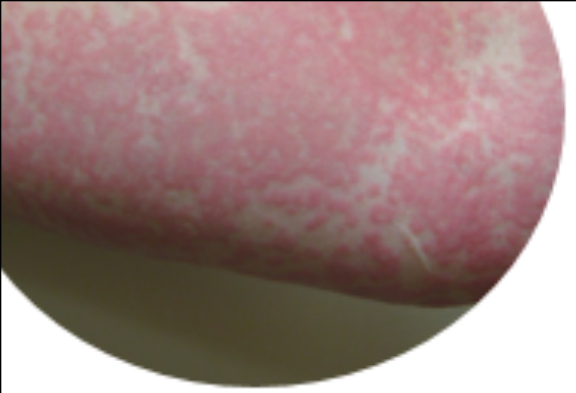
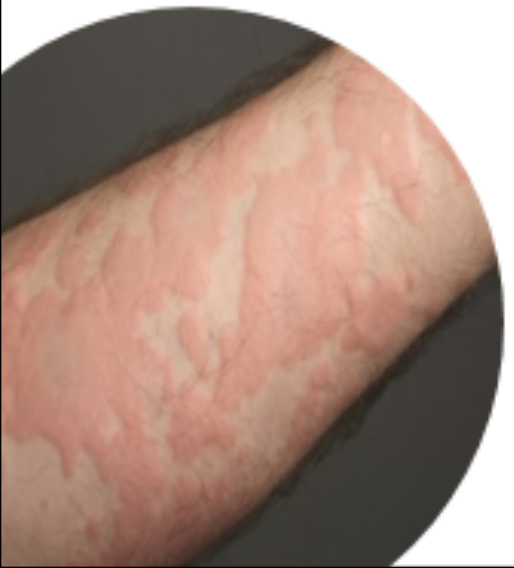
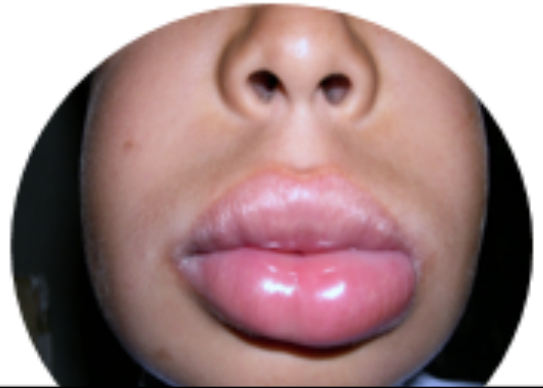


Urticaria & Angioedema





Noor Al-Assaf
Nada Odeh

Edited slides

Urticaria

Overview

Clinical History

Investigations

Patho-physiology

Classifications / types

Management

Overview

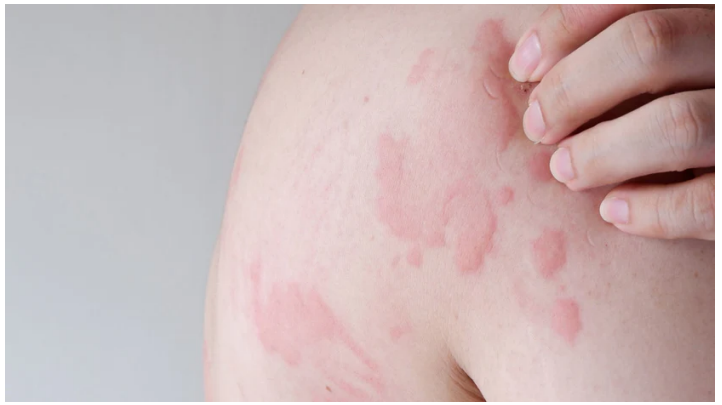
What is urticaria?

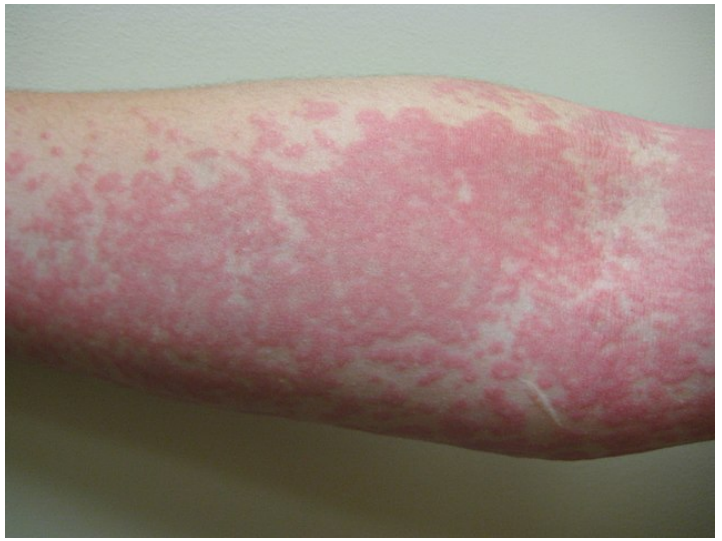
- Also known as hives, wheals, or nettle rash; Urticaria is a transient pruritic swellings of the skin

- Urticaria results from *edema* in the superficial layers of the skin causing lesions that are:

* Well demarcated * erythematous * pruritic

- Associations: allergic reactions, infections, or physical stimuli, but mostly it is idiopathic.
We may also see these lesions with vasculitis, pemphigoid, dermatitis herpetiformis...





How common is urticaria?

It is a common skin disorder affecting 20% of population at some point.

Could be either a single episode or chronically recurrent

How serious is it?

It is often self-limiting, controlled with antihistamines

What is angio-edema? What is the difference?

- **Painful rather than itchy**
- **Diffuse swelling affecting deeper layers of the skin**
  - **(can involve mucous membranes)**

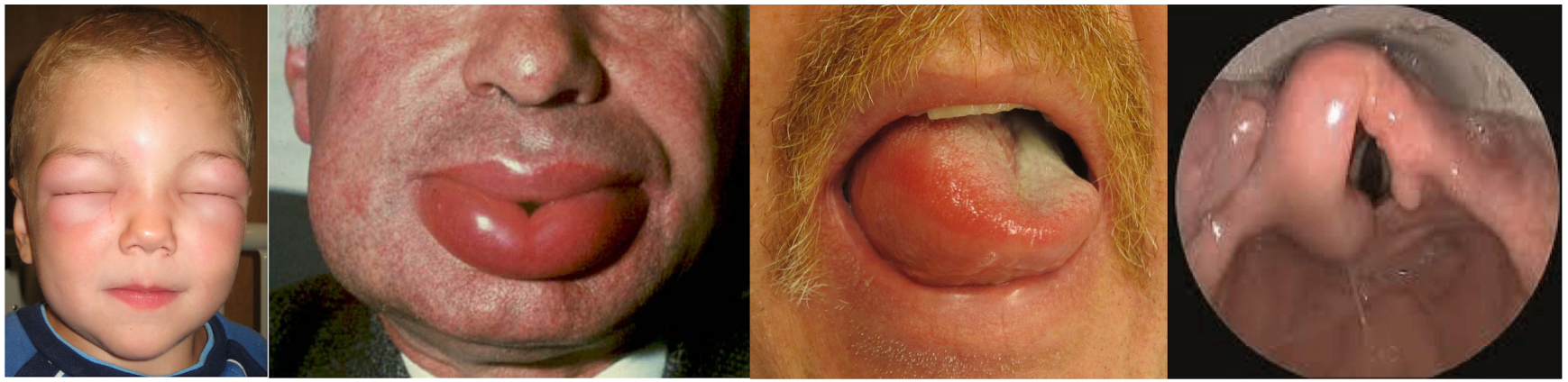


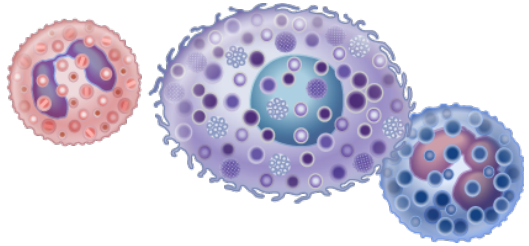
Figure 3. Angioedema of the face, lips,tongue, and larynx. The **asymmetric** involvement of the tongue, favors bradykinin-mediated angioedema

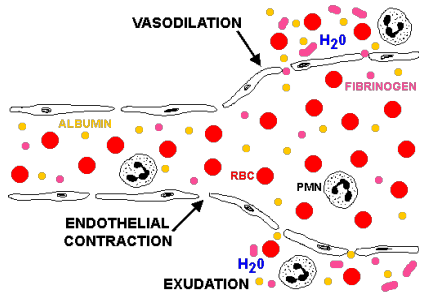
Pathophysiology

Various trigger factors

Cells (basophils & mast cells)

- Histamine
- Bradykinin
- Pro-inflammatory mediators





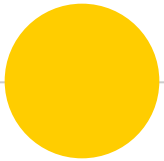
These chemicals released by degranulation cause capillaries and venules to leak -> tissue edema

Urticaria may be;

- **immunoglobulin E (IgE) mediated** with cross-linking of two adjacent IgE receptors
- **complement-mediated** (causing direct degranulation of mast cells)
- **mast cells may be directly stimulated** by an exogenous or unknown substance

What happens in chronic urticaria?

- **Histamine can be released spontaneously, or in response to non-specific stimuli**
- **In chronic urticaria vasculature is more sensitive to histamines**



Clinical History

Take a detailed proper history

- Onset
- Duration
- Itchiness
- Pain
- Post-healing marks
- Triggers
- Respiratory manifestations

Clinical History

Explanation

The key for a successful assessment is taking a proper history and we can't emphasize enough on the importance of taking a proper history when it comes to the diagnosis of urticaria and angio-edema

because .... there's not much to see actually

You're faced with a rash or swelling ... you want to know what these are and what caused them

And unfortunately there's no other significant or characterizing manifestations that lead us to the diagnosis

That's why taking a detailed history is a very crucial step

Clinical History

In history we ask about:

1. Onset
2. Duration (acute or chronic /how long did the event last mins, hours, days? Urticaria lasts for minutes to hours and less than 24 hours almost always; while Angio-edema lasts for hours to days)
3. Itchiness or pain ... because as we said earlier angio-edema is pretty much painful while urticaria is painless in most cases yet itchy
4. Whether the lesion's healing left any marks behind ... in most cases urticaria resolves without leaving any marks ... however, it is to be noted that urticarial vasculitis which is a subtype of vasculitis that is characterized by urticarial lesions; lasts for beyond 24 hours, is painful, and resolves with bruising unlike typical urticaria
5. Any sort of respiratory impairment or difficulty in breathing as this is a serious complication that needs immediate intervention
6. Possible triggers that might've led to the event (will be discussed in the upcoming slides)

Classification

Physical Urticaria

- Sunlight
- Heat
- Cold
- Water
- Pressure

Non-Physical Urticaria

- Food allergies
- Food additives
- Salicylates
- Infection
- Systemic diseases
- Aeroallergens
- Contact
- Papular

Explanation

Around 50% of urticaria cases are idiopathic, and those who are not; fall in one of these two categories: patients with physical urticaria and patients with non-physical urticaria.

Causes of physical urticaria include: heat, cold, sunlight, pressure, and water.

On the other hand; causes of non-physical urticaria include:

1. Food allergies, some foods that are known to cause urticaria include: fish, eggs, and dairy products
2. Food additives like food dyes
3. Salicylates whether in medications or food (also there are other medications that are known to cause urticaria such as ACEI, and CCB)
4. Infections whether viral, bacterial, or fungal ; examples include: herpes, acute hepatitis, EBV, streptococcal infections, or H pylori
5. Systemic diseases whether autoimmune diseases, carcinomas, or connective tissue disorders
6. Aeroallergens including house dust mite and animal dander

Explanation

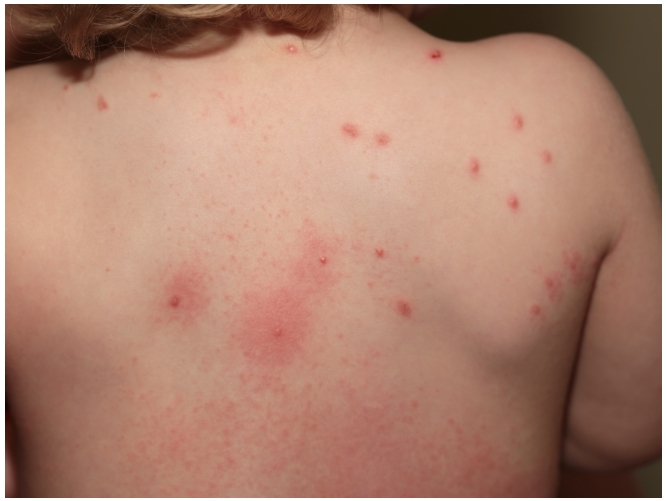
We also need to know that there are two subtypes of urticaria that fall under this category as well; these being:

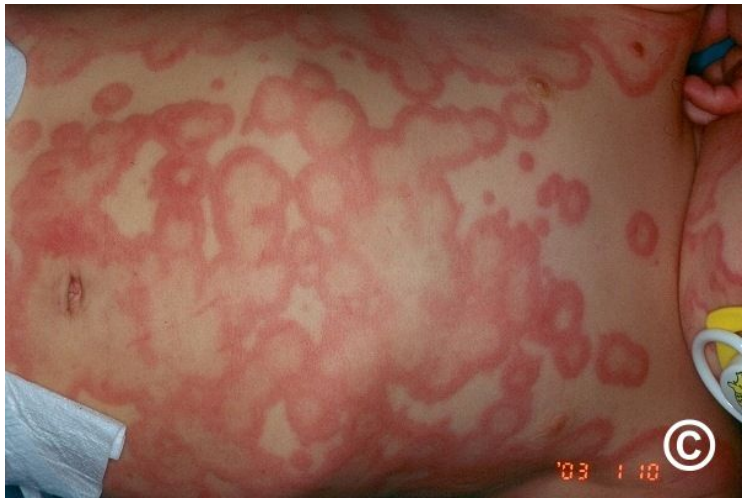
1. Contact urticaria which is a transient wheal and flare reaction that occurs within 10 to 60 minutes at the site of contact of an offending agent and completely resolves within 24 hours (the offending agent could be an animal, some clothing material, and so on)

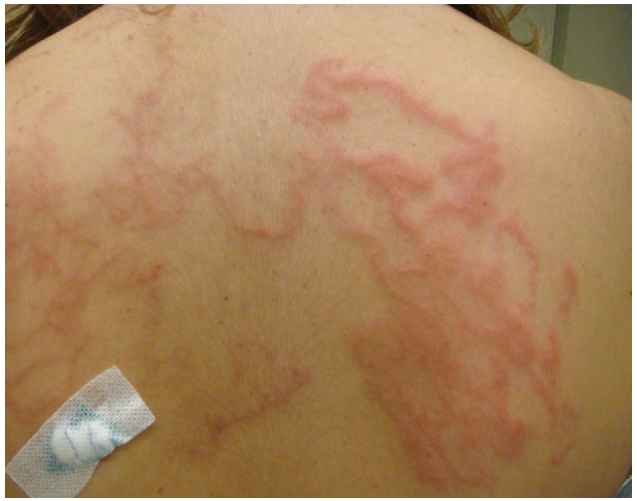
2. Papular urticaria which is a common and often annoying disorder that is manifested by chronic or recurrent papules caused by a hypersensitivity reaction to the bites of mosquitoes, fleas, bedbugs, and other insects.

Ordinary Urticaria

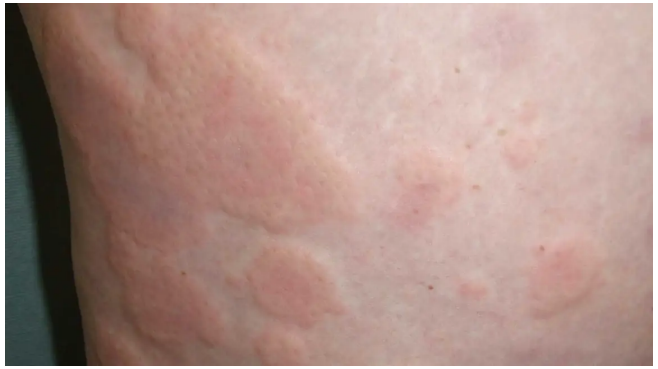
- Most common form
- Intermittent fleeting wheels at any skin site
- With or without angioedema
- Lesions: may be papular, annular, or serpiginous







Duration: last minutes to hours only
Timing: acute (<6 weeks), or chronic (> 6 weeks)

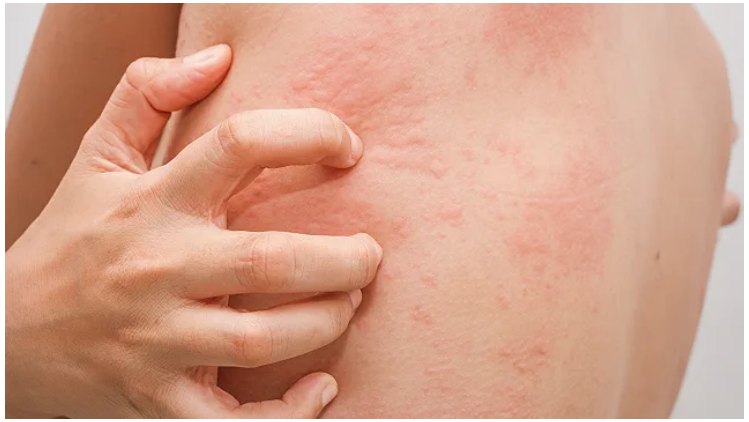


Cause: half of the cases are idiopathic

Triggers: infections, vaccinations, medications, food

Chronic spontaneous urticaria?

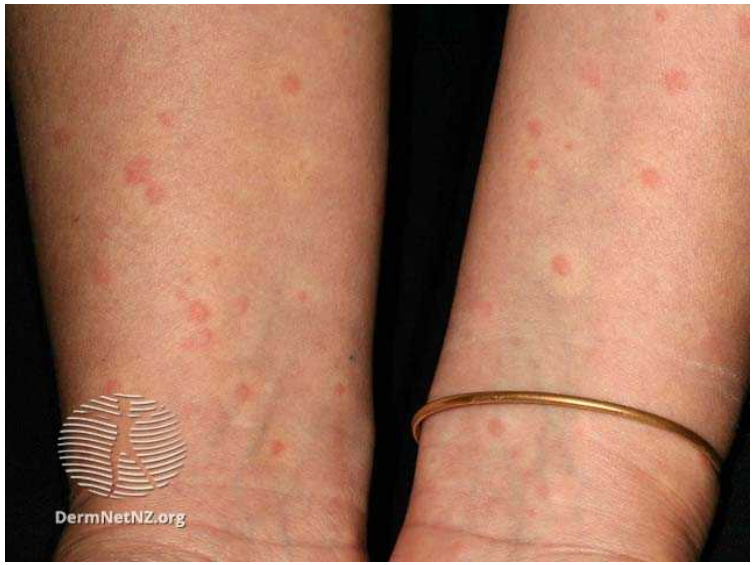
More persistence of the attacks, less likelihood to figure out the underlying cause



Cholinergic Urticaria

- **Classical patient:**
  - **age: 10-30 years**
  - **Following a shower or after exercise**
  - **Erythema & burning pruritis -> followed by extensive urticaria**

    - **Lesions:**
      - **Pinhead sized wheals, with a red flare around them (wheal and flare)**



Trigger?

- α1-antitrypsin deficiency may predispose, serum histamine levels are raised following exertion, and sweat plays a role

What to do to alleviate symptoms?

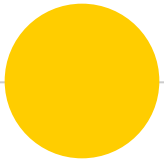
- Avoidance of heat usually helps reduce frequency and severity

A rarer form: cholinergic urticaria from exposure to cold.

- Urticaria on exposed skin
- Swellings in the lip/tongue/hands
- Generalized reaction

Management:

- avoid swimming in cold water
- Avoid ingestion of ice-cold drinks



Solar Urticaria

Caused by exposure to sunlight

Resolves within mins to hours

Mx is difficult yet avoidance of sunlight is helpful.

Within 30 mins of exposure

Can be confirmed by light testing

Antigen mediated

Explanation

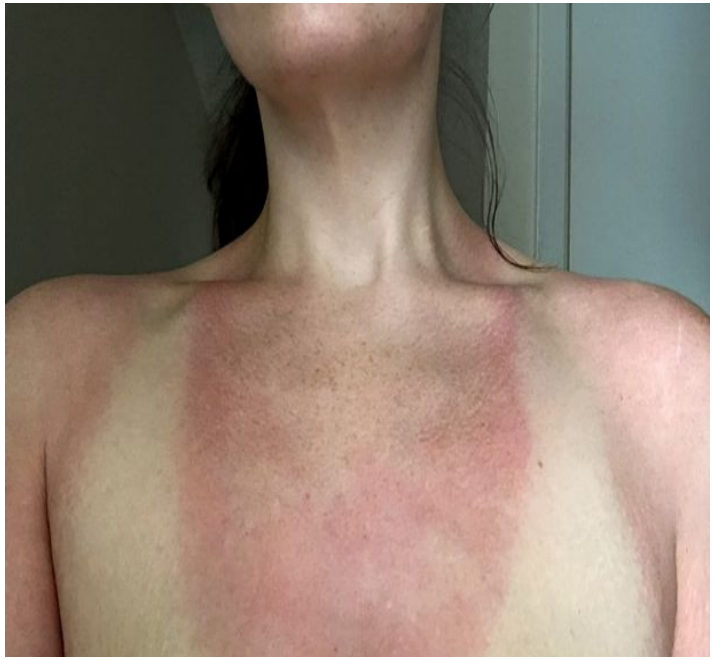
- Solar urticaria is a rare condition that is caused by exposure to sunlight
- Within 30 mins of exposure; the patient starts complaining from burning and itching accompanied by an urticarial eruption
- The urticaria resolves within mins to hours once exposure to sunlight ceases
- The pathophysiology of this condition is vague but it is believed that it's antigen mediated as transferring serum from a diseased individual to a healthy one induces urticaria in the healthy one

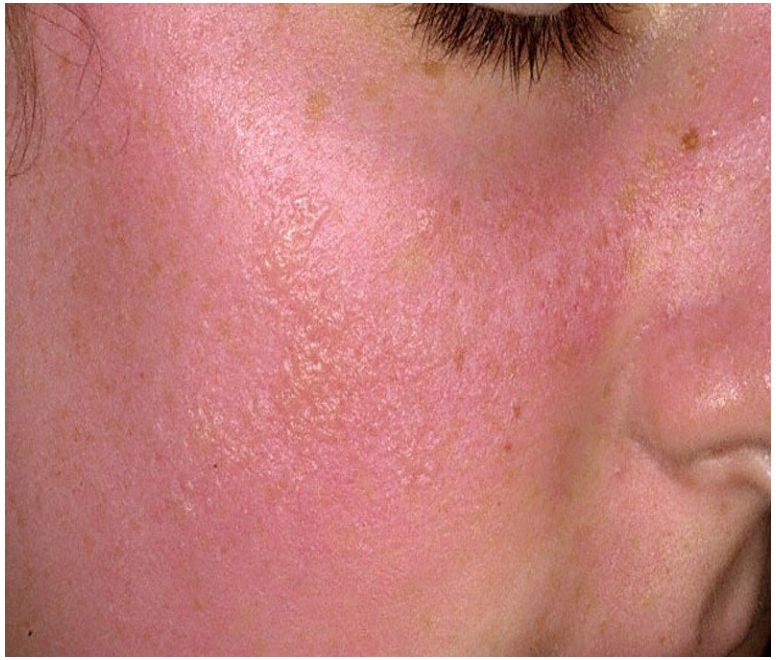
Explanation

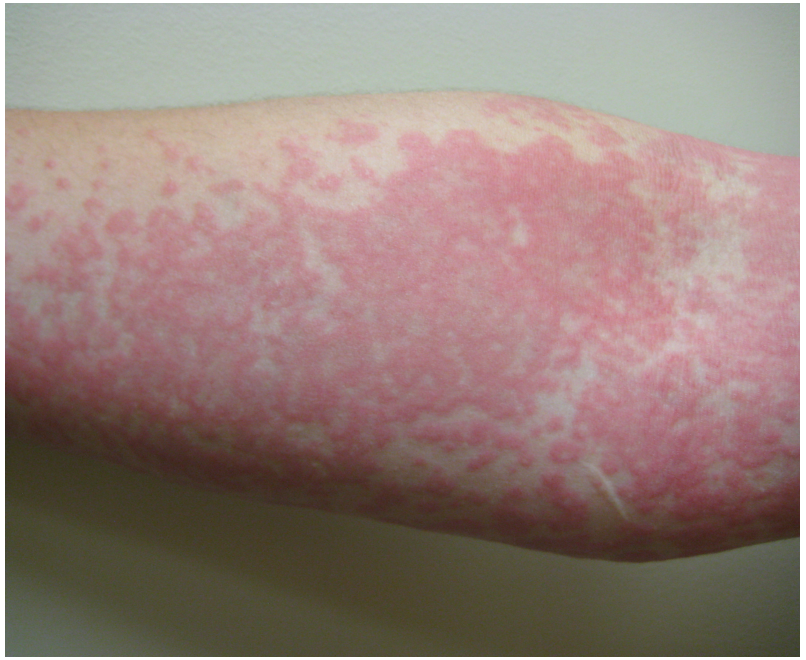
Regarding diagnosis, solar urticaria can be confirmed by light testing ... and light testing is a procedure that uses a Monochromator machine to produce the wavelengths present in the sunlight and apply them with different doses to the back of the patient for the physician to observe how his body reacts to this light

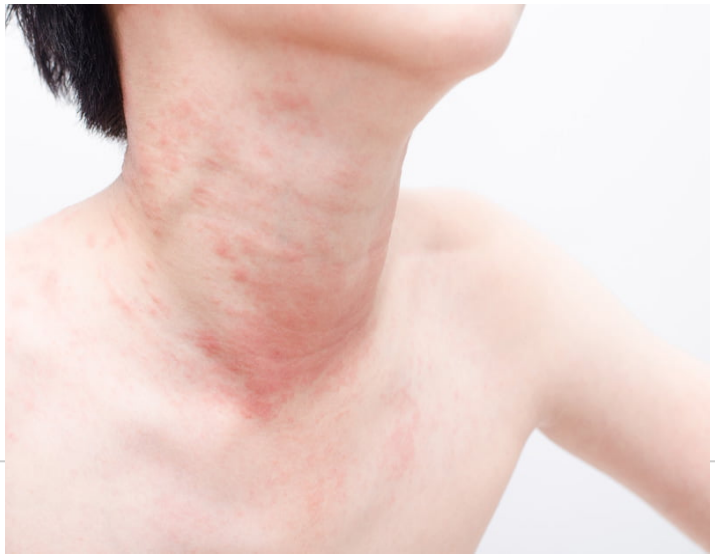
The management of solar urticaria is difficult yet avoidance of sunlight is pretty helpful.

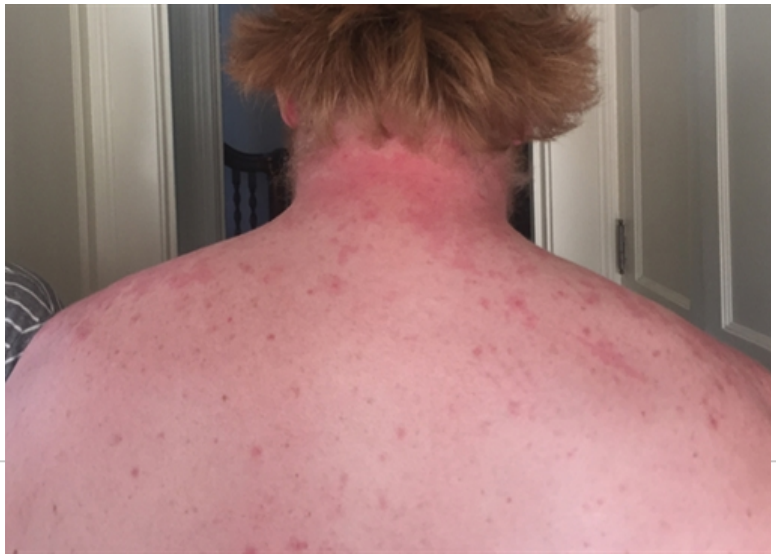
It is pertinent for us to be able to differentiate between solar urticaria and other similar photosensitivity conditions. For example; porphyria has a similar presentation to solar urticaria but its lesions resolve with scarring which differs from what happens with solar urticaria .... While polymorphic light eruption which is an acquired photodermatosis characterized by a pathological response to UV exposure takes days to weeks to resolve unlike solar urticaria that resolves within minutes to hours

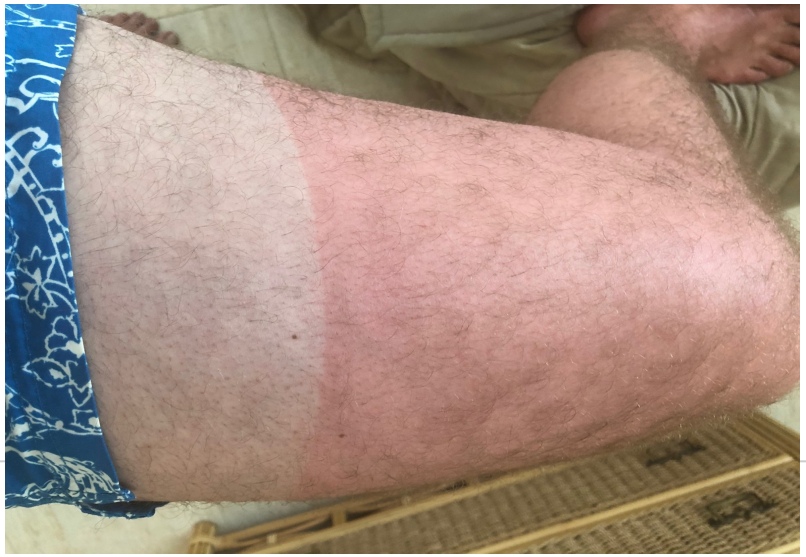












Pressure Urticaria

Occur at the site of pressure on the skin

Doesn't need more than several days to resolve but tends to recur over many years

Investigations for pressure urticaria include pressure challenge testing

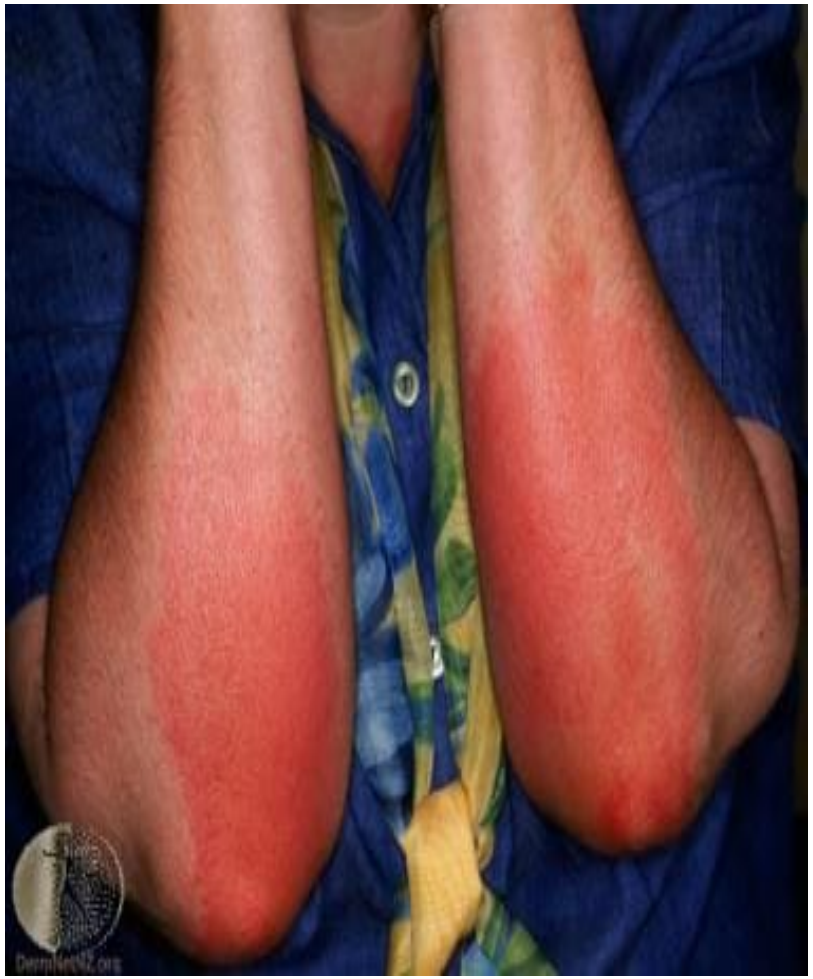
Could be immediat e and could be delayed

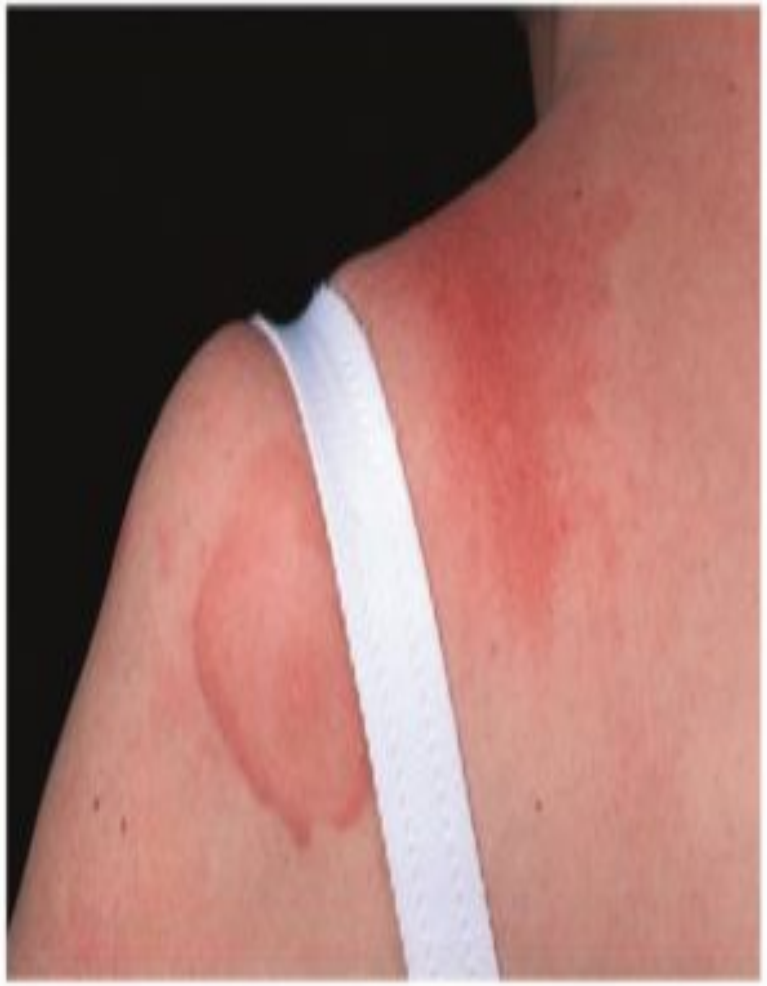
The etiology is unknown and its patients don't respond to antihistamines

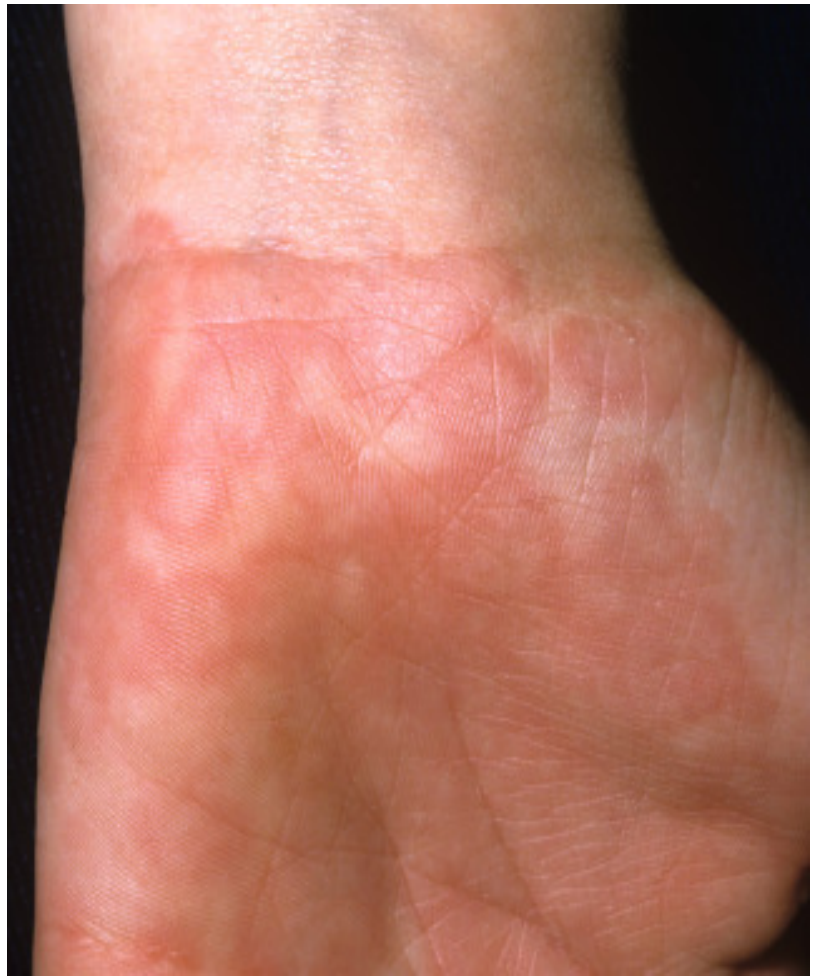
Improves with the use of dapsone and montelukast

Explanation

- Pressure urticaria occur at the site of pressure on the skin, examples include: the waistband area (from clothing), the shoulders (from carrying a backpack), the soles of feet (from walking), the hands (from using tools or weight lifting) and so on
- Pressure urticaria could be immediate and could be delayed where there is a delay of the eruption of urticaria of up to six months … in both cases pressure urticaria doesn't need more than several days to resolve BUT tends to recur over many years
- The etiology of pressure urticaria is unknown and its patients don't respond to antihistamines … however, they improve with the use of dapsone (inhibits the synthesis of dihydrofolic acid through by competing with para-aminobenzoic acid for the active site of dihydropteroate synthetase) and montelukast (a leukotriene receptor antagonist)
- Investigations for pressure urticaria include pressure challenge testing, in which we apply pressure to the patient's skin and see if this results in dermographism







Angio-edema

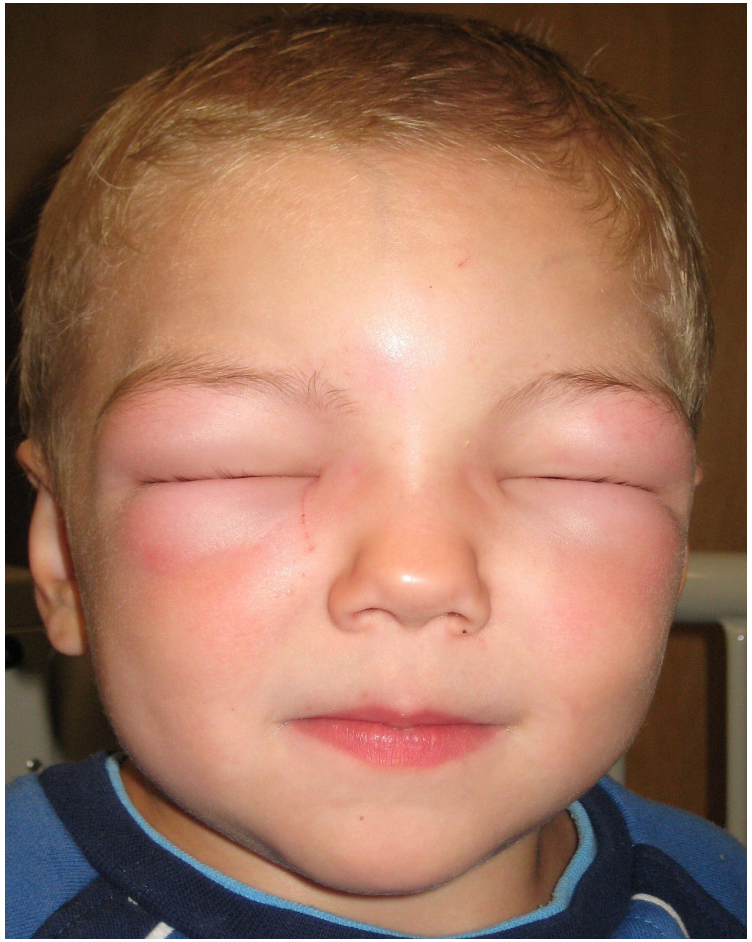
Laryngeal edema is a very serious and life threatening complication that requires emergent securing of the airway

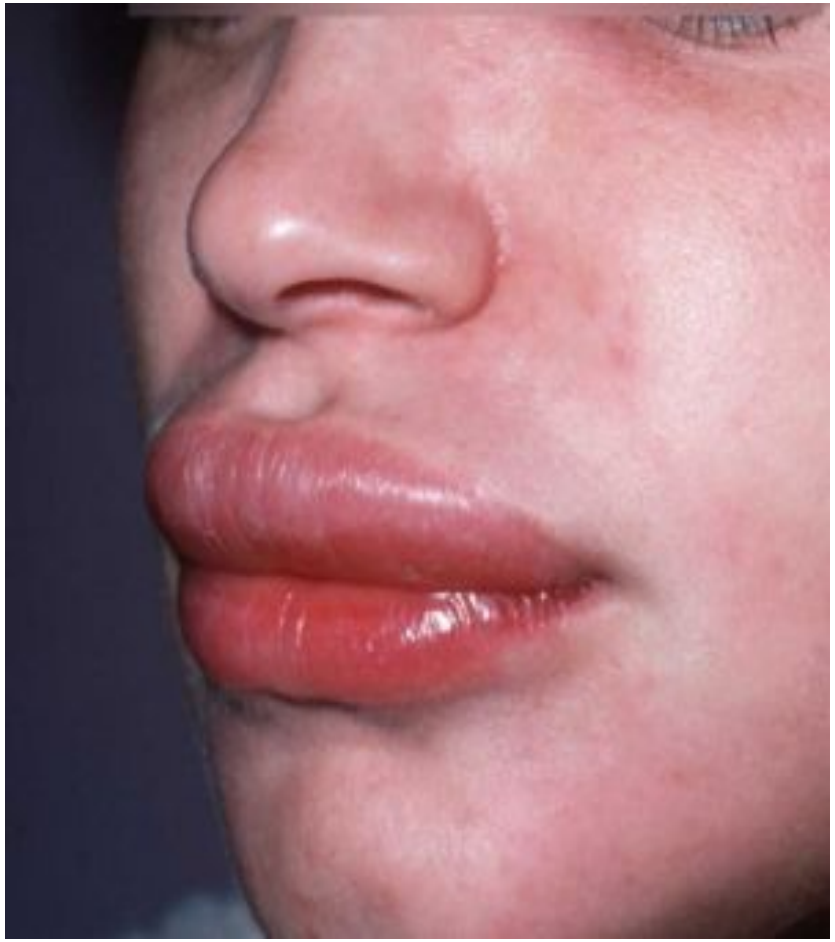
Hereditary angio-edema

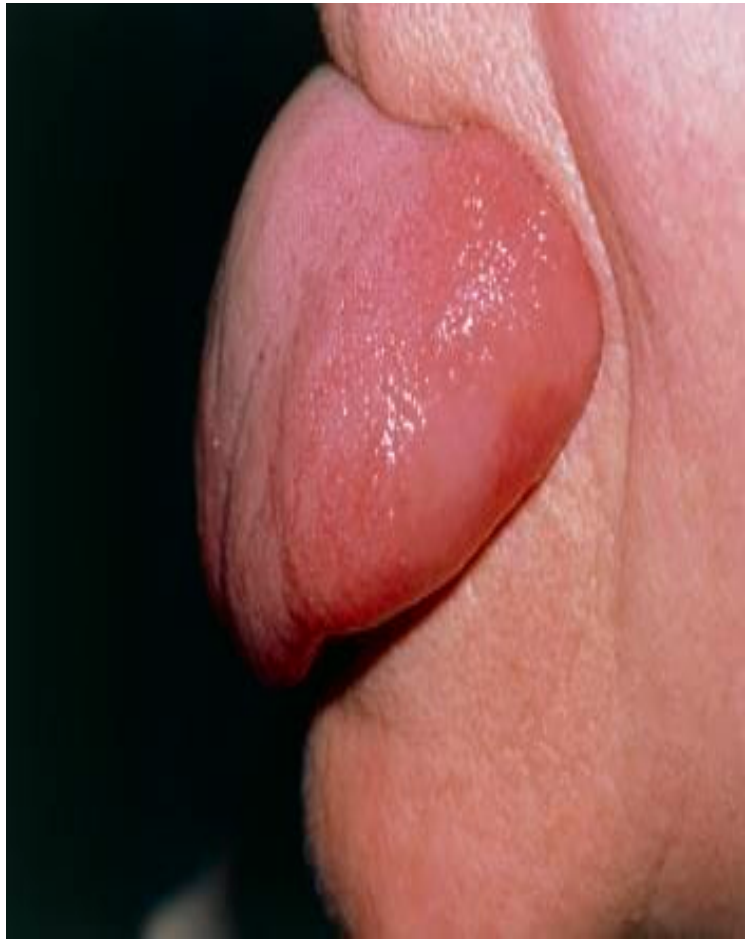
1. affects young people and comes in the form of severe attacks affecting the skin and mucous membranes
2. Deficiency in C_1 esterase inhibitor
3. Treated with danazol (increases C_1INH and C_4 levels in the blood), fresh frozen plasma, or surgery

- Tingling
- Tightness
- Pain
- Edema

Along with these four the patients might suffer from gastrointestinal disturbances and laryngeal edema.







Investigations

Detailed history and physical exams

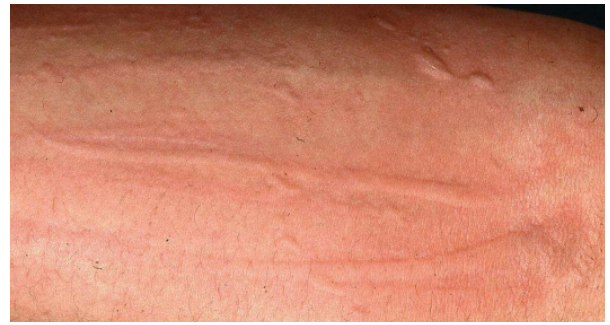
Food allergy? *(especially if recurrent & episodic)*
- Keep a diary
- More severe; allergen-specific IgE antibodies or skin prick testing

Cholinergic urticaria?
exercising for 5 minutes / placing an ice cube on skin for 20 minutes may be diagnostic

Contact urticaria?
immediate type I hypersensitivity patch

Solar urticaria?
Solar simulator

Physical urticaria
- Dermographism



Hereditary angioedema?
Low complement C_3 and C_1 esterase

Urticarial vasculitis?
Skin biopsy (histology):
Urticaria -> dermal edema and VD
Urticarial vasculitis -> cellular infiltrate of lymphocytes, PMNs, histiocytes

Management

Avoid the triggers that cause the urticaria

In severe refractory cases:

1. **A high dose of a single agent of the antihistamines for example Fexofenadine**
2. **A synergistic combinations of H_1-receptor blockers, H_2-receptor blockers, and leukotriene receptor antagonists**

Oral corticosteroids can help in the case of very severe eruptions particularly those associated with urticarial vasculitis or angioedema

Antihistamines as the mainstay of treatment

patients at a significant risk of severe life-threatening urticaria/angio-oedema with respiratory distress are advised to carry a pre-assembled syringe and needle (EpiPen® or Anapen®) to inject adrenaline intramuscularly when they deal with an unexpected attack

Omalizumab was proven to be of massive benefit in both CSU and chronic inducible urticaria (CindU) as it induces complete remission in 83% of CSU and in 70% of CindU following 9 months of treatment

Chapter 5 | ABC of Dermatology

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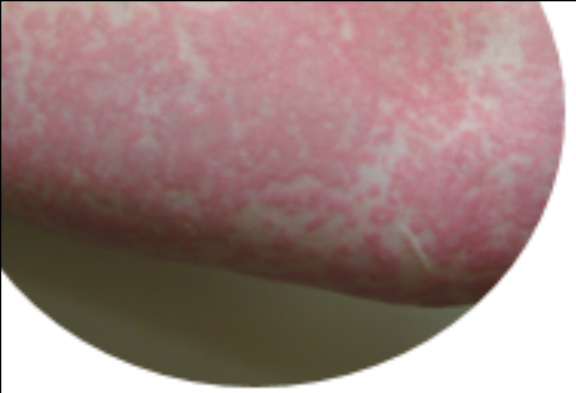

Thank you