

# Scarlet Fever

Presented By : Diana Abu-Dayeh



*Stannett*

Über die  
Nierenveränderungen bei Scharlach.



INAUGURAL-DISSERTATION  
zur  
ERLANGUNG DER MEDICINISCHEN DOCTORWÜRDE  
vorgelegt der  
HOHEN MEDICINISCHEN FACULTÄT  
der  
ALBERT-LUDWIGS-UNIVERSITÄT ZU FREIBURG I. B.  
von  
OTTO KALISCHER,  
approb. Arzt  
aus  
Berlin.



Freiburg in Baden.  
Buchdruckerei Hch. Epstein.  
1891.

**MILK**



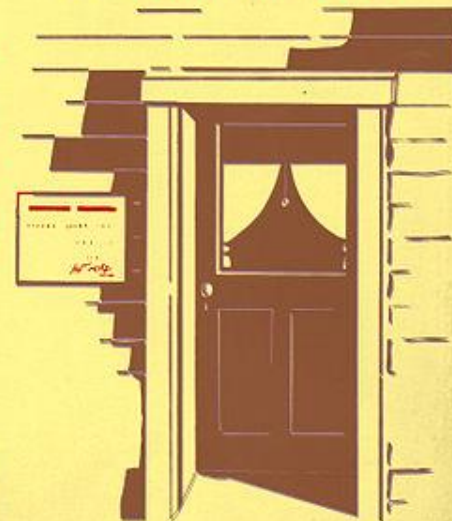
**TRUCKERS  
DO NOT !**

**PICK UP MILK AT  
FARMS WHERE  
THERE ARE CASES  
OF DIPHTHERIA**

**SCARLET FEVER  
INFANTILE PARALYSIS  
SPINAL MENINGITIS  
SMALLPOX TYPHOID**

*Report all  
cases on your  
route to ....*

**FOOD and DRUG  
ADMINISTRATION  
ROOM 11-CITY HALL  
CLEVELAND, O., NA 4600**





*Kalischer*

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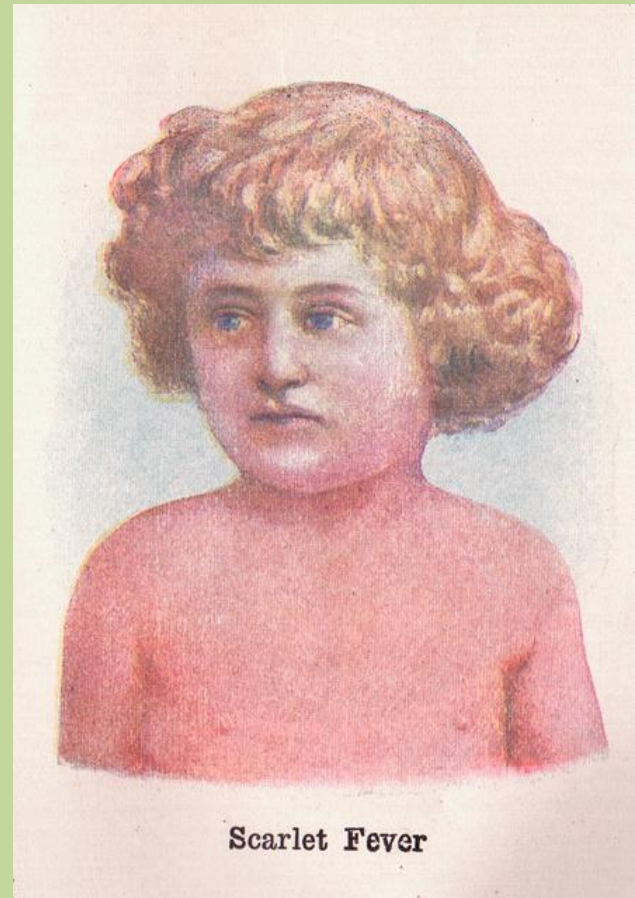
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Scarlet Fever

Otto Kalischer wrote a doctoral thesis on scarlet fever in 1891.

# MILK

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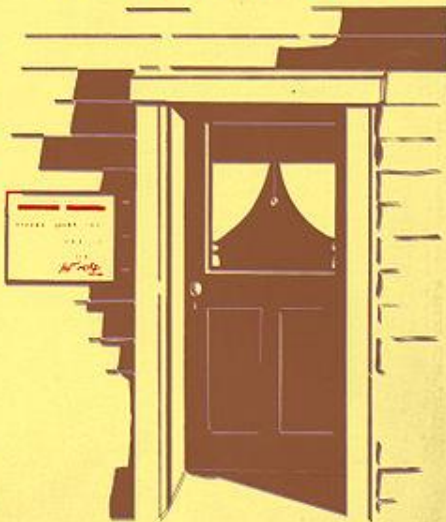


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OHIO  
WPA ART PROGRAM



A 1930s American poster attempting to curb the spread of such diseases as scarlet fever by regulating milk supply.



# *What is scarlet fever?*

- Scarlet fever A (aka . Scarlatina) is an acute infectious disease
- Called scarlet fever because of red skin rash that accompanies it

## *Whom does it affect?*

- Affect people of all ages
- Most often seen in children (between 6 and 12)

# *General facts*

- Scarlet fever is almost identical to streptococcal pharyngitis
- Commonly called strep throat
- Is frequently referred to as “strep throat with a rash”
- Major difference: scarlet fever bacterium gives rise to an antigen called the erythrogenic (“redness-producing”) toxin, which is responsible for the characteristic rash

# *What is it caused by ?*

- Caused by group A hemolytic streptococcal bacteria, in particular *Streptococcus pyogenes*



Streptococcus pyogenes



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Han SN.

*Streptococcus pyogenes*

# *What is it caused by?*

- Caused by group A hemolytic streptococcal bacteria, in particular *Streptococcus pyogenes*
- Belong to Group A, Hemolytic streptococcus B  
Gram(+) 0.6-1.0um in diameter
- Culture:
  - grow in media contained blood

# *What is it caused by? (cont.)*

- Group:
  - depend on the different somatic polysaccharide Ag in cell wall
  - bacteria are divided into 19 groups (A-U, no I and J)
  - group A is major
- Serum type:
  - group A is divided into 80 types according to the protein M on surface



# *What is it caused by? (cont.)*

- Resistance:
  - weak resistance
  - sensitive to heat, drying, common disinfectant
  - live in sputum and pus for several weeks

# *How do we get the infection?*

- Main sources of infection are the noses and throats of infected persons, who frequently spray droplets into the air by sneezing or coughing (airborne infection)
- Bacteria can also be transmitted indirectly by contact with contaminated objects or the unwashed hands of an infected person (smear infection)

# *What are the symptoms of “Scarlet Fever”?*

- The incubation period of bacterium: between 1 – 7 days
- Begins with a sudden onset of fever, vomiting, and severe sore throat
- Alongside child usually develops a headache, chills and weakness

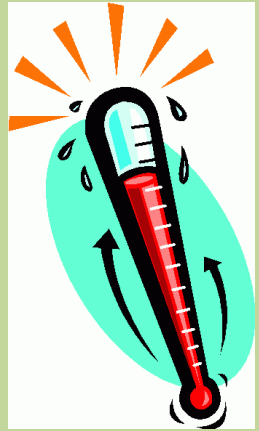




- Between 12 and 24 hours after the onset of fever, the typical scarlet rash appears. Occasionally the child complains of severe abdominal pain.

# *What are the symptoms of “Scarlet Fever”? (cont.)*

- Typical case: temperature rises to 39.5 °C (103°F) or higher
- Red and sore throat
- Tonsils are enlarged, reddened, and covered with patches of exudates
- Glands under the angles of the jaw become swollen and tender





- Tongue changes its appearance as the disease progresses
  - Start: tip and edges are reddened, the rest of the tongue has a whitish appearance





- 3<sup>rd</sup> or 4<sup>th</sup> day: white coat has peeled off, and the tongue then develops a red “strawberry” appearance

# *What are the symptoms of “Scarlet Fever”? (cont.)*

- Scarlet fever rash appears shortly after the fever
- Skin is covered with tiny red spots that blanch on pressure and has a rough, sandpaper-like texture



- This scarlet rash usually covers the entire body except for the area around the mouth, which remains pale



# *What are the symptoms of “Scarlet Fever”? (cont.)*

- Most characteristic feature: desquamation (peeling)
- Occurs at the end of the first week
- Desquamating skin comes off as fine flakes like bran
- Hands and feet are usually the last to desquamate—not until the 2<sup>nd</sup> or 3<sup>rd</sup> week of the illness



Desquamating skin at the hands.

# *What complications can occur?*

- Early complications generally occur during the first week of illness

Infection spreads:

- Inflammation of the middle ear ([otitis media](#)), the paranasal sinuses ([sinusitis](#)), or the lymph nodes of the neck

# *What complications can occur? (cont.)*

- Rare early complication: bronchial pneumonia
- Even rarer: [osteomyelitis](#) (infection of the bone), [mastoiditis](#) (infection of the bony areas behind the ears), and [septicemia](#) (blood poisoning)
- If child is adequately treated, such complications rarely develop





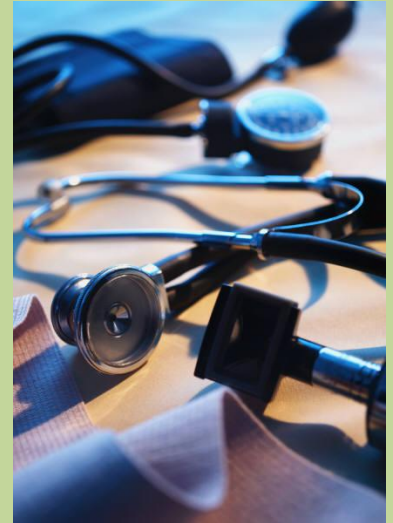
# *What complications can occur? (cont.)*

- Late complications:
  - [rheumatic fever](#) (inflammation of the heart and joints)
  - [glomerulonephritis](#) (inflammation of the urine-producing structures of the kidney)
- Probably caused by an autoimmune reaction brought on by the streptococci or some of their by-products
- Onset: 1 – 2 weeks for glomerulonephritis and 2 – 4 weeks for rheumatic fever
- May follow a mild streptococcal infection just as often as a severe one



# *How to diagnose “Scarlet Fever”?*

- In most cases: diagnosed by the typical signs and symptoms alone
- Most useful confirmation: by throat culture
- Group A hemolytic streptococci can be isolated from the throat or nose by using a cotton swab
- Results can be determined after only 24 hours of incubation



# *How to diagnose “Scarlet Fever”? (cont.)*

- Blood samples can be checked for elevated WBCs levels or for antibodies to various of the toxins given off by the streptococci
- These tests are rarely needed for diagnosis



# *How to treat “Scarlet Fever”?*

- A number of antibiotics are effective in the treatment of group A streptococcal infections
- Penicillin remains the drug of choice
- Given by injection or by mouth





# *How to treat “Scarlet Fever”? (cont.)*



- Treatment consistently results in rapid reduction of fever and improvement in well-being
- Aim: maintain an adequate blood level of penicillin against the bacteria for at least 10 days of treatment
- Danger: child feeling better after only two or three days, treatment is often stopped too soon

# *How to treat “Scarlet Fever”? (cont.)*

- For this reason doctors occasionally treat patients by injection of a single long-acting penicillin preparation
- For children who are allergic to penicillin, there are a number of other equally effective antibiotics (e.g. erythromycin)

