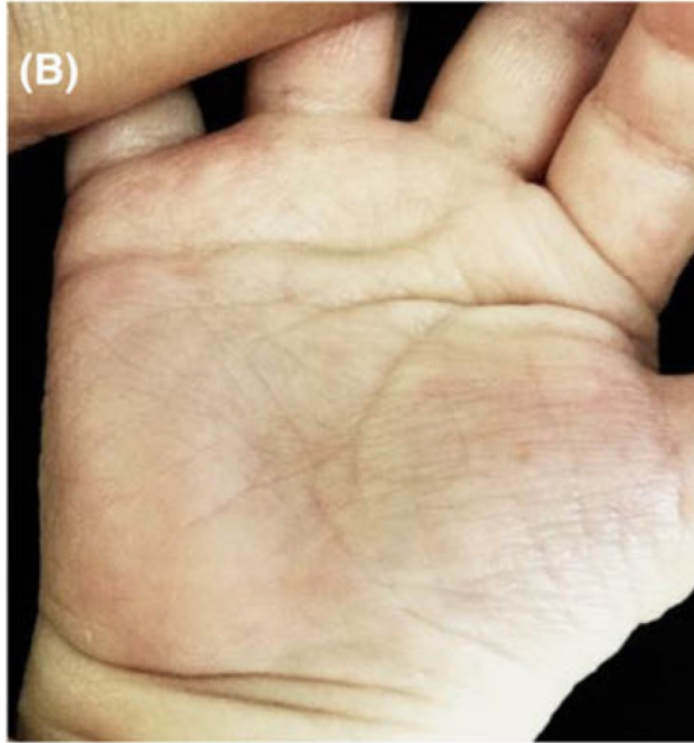
# **Atopic Dermatitis : Clinical Manifestations**

- **Pruritus : Worse at Night , Disturbing Sleep**
- **Skin Lesion Distribution Differs By Age**
- **Diaper Area is **not** Affected**
- **Physical Examination : Xerosis**
- **Physical Examination : Signs Of Atopy**

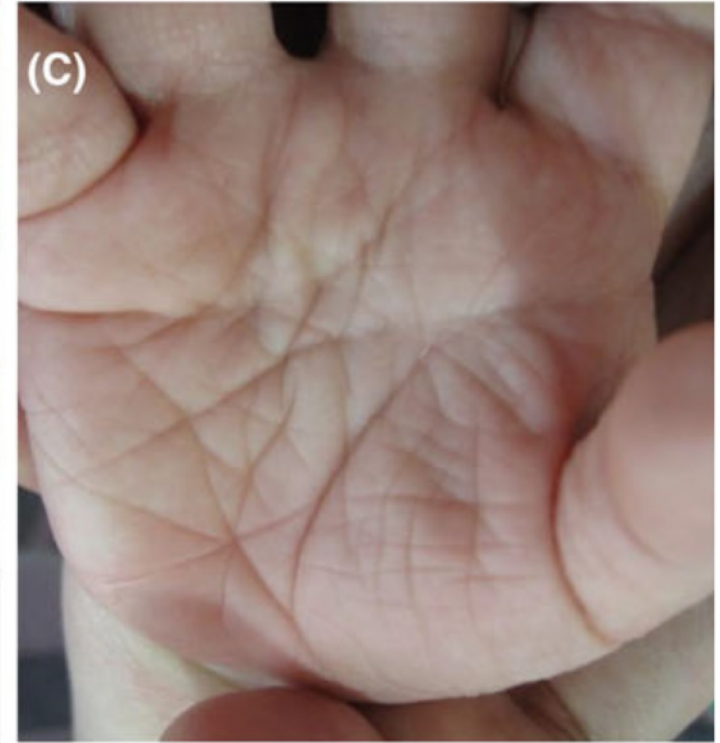
# Atopic Dermatitis : Physical Examination



*Smooth Palm*



*Minimal Hyperlinearity*

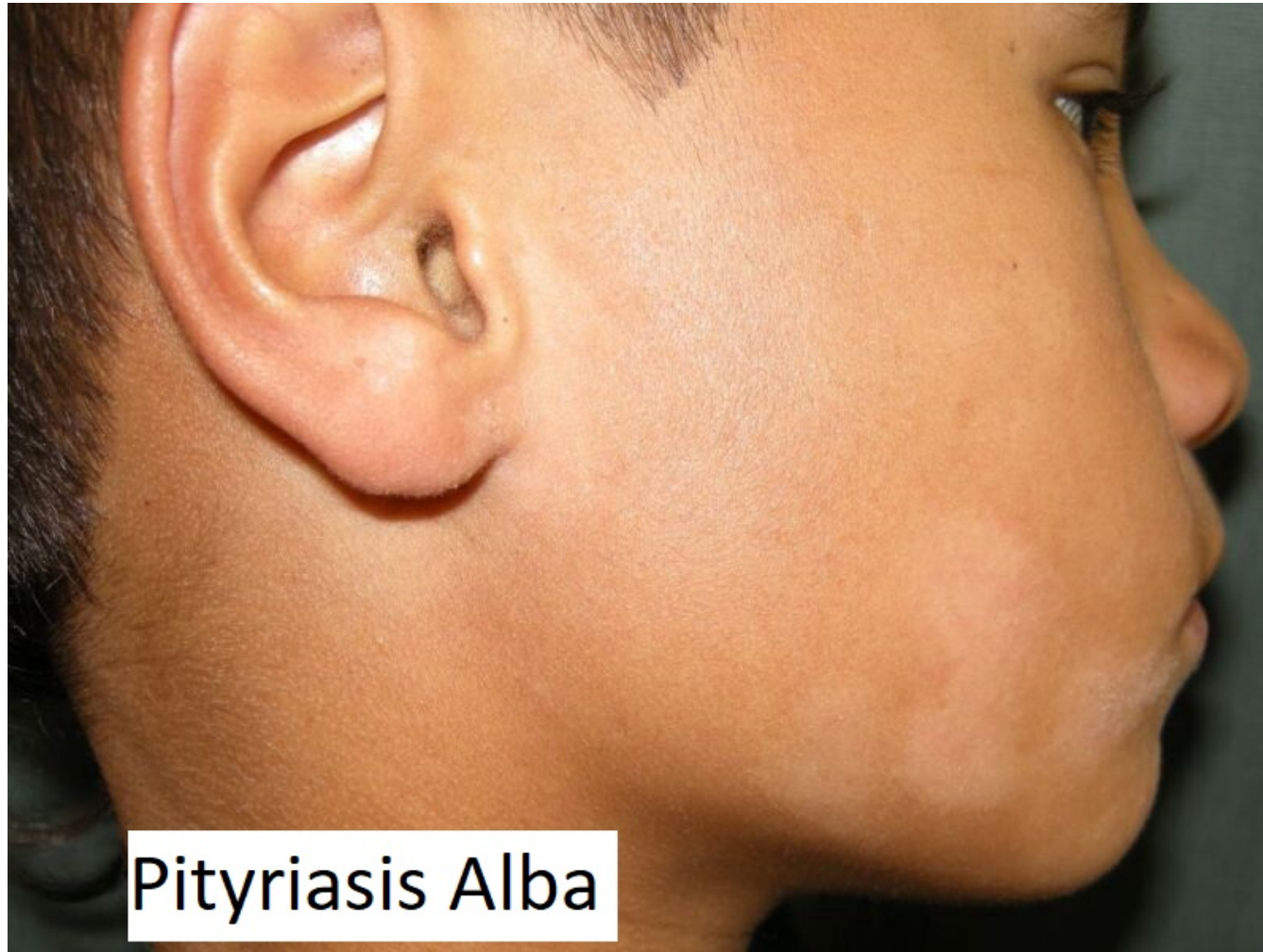


*Apparent Hyperlinearity*

# **Atopic Dermatitis : Physical Examination**



# Atopic Dermatitis : Physical Examination



Pityriasis Alba

# Atopic Dermatitis : Physical Examination



# **Atopic Dermatitis : Diagnosis**

- **Diagnosis is Clinical ;**
  - **3 of 4 Major Features**
  - **3 of Minor Features**
- **Allergy Testing ;**
  - **In Moderate–Severe , Unresponsive Disease**
  - **Determining Role Of Food - Other Allergens**
- **Other Tests ; For Evaluation Of Differential Diagnosis**

# **Atopic Dermatitis : Differential Diagnosis**

- **When to Suspect Other Diagnosis ;**
  - **Poor Response to Standard Treatment**
  - **Frequent Infection**
  - **Failure to Thrive**
  - **Atypical Skin Lesion (e.g. Petechia , Severe Scaling , Diaper Area)**
  - **Abnormal Physical Examination in Other Organs (e.g. Hypotonia)**
  - **Abnormal Laboratory Tests (e.g. Lymphopenia , Thrombocytopenia)**



# Atopic Dermatitis : Differential Diagnosis



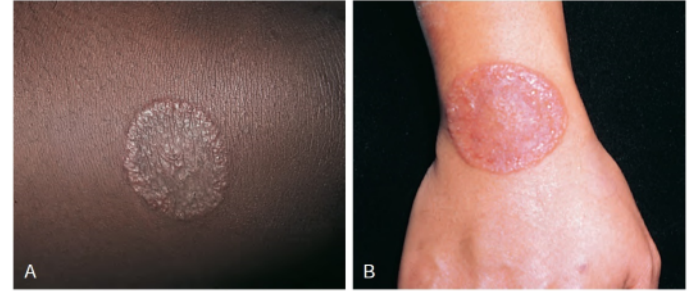
**Contact Dermatitis**



# Atopic Dermatitis : Differential Diagnosis



**Seborrheic Dermatitis**



# Atopic Dermatitis : Differential Diagnosis



# **Atopic Dermatitis : Differential Diagnosis**

- **Systemic Disease With Dermatitis - Dermatitis Like Manifestation ;**
  - **Primary Immunodeficiency (Wiskott–Aldrich , SCID , DOCK8 , IPEX)**
  - **Autoimmune Disease (Celiac , Dermatomyositis , Pemphigus , GVHD)**
  - **Metabolic Disease (MCAD , Phenylketonuria)**
  - **Micronutrient Deficiency (Zinc , VitB6 , VitB3)**

# **Atopic Dermatitis : Treatment**

- **The Three Main Components of Treatment :**
  - **Skin Hydration**
  - **Topical Anti-Inflammatory Drugs**
  - **Avoidance Of Known Triggers**

# **Atopic Dermatitis–Treatment : Skin Hydration**

- **Frequent and Free Use Of Bland Emollient–Moisturizer**
- **Hydrophilic Emollient (Eucerin) Preferred**
- **Hydrophobic Emollient (Vaseline) Also Very Effective**
- **Daily Lukewarm Baths For 15–20 Minutes + Immediate Emollient**
- **Minimal Use Of Detergents**
- **Soap must be ; Neutral pH with Minimal Defatting**

# **Atopic Dermatitis : Topical Anti-Inflammatory Drugs**

- **Topical Anti-Inflammatory Drugs Controls Inflammation & Pruritus**
- **Two Main Topical Anti-Inflammatory Drug Category ;**
  - **Topical Corticosteroid (First Choice)**
  - **Topical Immunomodulator :**
    - **Topical Calcineurin Inhibitors (Tacrolimus & Pimecrolimus)**
    - **Topical Phosphodiesterase-4 Inhibitor (Crisaborole)**
- **Must be Tapered To Lowest Possible Dose-Potency ,After Disease Control**

# **Atopic Dermatitis : Trigger Avoidance**

- **Common Triggers of Inflammation in Atopic Dermatitis ;**
  - **Rubbing or Scratching , Wool or Other Harsh Materials**
  - **Sweat , Saliva , Contact With Acidic Foods**
  - **Soaps and Detergents , Fragranced Products**
  - **Highly Chlorinated Pools**
  - **Low Humidity , Cold Weather**
  - **Tobacco Smoke**
  - **Allergens : Dust Mites , Animal Dander , Environmental Pollens , Molds**



# **Atopic Dermatitis : Complications**

- **Bacterial - Viral Superinfection of Skin Lesion ;**
  - **Staphylococcus aureus : Both Colonization and Infection is Deleterious**
  - **Herpes Simplex , Molluscum contagiosum , Papillomavirus**
  - **Bacterial Culture , Tzank Smear , Viral PCR if Infection Suspected**
- **Psychosocial Impact Of Atopic Dermatitis**

# **Atopic Dermatitis : Prognosis**

- **Significant Improvement in 60 %**
- **Complete Remission in 20 %**
- **Early Onset & Severe Disease have worse Prognosis**

# **Atopic Dermatitis : Prevention**

- **Trigger Avoidance**
- **Exclusive Breastfeeding For at least First 3–4 Months**
- **Food Allergy in only **Minor** Percentage Of Patients**
- **Dietary Restriction (Mother–Child) Generally **Not** Necessary**

# **Atopic Dermatitis : Conclusion**

- **The Most Common Pediatric Skin Disease**
- **Identify and Treat Patients Carefully**
- **Refer Therapy Resistant Patients to Allergist–Dermatologist**
- **Final Exam Reference : Nelson Essentials 8<sup>th</sup> Edition 2019**