SEMINAR #2
Eczematous & Allergic Skin Lesions
Q1: Define eczema and their classifications!

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Eczema: is a condition where patches of skin become inflamed, itchy, red, cracked, and rough. **Blisters** can also occur. It affects a large section of the American population to a lesser or greater degree.

The word eczema is also used specifically to refer to **atopic dermatitis**, the most common type of eczema.
Eczema can be classified into:

<table>
<thead>
<tr>
<th>Endogenous Eczema</th>
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<tbody>
<tr>
<td>Atopic Eczema</td>
<td>Allergic Contact Dermatitis 20%</td>
</tr>
<tr>
<td>Discoid Eczema</td>
<td>Irritant Contact Dermatitis 80%</td>
</tr>
<tr>
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<td>Photoallergic Contact Dermatitis (PCD)</td>
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<td>Seborrhoeic Eczema</td>
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<td>Asteotic Eczema</td>
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<td>Stasis Dermatitis</td>
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1- Atopic Eczema or (IgE): is the most common form of eczema. It often affects people who also have:
A- Asthma.
B- Family history of eczema or asthma.
Atopic dermatitis usually begins during infancy or childhood. But it can strike people at any age.
Most often, it affects skin on the:
Face, hands, feet, inner elbows and back of the knees.
Discoid Eczema or (Nummular Dermatitis): this type of eczema causes round, coin-shaped spots to form on the skin. The word “nummular” means coin in Latin. Nummular eczema looks very different from other types of eczema, and it can itch a lot.
Pompholyx or (Dyshidrotic Eczema): the key characteristic of this form of eczema is blistering that is restricted to the hands and feet. It’s more common in women than men.
4- Seborrheic Dermatitis: this type of eczema is better known as dandruff.

In infants, it affects the scalp. In adults, it also often affects these areas: eyebrows, sides of the nose, area behind the ears, groin and center of chest.
5- Asteatotic Eczema or (Xerotic Dermatitis): almost always affects people over the age of 60, initially appears on the shins with a ‘crazy paving’ appearance. Fissures or grooves can appear which look pink and red, but tend to only affect the superficial layers of the skin. Other areas that can be affected are upper arms, thighs and lower back but it is usually linked to the legs.
Stasis Dermatitis: it commonly occurs on the swollen lower legs of people who have poor circulation in the veins of the legs.
Exogenous Eczema

1- Contact Dermatitis: if patients have red, irritated skin that’s caused by a reaction to substances they touch, they may have contact dermatitis.

It comes in two types: Allergic contact dermatitis is an immune system reaction to an irritant like paint. Irritant contact dermatitis starts when a chemical or other substance irritates the skin.
### Atopic Eczema
- Dry, red, itchy, scaly skin, rashes
- Commonly occurs in areas with skin folds

### Contact Eczema
- Red, itchy, dry skin, blisters, cracks
- Most commonly occurs on hands and feet
2- Photoallergic Contact Dermatitis: a toxic or allergic reaction may occur when certain chemicals are applied to the skin and subsequently exposed to the sun. This is called photocontact dermatitis.
### Summary:

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References:

http://www.medicalnewstoday.com/articles/14417.php
http://www.webmd.com/skin-problems-and-treatments/eczema/types-of-eczema#1
http://www.eczema.org/pompholyx
http://www.dermalex.co.uk/disease/eczema
http://www.healthline.com/health/types-of-eczema#stasis-dermatitis9
Causes of Eczema

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BLOCK 5 SEMINAR 3
Causes of Eczema

- Soaps & Detergents
- Cosmetics
- Clothing
- Jewelry
- Sweat
- Temperature Changes
- Stress
- Allergens
Genetics.
Abnormal function of the immune system
Environment
Activities that may cause skin to be more sensitive
Defects in the skin barrier that allow moisture out and germs in.
Role of environment:
Children are more likely to develop eczema if they:
• Are in higher social classes
• Live in urban areas with higher levels of pollution
• Live in colder climates
Atopic eczema:

People with atopic eczema often have very dry skin because their skin is unable to retain much moisture.

This dryness may make the skin more likely to react to certain triggers, causing it to become red and itchy.

Research has shown children who have one or both parents with atopic eczema, or who have other siblings with eczema, are more likely to develop it themselves.

Atopic eczema isn't infectious, so it can't be passed on through close contact.
Eczema triggers

- **irritants** - such as soaps and detergents, including shampoo, washing up liquid and bubble bath
- **environmental** factors or **allergens** - such as cold and dry weather, dampness, and more specific things such as house dust mites, pet fur, pollen and moulds
- **food allergies** - such as allergies to cows' milk, eggs, peanuts, soya or wheat
- certain **materials** worn next to the skin - such as wool and synthetic fabrics
- **hormonal changes** - women may find their symptoms get worse in the days before their **period** or during pregnancy
- **skin infections**
  - Some people also report their symptoms get worse when the air is dry or dusty, or when they are stressed, sweaty, or too hot or too cold.
The belief that the cause of eczema seems to be a defect in the production of a particular skin protein (filaggrin) is currently quite popular.
Clinical presentation
It begins as red, raised tiny blisters containing a clear fluid atop red, elevated plaques. When the blisters break, the affected skin will weep and ooze. In older eczema, chronic eczema, the blisters are less prominent and the skin is thickened, elevated, and scaling. Eczema almost always is very itchy.
When the rash is in an acute stage, it is weepy and oozy. Later after the patient has been rubbing and scratching for some weeks, it becomes a plaque of thickened skin. This is called lichenification.
Almost all patients with eczema complain of itching. Since the appearance of most types of eczema is similar, elevated plaques of red, bumpy skin, the distribution of the eruption can be of great help in distinguishing one type from another.

For example, stasis dermatitis occurs most often on the lower leg while atopic dermatitis occurs in the front of the elbow and behind the knee.
Signs in Babies, Children & Adults

Atopic eczema has a typical distribution on the surface of the skin; this can be quite helpful in making the correct diagnosis.

In crawling children in diapers, the rash is frequently seen on the elbows and knees but spares the diaper area.

In older children and adults, the rash is often present in the folds of skin opposite to the elbow and kneecap but spares the armpits. Other areas commonly involved include the cheeks, neck, wrists, and ankles.
Common Sites of Eczema Outbreaks
http://www.nhs.uk/Conditions/Eczema-(atopic)/Pages/Causes.aspx
http://www.medicinenet.com/eczema_facts/page2.htm
http://www.webmd.com/skin-problems-and-treatments/eczema/eczema-causes#1
https://nationaleczema.org/eczema/related-conditions/
TREATMENT OF ECZEMA

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Topical therapies:
(topical steroids and Topical immunomodulators)

1- **topical steroid** are available in a range of are used for the right body site

Table 24.4 Classification of topical steroids by potency

<table>
<thead>
<tr>
<th>Type</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very potent</td>
<td>0.05% clobetasol propionate</td>
</tr>
<tr>
<td></td>
<td>0.3% diflucortolone valerate</td>
</tr>
<tr>
<td>Potent</td>
<td>0.1% betamethasone valerate</td>
</tr>
<tr>
<td></td>
<td>0.025% fluocinolone acetonide</td>
</tr>
<tr>
<td>Diluted potent</td>
<td>0.025% betamethasone valerate</td>
</tr>
<tr>
<td></td>
<td>0.00625% fluocinolone acetonide</td>
</tr>
<tr>
<td>Moderately potent</td>
<td>0.05% clobetasone butyrate</td>
</tr>
<tr>
<td></td>
<td>0.05% alclometasone dipropionate</td>
</tr>
<tr>
<td>Mild</td>
<td>2.5% hydrocortisone</td>
</tr>
<tr>
<td></td>
<td>1% hydrocortisone</td>
</tr>
</tbody>
</table>
### Topical Steroids

<table>
<thead>
<tr>
<th>Location</th>
<th>Potency Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Face</td>
<td>Only mild</td>
</tr>
<tr>
<td>In adult body</td>
<td>Diluted potent, Moderately potent, mild potent</td>
</tr>
<tr>
<td>In children body</td>
<td>Moderately potent, mild potent</td>
</tr>
<tr>
<td>Palms and soles</td>
<td>Potent, vary potent (because skin thick)</td>
</tr>
<tr>
<td>Groin, and under breasts</td>
<td>Weaker steroid</td>
</tr>
</tbody>
</table>

Potent steroids are used for short courses (7-10 days).

Only use steroids on inflamed skin.

Topical steroids control itching and inflammation. Should be prescribed by a doctor!

Overuse may cause skin irritation or discoloration, thinning of skin, infection, starch mark.

The milder potency steroid creams are still first-line therapy.
**2-Topical immunomodulators (calcineurin inhibitors)**

MOA: *inhibition activation of T lymphocyte and decrease release of inflammatory mediators (affected in immune system)*

Tacrolimus ointment and pimecrolimus cream can be used for atopic eczema in patients over 2 years old.

- Useful for treating sensitive areas such as the face and eyelids.
- Help to repair skin and maintain it normal.
Adjunct therapies

**Antibiotics**
These are needed for bacterial infection and are usually given orally for 7-10 days. If infection found
Ex Flucloxacillin is effective against *Staphylococcus*

**Sedating antihistamines**
These (e.g. oral hydroxyzine hydrochloride 10-25 mg) are useful at night-time.
If itching is severe

**Bandaging**
Paste bandaging can be useful for resistant eczema of the limbs. It helps absorption of treatment and acts as a barrier to prevent scratching.
Systemic therapy

These are used in severe non-responsive cases, especially if the eczema is significantly interfering with an individual’s life (e.g. growth, sleeping, schoolwork or job). prednisolone and ciclosporin can be oral or IV.

They have side-effects and the risk/benefit ratio must be openly discussed with the patient before they are used.
Eczema outbreaks can sometimes be avoided or the severity lessened by following these simple tips.
Summary

Atope Dermatitis is Clinically Diagnosed
There are ways to break the cycle of

Allergy-Mediated Inflammation

- Identify & Avoid Triggers
  - Avoid overheating
  - Dress in soft fabric
  - Manage stress

Short fingernails
- Keep children from scratching

Itching

- Steroids
- Calcineurin inhibitors
- Antihistamines (for itching)
- Antibiotics (for infection)

Dry Skin

- Frequent moisturization
  - Apply after warm bath
References

Kumar and Clark’s Clinical Medicine

Any Q?
4-Characteristics of allergic skin lesion.
An extensive language has been developed to standardize the description of skin lesions, including:

- Lesion type (sometimes called primary morphology).
- Lesion configuration (sometimes called secondary morphology).
- Texture.
- Distribution.
- Color.
Lesion Type (Primary Morphology)

**Macules** are flat, nonpalpable lesions usually < 10 mm in diameter. Macules represent a change in color and are not raised or depressed compared to the skin surface.

**Papules** are elevated lesions usually < 10 mm in diameter that can be felt or palpated.

**Plaques** are palpable lesions > 10 mm in diameter that are elevated or depressed compared to the skin surface.

Nodules are firm papules or lesions that extend into the dermis or subcutaneous tissue. Examples include cysts, lipomas, and fibromas.

Vesicles are small, clear, fluid-filled blisters < 10 mm in diameter. Vesicles are characteristic of herpes infections, acute allergic contact dermatitis, and some autoimmune blistering disorders (eg, dermatitis herpetiformis).

Bullae are clear fluid-filled blisters > 10 mm in diameter. These may be caused by burns, bites, irritant or allergic contact dermatitis, and drug reactions. Classic autoimmune bullous diseases include pemphigus vulgaris and bullous pemphigoid. Bullae also may occur in inherited disorders of skin fragility.

Pustules are vesicles that contain pus. Pustules are common in bacterial infections and folliculitis and may arise in some inflammatory disorders including pustular psoriasis.
**Urticaria** (wheals or hives) is characterized by elevated lesions caused by localized edema. Wheals are pruritic and red.

**Scale** is heaped-up accumulations of horny epithelium that occur in disorders such as psoriasis, seborrheic dermatitis, and fungal infections.

**Crusts (scabs)** consist of dried serum, blood, or pus. Crusting can occur in inflammatory or infectious skin diseases (eg, impetigo).

**Erosions** are open areas of skin that result from loss of part or all of the epidermis.
Ulcers
Petechiae
Purpura
Atrophy
Scars
Telangiectases
Primary Skin Lesions

- Nodule
- Cyst
- Bullae
- Macule
- Plaque
- Wheal
- Vesicle
- Pustule
<table>
<thead>
<tr>
<th>Condition</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bulla</td>
<td>Circumscribed Collection Of Free Fluid &gt; 1 Cm</td>
</tr>
<tr>
<td>Macule</td>
<td>Circular Flat Discoloration &lt; 1 Cm, Brown, Blue, Red or Hypo Pigmented</td>
</tr>
<tr>
<td>Nodule</td>
<td>Circular, Elevated, Solid Lesion &gt; 1 cm</td>
</tr>
<tr>
<td>Patch</td>
<td>Circumscribed Flat Discoloration &gt; 1 cm</td>
</tr>
<tr>
<td>Papule</td>
<td>Superficial Solid Elevated, ≤ 0.5 Cm, Color Varies</td>
</tr>
<tr>
<td>Plaque</td>
<td>Superficial Elevated Solid Flat Topped Lesion &gt; 1 Cm</td>
</tr>
<tr>
<td>Pustule</td>
<td>Vesicle Containing Pus (Inflammatory Cells)</td>
</tr>
<tr>
<td>Vesicle</td>
<td>Circular Collection Of Free Fluid, ≤ 1 Cm</td>
</tr>
<tr>
<td>Wheal</td>
<td>Erythematous, Transitory Plaque, May Last Few Hours</td>
</tr>
<tr>
<td>Scale</td>
<td>Epidermal Thickening; Consists Of flakes or Plates of Compact Desquamated Layers Of Stratum Corneum</td>
</tr>
<tr>
<td>Crust</td>
<td>Dried Serum Or Exudate On Skin</td>
</tr>
<tr>
<td>Fissure</td>
<td>Crack Or Split</td>
</tr>
</tbody>
</table>
Lesion Configuration (Secondary Morphology)

Configuration is the shape of single lesions and the arrangement of clusters of lesions.

**Linear lesions** take on the shape of a straight line and are suggestive of some forms of contact dermatitis, linear epidermal nevi, and lichen striatus.

**Annular lesions** are rings with central clearing.
**Nummular lesions** are circular or coin-shaped

**Serpiginous lesions** have linear, branched, and curving elements.
**Reticulated lesions** have a lacy or networked pattern.

**Herpetiform** describes grouped papules or vesicles arranged like those of a **herpes simplex infection**.
**Zosteriform** describes lesions clustered in a dermatomal distribution similar to those of **herpes zoster**.
Texture

Some skin lesions have visible or palpable texture that suggests a diagnosis. **Verrucous lesions** have an irregular, pebbly, or rough surface. Examples include warts and seborrheic keratoses.

**Lichenification** is thickening of the skin with accentuation of normal skin markings; it results from repeated scratching or rubbing.

**Induration**, or deep thickening of the skin, can result from edema, inflammation, or infiltration, including by cancer.

**Umbilicated lesions** have a central indentation and are usually viral. Examples include *molluscum contagiosum* and *herpes simplex*.

**Xanthomas**, which are yellowish, waxy lesions, may be idiopathic or may occur in patients who have lipid disorders.
Location and Distribution

It is important to note whether
Lesions are single or multiple
Particular body parts are affected (eg, palms or soles, scalp, mucosal membranes)
Distribution is random or patterned, symmetric or asymmetric
Lesions are on sun-exposed or protected skin
Color

**Red skin** (erythema) can result from many different inflammatory or infectious diseases. Cutaneous tumors are often pink or red. Superficial vascular lesions such as port-wine stains may appear red.

**Orange skin** is most often seen in hypercarotenemia, a usually benign condition of carotene deposition after excess dietary ingestion of beta-carotene.

**Yellow skin** is typical of jaundice, xanthelasmas and xanthomas, and pseudoxanthoma elasticum.

**Green fingernails** suggest *Pseudomonas aeruginosa* infection.

**Violet skin** may result from cutaneous hemorrhage or vasculitis.

**Shades of blue, silver, and gray** can result from deposition of drugs or metals in the skin, including minocycline, amiodarone, and silver (argyria).

**Black skin** lesions may be melanocytic, including nevi and melanoma.
THANK YOU

ANY QUESTIONS?
Classification of allergic skin lesions

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Types of lesion

Basic skin lesions are broadly categorized as:

1. Primary
2. Secondary
3. Special
Primary skin lesions:
Macule
Plaque
Cyst
Nodule
Macule

- A flat circumscribed lesion showing change in color without change in its consistency. Macules are non-palpable.
- They are 0.5cm-1cm in size.
- Discoloration may be brown, blue, red and hypopigmented or hyperpigmented
Brown coloured macules

Freckle

Fixed drug eruption

Cafe-au-lait spot
Blue coloured macules

Mongolian spot  Blue naevus

ink(tattoo)
Red coloured macules

Drug eruptions

Secondary syphilis
Hypopigmented
Tinea versicolor
Plaque

- Elevated well circumscribed more than 1 cm in diameter, occupying relatively large surface area in comparison with its height above the skin surface.
Nodule

- A large (0.5 – 5.0 cm), firm lesion raised above the surface of surrounding skin.
- It is the depth of involvement that differentiates a nodule from a large papule.
- Could be warm, soft, fluctuant, movable, fixed or painful.
- Surface-smooth, keratotic, ulcerated or fungating.
Examples of nodule

Basal cell carcinoma

Hemangioma

Prurigo nodularis

neurofibromatosis
Cyst

- It is a spherical or oval sac or an encapsulated cavity containing fluid or semi solid material.
- It is lined with true epithelium.
- Eg:- mucous retention cyst
Secondary skin lesion:

Fissure
Erosion
Scar
Atrophy
Fissure

- It is a linear loss of continuity of skin due to excessive tension.
- Eg:- eczema (fingertips), intertrigo

- Finger fissure d/t eczema
Erosion

- A focal loss of epidermis
- Erosions do not penetrate below the dermoepidermal junction and therefore heal without scarring
- Eg:- tinea pedis, candidiasis, eczema-tous disease, herpes simplex
Scar

- It is replacement of normal skin by fibrous tissue in the process of healing of damaged skin.
- Scars are of two types - hypertrophic and atrophic.
- Eg: acne, burns, herpes zoster, keloid
scar of herpes zoster

Burn scar
• **Keloid**: area of overgrowth of fibrous tissue that usually develops after healing of skin injury & extends beyond the original defect
Atrophy

- It is reduction in size and number of skin cells.
- It may be limited to epidermis, dermis, or subcutaneous tissue.
- Eg:- leprosy, atrophoderma, lipoatrophy
Special skin lesions:
Purpura
Telangiectasia
Infrac
Telangiectasia

- It is visible dilation of capillaries of skin which blanch on pressure.
- Eg:- Dermatomyositis, Systemic sclerosis.
Purpura

- Extravasation of red blood cells from cutaneous vessels in skin & mucous membrane.
- Diascopy- non blanchable.
Infarct

- Area of cutaneous necrosis - tender, irregularly shaped
- Dusky red-grey macule or firm plaque
Summary

We talk about:

**Primary skin lesion:**
Lesion occurring in non pathological skin

**Secondary skin lesion.**
Modification of primary skin lesion.

**Special skin lesion:**
Pathological to certain disease conditions.
REFERENCE:

HTTPS://WWW.SLIDESHARE.NET/AAKANKSHASINGH355744/SKIN-LESIONS-40101798