

Gek van de Streptococcen



Figure 53.3 Conjunctivitis.

Wat weten we van Streptococcen?

- Wat is de beste test om Streptococ.infecties aan te tonen?
- Wat is het belangrijkste in de serologie om Streptocococeninfecties vast te stellen?
- Wat zijn OCD, PANDAS, CHOREA, TIC ?
- Wat zijn niet-pyogene complicaties van Streptocococen infecties?

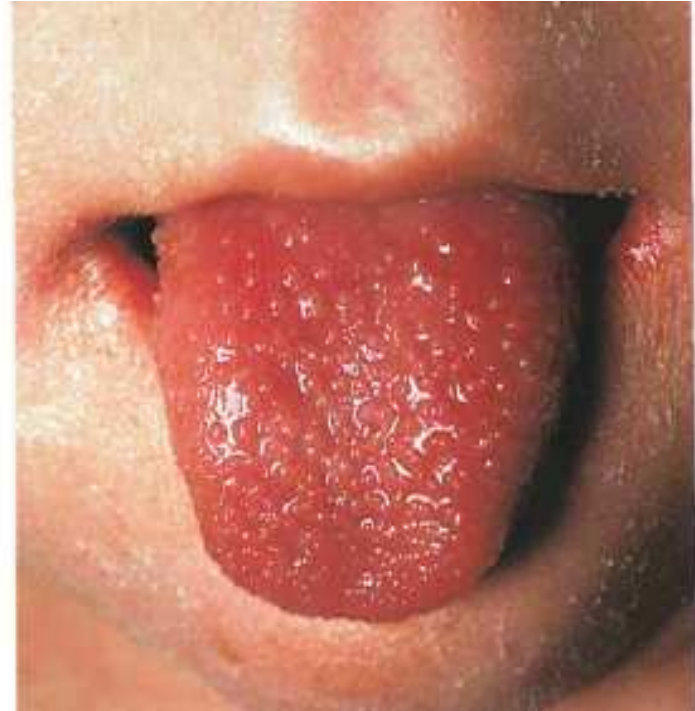
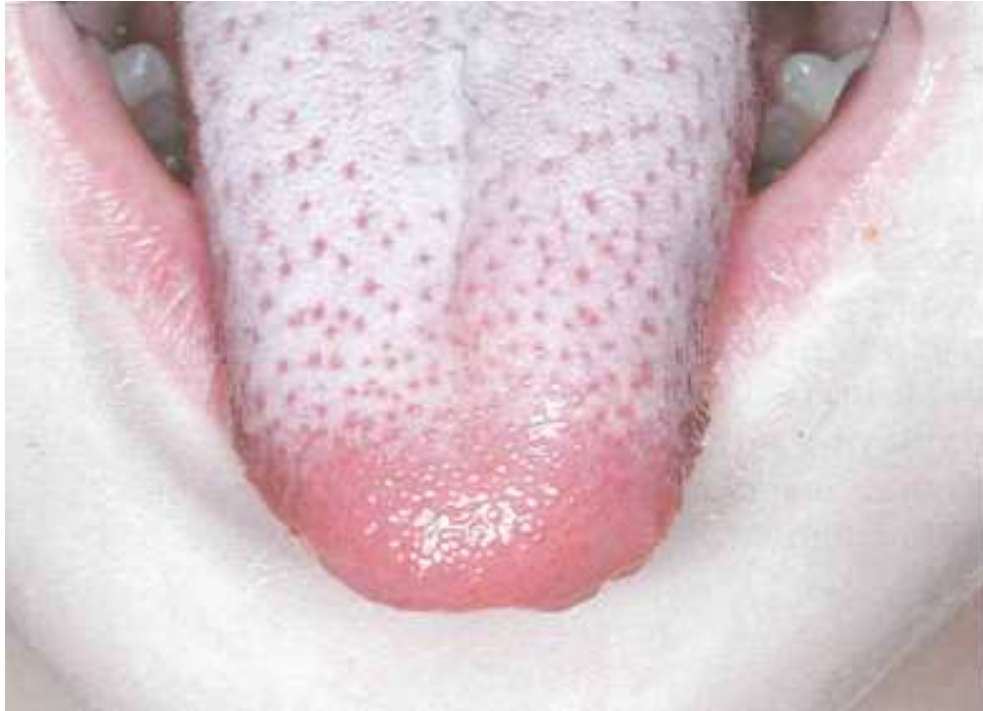
Wat is dit?

Erysipelas, impetigo, cellulitis, ecthyma

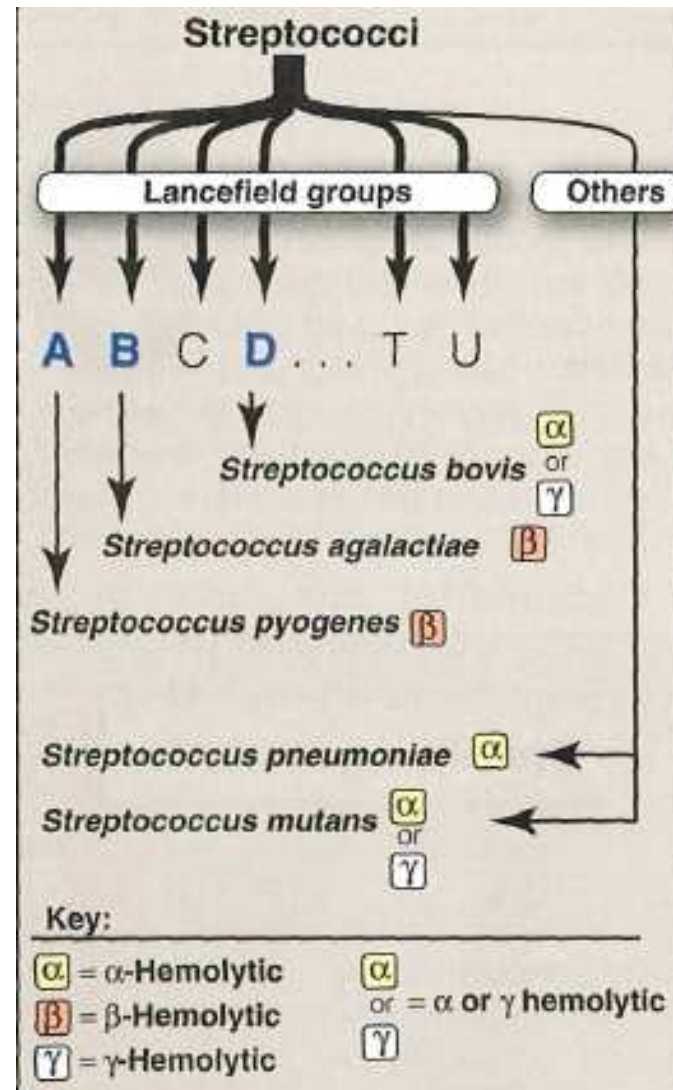


Wat is dit?

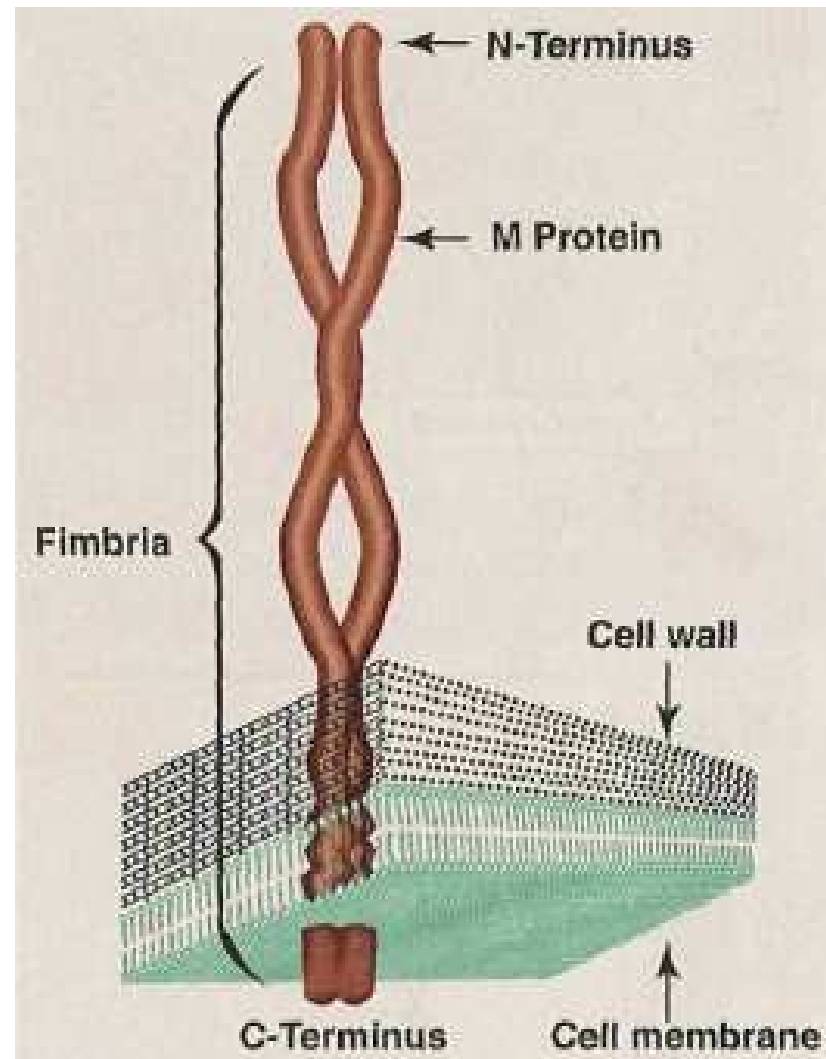
Frambozen, aardbeien, gist, Pfeiffer
tong



Indeling Streptococci



Bouw van Streptococcen



Streptococccen infecties

- Pyogene infecties van keel en huid
 - Complicaties van pyogene infecties

Niet-pyogene infecties

door toxinen

door moleculaire mimicry !!!

Streptococcal infections

Gram (+) cocci

Streptococcus species

- Gram-positive
- Ovoid to spherical in shape, occurring as pairs or chains
- Nonmotile, catalase-negative
- Most are facultative anaerobes, but grow fermentatively even in the presence of oxygen
- Culture on blood agar

α-Hemolytic streptococci on blood agar

Streptococcus pyogenes (Gram stain)

β-Hemolytic streptococci on blood agar

Streptococcus pyogenes (Group A, β-hemolytic)

- Acute pharyngitis or pharyngotonsillitis
- Acute rheumatic fever
- Erysipelas
- Puerperal sepsis
- Invasive group A streptococcal (GAS) disease

PENICILLINS 1 Penicillin G¹

CEPHALOSPORINS
TETRACYCLINES
AMINOGLYCOSIDES

MACROLIDES 2 Clarithromycin or azithromycin²

FLUOROQUINOLONES
OTHER

¹*S. pyogenes* has not acquired resistance to penicillin G.

²For penicillin-allergic patient

Streptococcus agalactiae (Group B, β-hemolytic)

- Meningitis and septicemia in neonates
- Endometritis
- Septicemia or pneumonia in individuals with impaired immune systems
- Diabetic foot infections

PENICILLINS 1 Penicillin G³

CEPHALOSPORINS
TETRACYCLINES

AMINOGLYCOSIDES 2 An aminoglycoside⁴

MACROLIDES
FLUOROQUINOLONES
OTHER

³All isolates remain sensitive to penicillin G and ampicillin.

⁴In life-threatening infections, an aminoglycoside can be added to the regimen.

Streptococcus pneumoniae (α-hemolytic)

- Acute bacterial pneumonia
- Otitis media
- Meningitis

PENICILLINS 1 Penicillin G⁵

Cephalosporins 1 Cefotaxime
1 Ceftriaxone

CEPHALOSPORINS
TETRACYCLINES
AMINOGLYCOSIDES
MACROLIDES
FLUOROQUINOLONES

OTHER 2 Vancomycin⁶

⁵Penicillin G has been the drug of choice, but resistant strains are regularly seen.

⁶Most resistant strains remain sensitive to vancomycin.



Facial erysipelas



Impetigo



Streptococcal pharyngitis

Tonsillitis



Fig. 1.29 Streptococcal tonsillitis. Intense erythema of the tonsils and surrounding tissue with a creamy-yellow exudate.

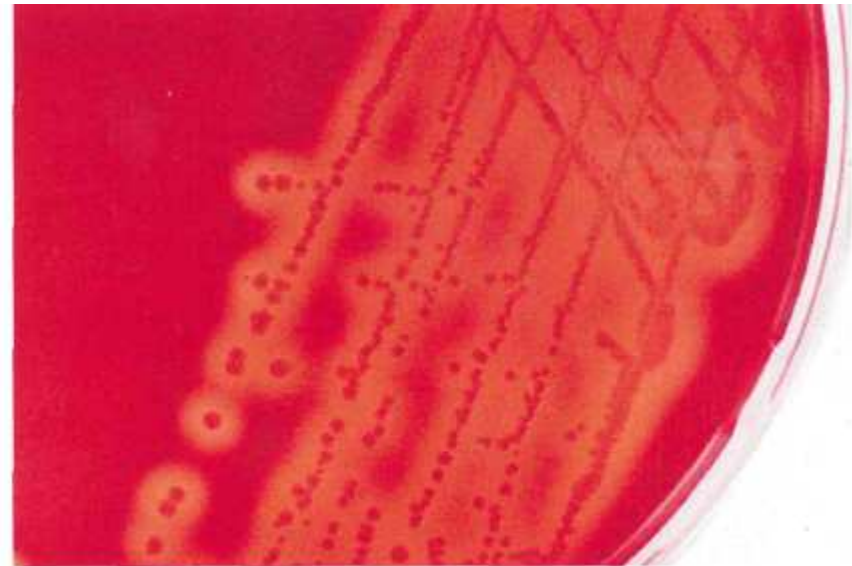


Fig. 1.30 *Streptococcus pyogenes* on a blood agar plate. Small colonies are surrounded by a clear zone of β -haemolysis.

Erysipelas



Fig. 10.23 Erysipelas. Well demarcated area of erythema and induration on the forehead.



Fig. 10.24 Erysipelas. A typical butterfly-wing rash on the cheeks. Both eyes are closed by oedema of the lids.

Impetigo



Fig. 10.7 Streptococcal impetigo. The cluster of superficial vesicles has broken to form a raw weeping surface, soon to be covered by a yellow crust

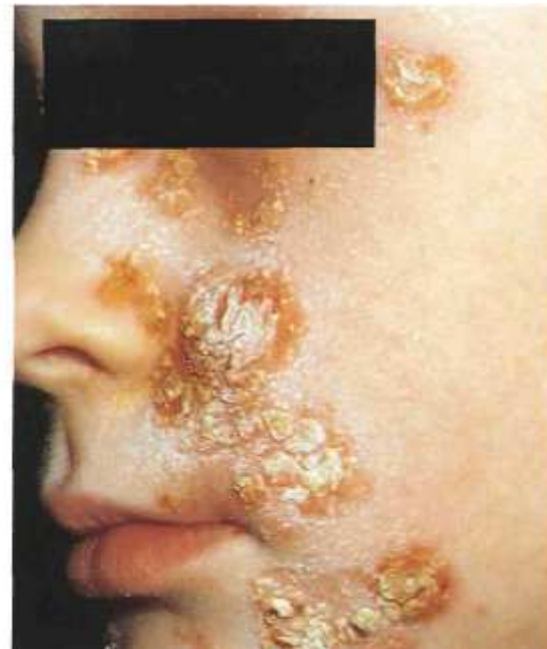


Fig. 10.8 Impetigo. These characteristic yellow crusts are often the main feature on presentation.

Ernstige Impetigo



Fig. 10.9 Impetigo. Severe streptococcal impetigo crusts over the face of a young girl. Courtesy of Prof. A. M. Geddes.



Fig. 10.10 Impetigo. Adherent dark yellow/brown crusts of impetigo on fingers. By courtesy of Dr. E. Sahn.



Fig. 10.11 Bullous impetigo. Lesions on finger and wrist. By courtesy of Dr. E. Sahn.



Fig. 10.12 Impetigo. Multiple raw areas following incorrect treatment of the initial areas with steroid-containing cream. By courtesy of Prof. A. M. Geddes.



Fig. 10.13 Ecthyma. Small punched out lesions over the shin of an elderly woman. Group A streptococci were isolated.

Cellulitis



Fig. 10.15 Cellulitis. Erythematous area with ill-defined margin over lower limb.



Fig. 10.16 Cellulitis. A severe, rapidly developing infection of the subcutaneous tissue of the leg with large bullae and scabs.

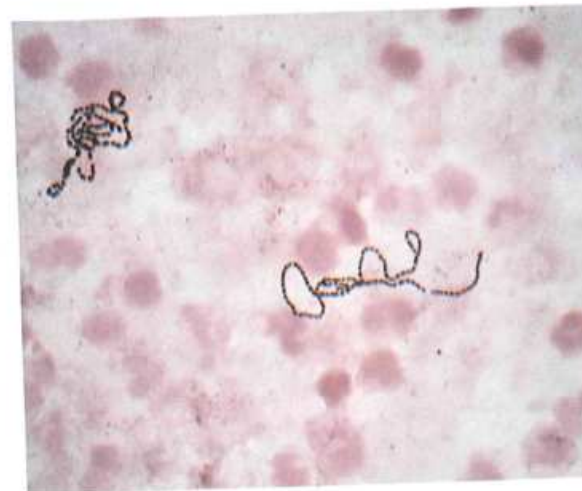


Fig. 10.18 Chains of streptococci among cellular debris in pus. Gram's stain. E

Van Cellulitis naar Ecthyma



Fig. 10.14 Ecthyma. Lesions due to streptococcal infection over the scalp of an African child.



Fig. 10.15 Cellulitis. Erythematous area with ill-defined margin over lower limb.



Fig. 10.16 Cellulitis. A severe, rapidly developing infection of the subcutaneous tissues of the leg with large bullae and scabs.

Fasciitis necroticans

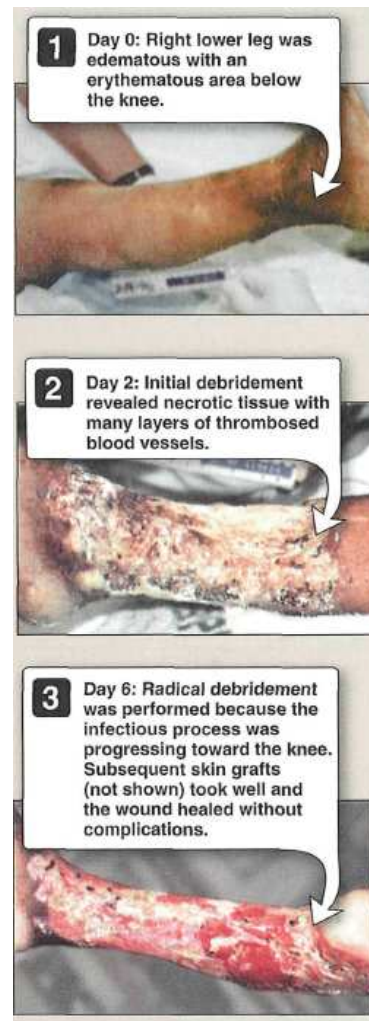
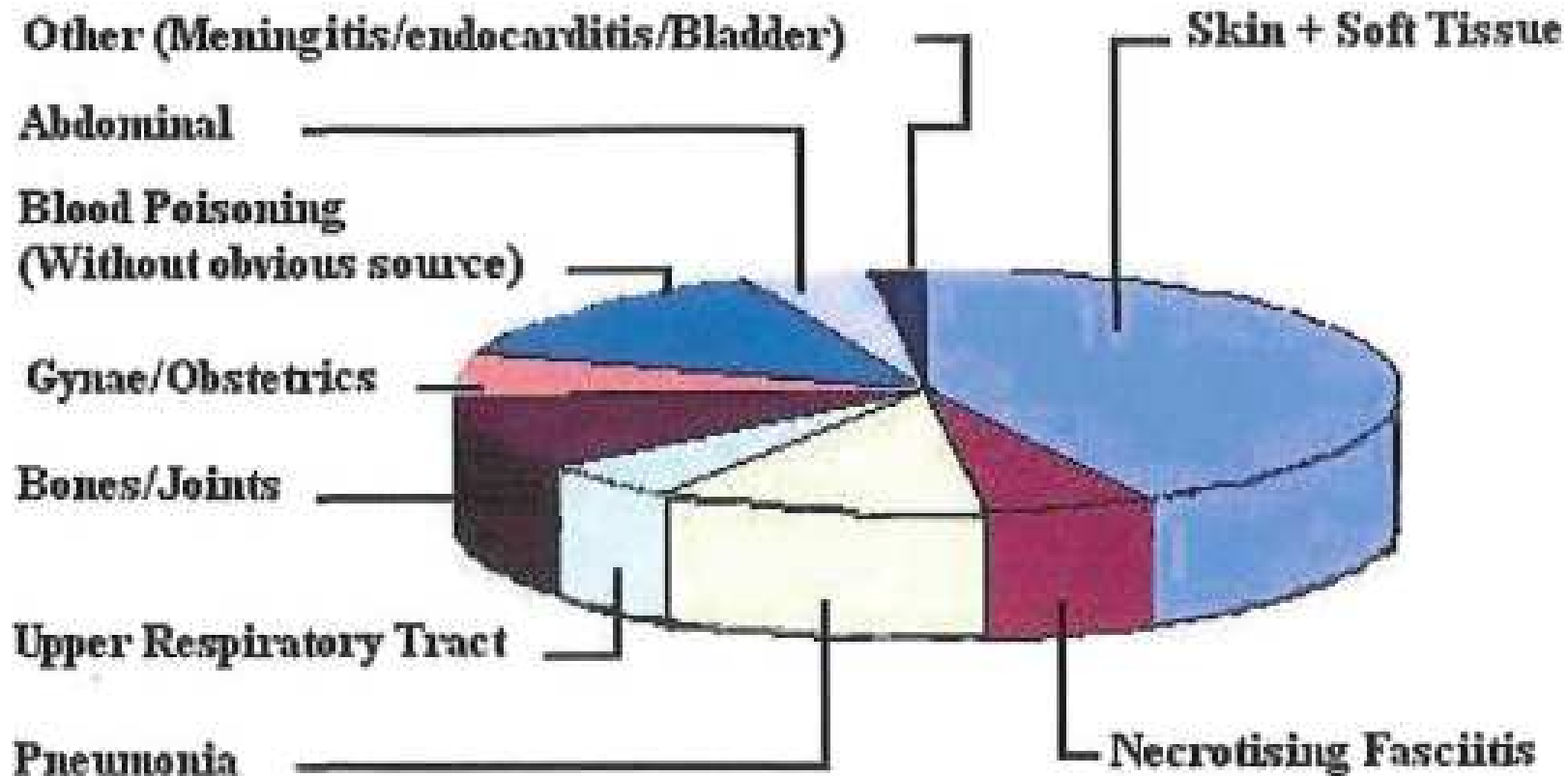


Figure 9.5
Necrotizing fasciitis in a 59-year-old woman.

Pyogene infecties Streptococ A +COMPLICATIES



Strep klinische beelden en diagnostiek

KLINISCH BEELD

- Faryngitis
- Scarlatina
- Sepsis, pneumonie...
- Impetigo
- Puerperale sepsis
- Cellulitis, necrotiserende fasciitis, pyomyositis
- Erysipelas
- Acuut reuma
- Poststreptococcon glomerulonefritis
- Erythema nodosum, EEM

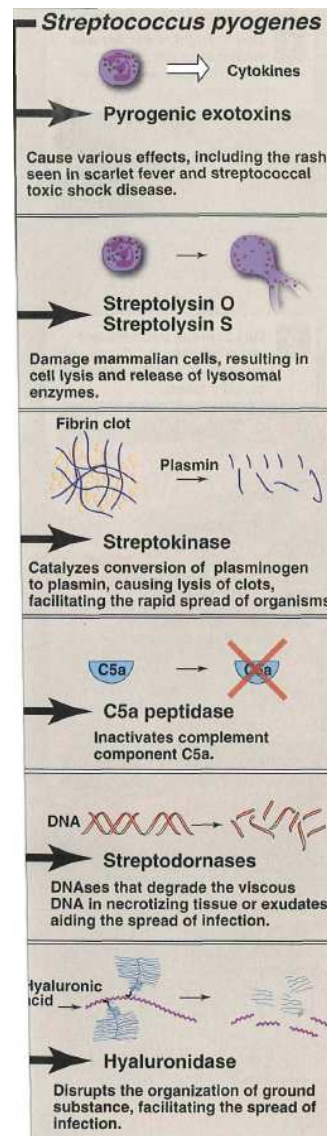
DIAGNOSTIEK

- Kweek of sneltest (+serologie)
- Kweek (+serologie)
- Kweek
- Kweek
- Kweek
- Kweek
- Serologie
- Serologie
- Serologie
- Serologie

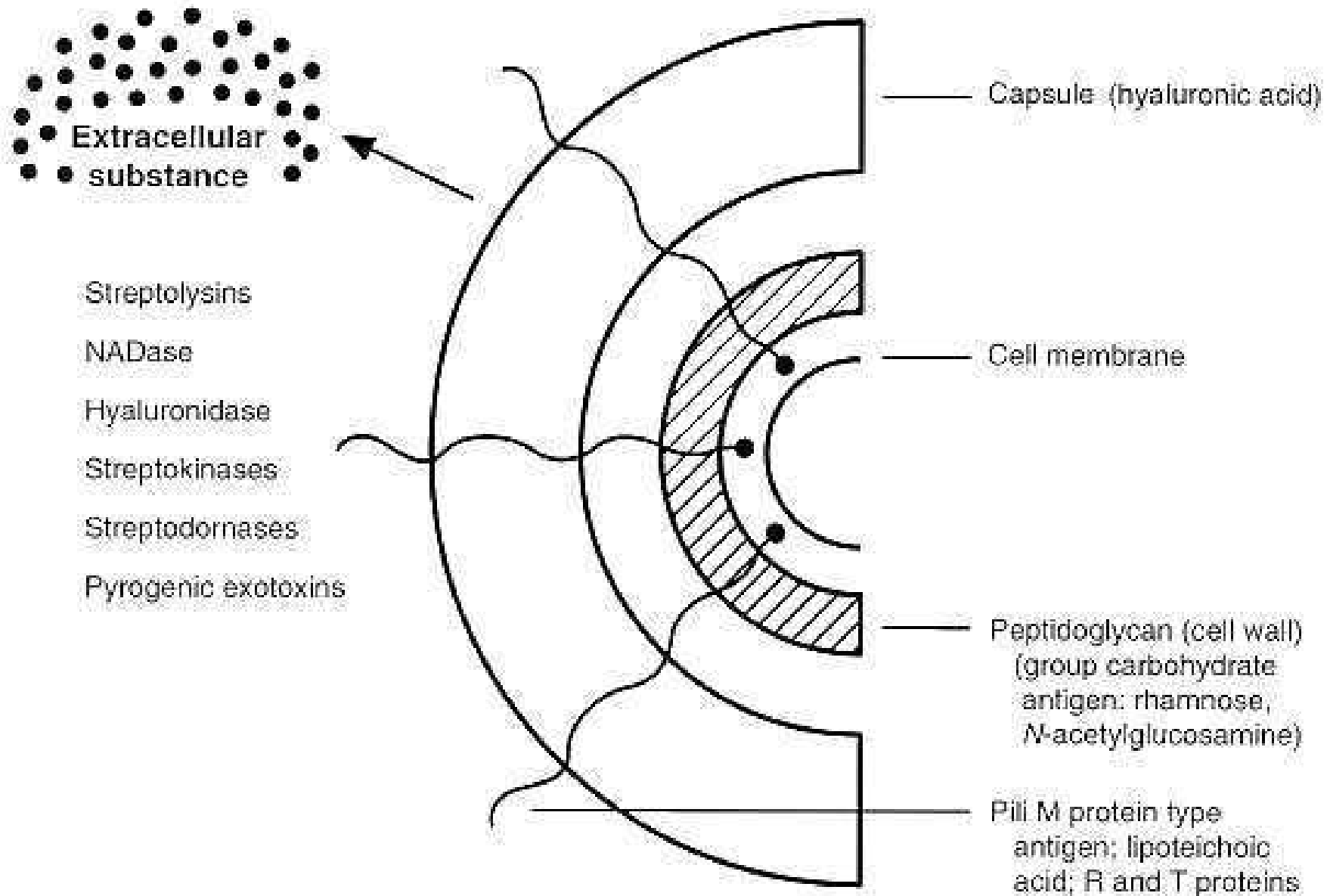
Niet-pyogene infecties

- Toxinen of antigenen als primaire oorzaak
- Moleculaire mimicry

Toxinen en Streptococcen



Streptococcen antigenen



Scarlatina



Fig. 10.27 Scarlatina. The face appears flushed with circumoral pallor.



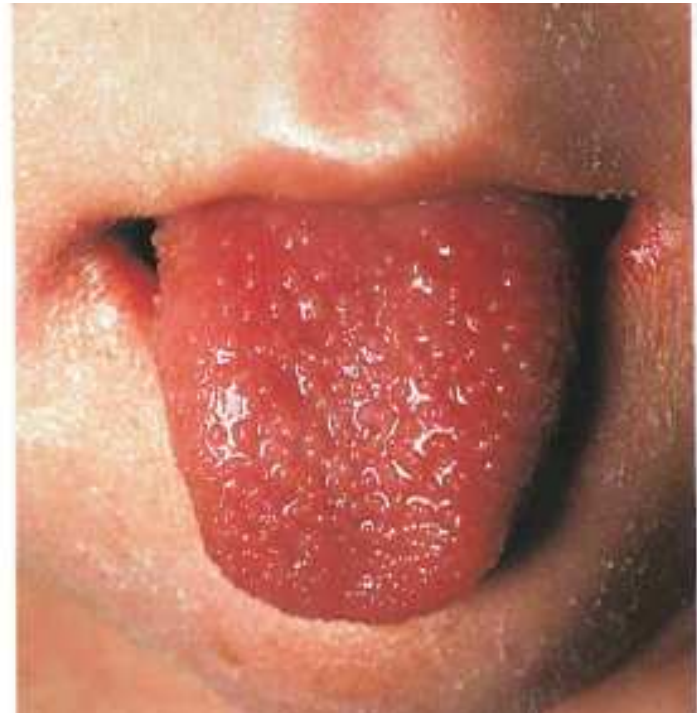
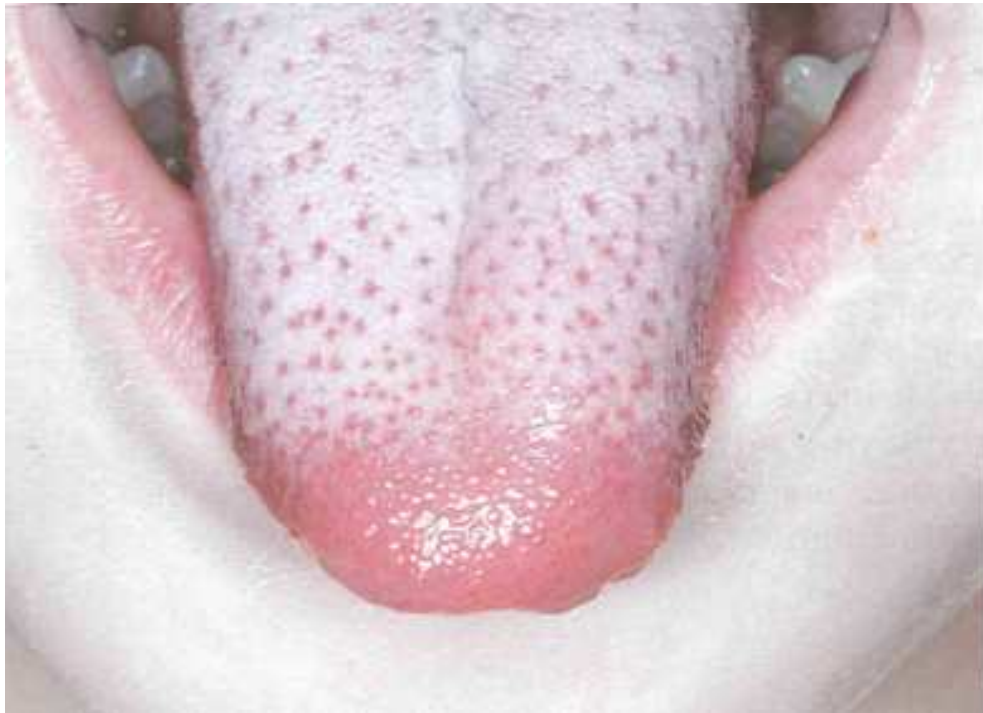
Fig. 10.28 Scarlatina. Diffuse erythematous rash showing blanching where finger pressure

Scarlatina

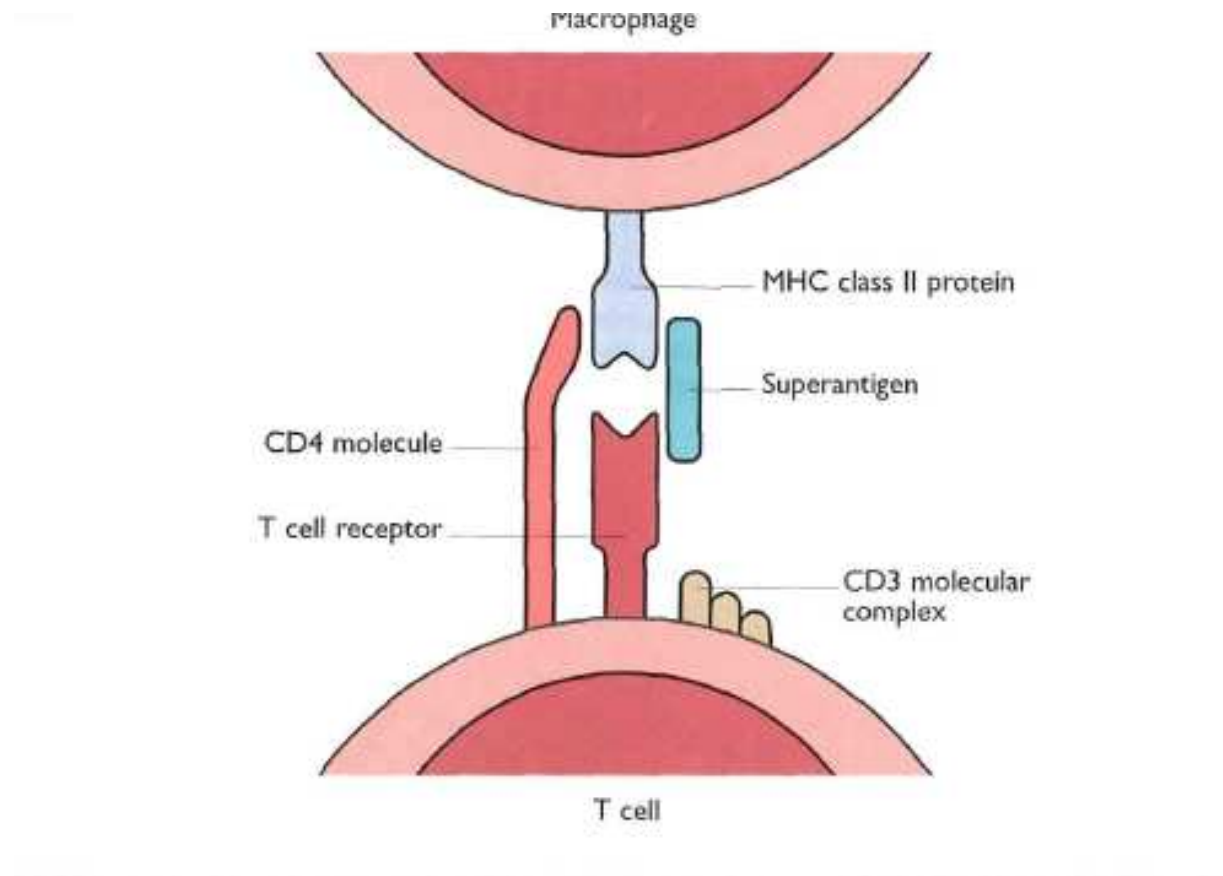


Fig. 10.29 Scarlatina. Extensive desquamation of the skin of the trunk. This may last for several weeks.

De Aardbeientong



Toxic Shock en toxinen



50 Superantigens such as pyrogenic toxin bypass the standard antigen presentation mechanism and uncontrolled cytokine release results in TSS. (TSS: toxic shock syndrome.)

Strep klinische beelden en diagnostiek

KLINISCH BEELD

- Faryngitis
- Scarlatina
- Sepsis, pneumonie...
- Impetigo
- Puerperale sepsis
- Cellulitis, necrotiserende fasciitis, pyomyositis
- Erysipelas
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- Poststreptococcon glomerulonefritis
- Erythema nodosum, EEM

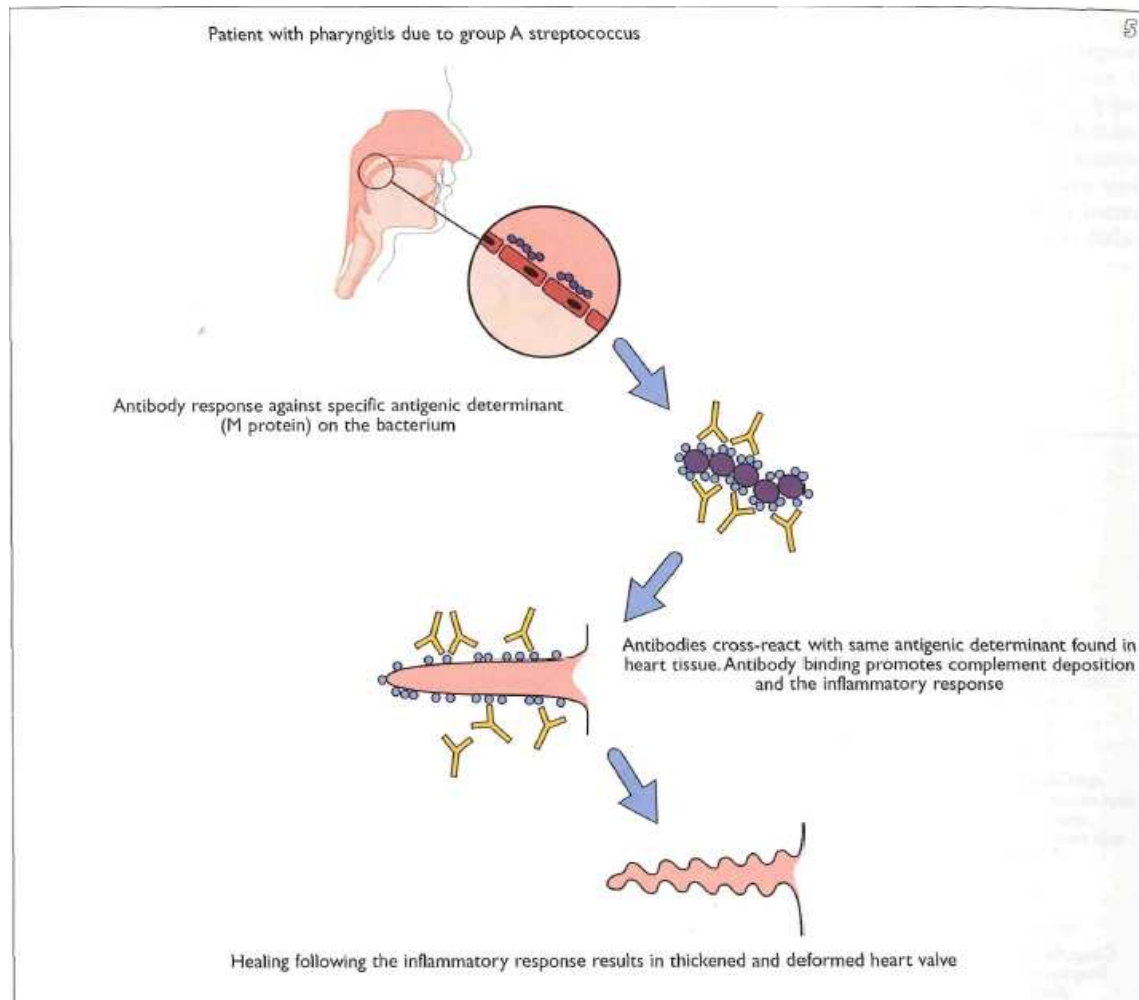
DIAGNOSTIEK

- Kweek of sneltest (+serologie)
- Kweek (+serologie)
- Kweek
- Kweek
- Kweek
- Kweek
- Serologie
- Serologie
- Serologie
- Serologie

Streptococcalinfecties

- Moleculaire mimicry

Acute Rheuma



51 Antibodies to the M protein of group A streptococcus cross-react with antigenic determinants of the host. By binding to the endothelium of the heart valves these antibodies initiate an inflammatory response. The resulting healing with fibrosis leads to abnormal valves.

Erythema nodosum



Fig. 10.105 Erythema nodosum; close-up of purpuric red nodular lesions on shin. By courtesy of Prof. A. M. Geddes.



Fig. 10.106 Erythema nodosum. Lesions are typically symmetrical over lower legs. By courtesy of Prof. A. M. Geddes.

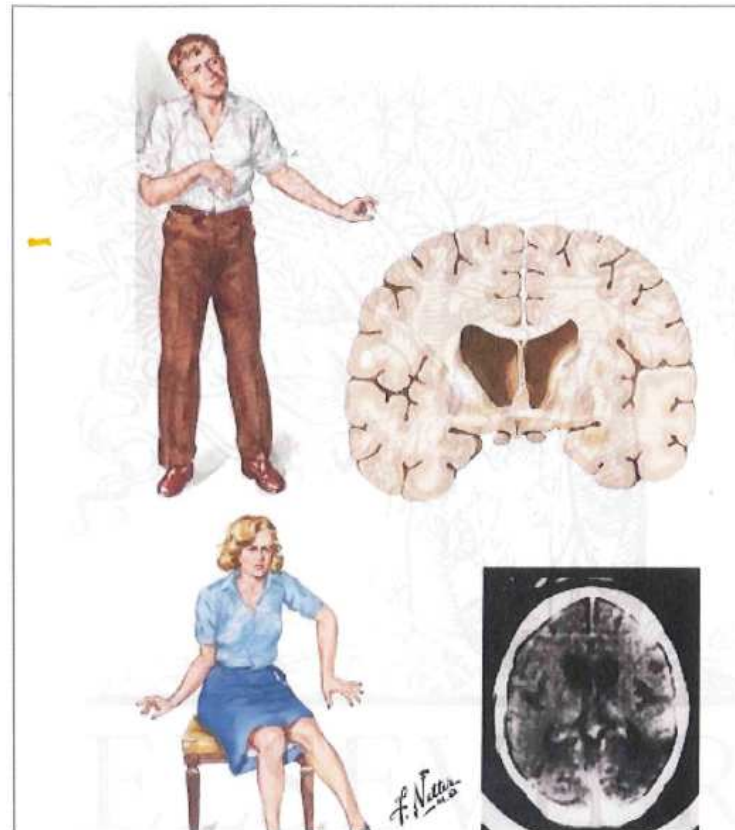
Chorea van Sydenham



CHOREA



**"BASAL GANGLIA DISEASES" "CHOREA"
"CHOREATIC DISORDERS" "SYDENHAM'S
CHOREA"**



Neuropsychiatrische beelden mogelijk na Streptococceen infecties

- Chorea als onderdeel van Ac.Rheuma
- Tics
- Obsessive Compulsive Disorder
- Tourette
- Pandalas

Tics en dwangmatig handelen



PANDA



PANDAS

WHAT THE HECK IS PANDAS?

If you didn't understand what PANDAS was when I explained it to you before, maybe this will explain it to you: **P.A.N.D.A.S.** stands for:

Pediatric

Autoimmune

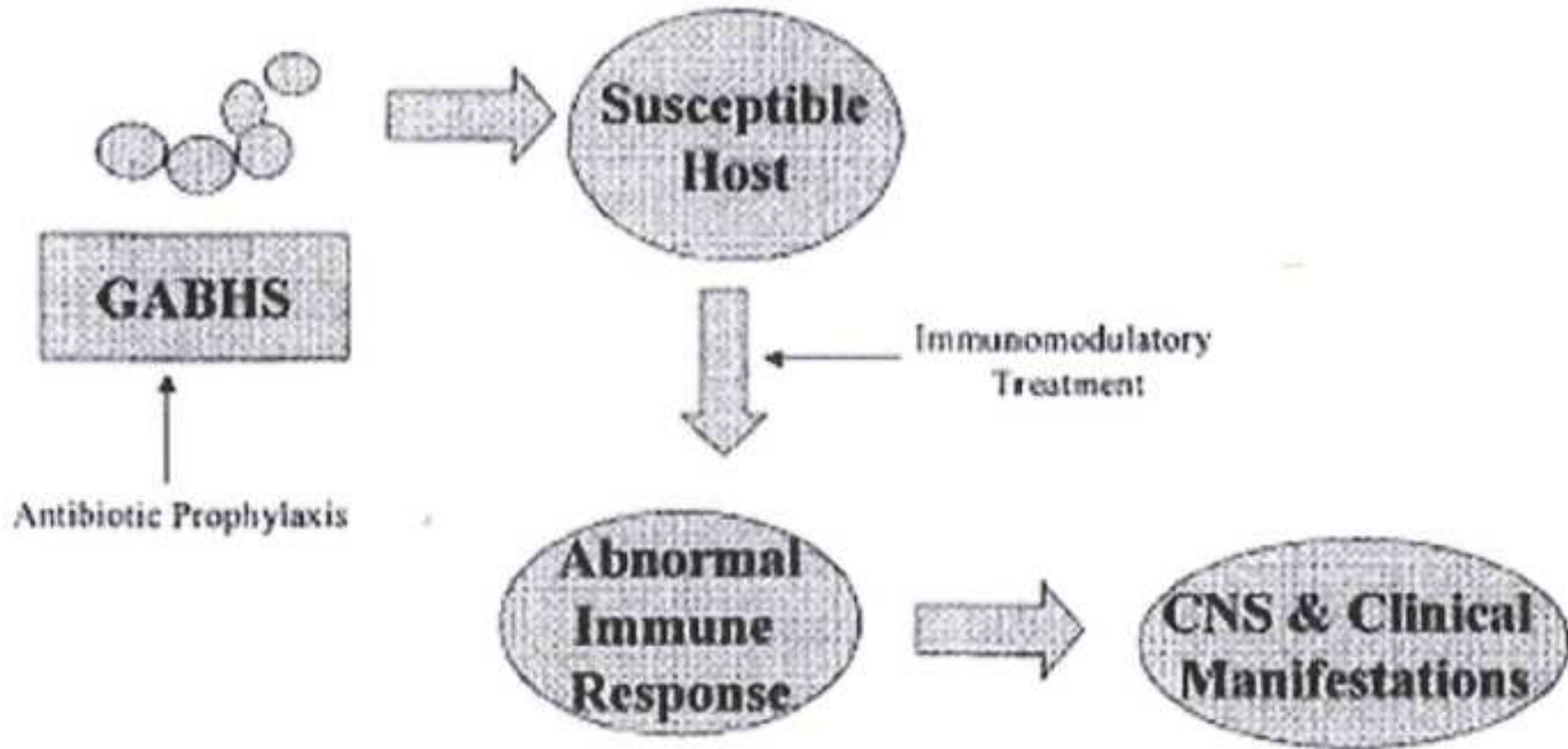
Neuropsychiatric

Disorder

Associated with

Streptococcal Infections

Pathogenesis Pandas



Wat Houdt Pandas In ?

WHY SHOULD YOU BE CONCERNED ABOUT P.A.N.D.A.S.?

People don't realize the different forms PANDAS can take, such as:

- Obsessive Compulsive Disorder (O.C.D.)
- Tourettes (tics, etc.)
- Attention Deficit Disorder and Attention Deficit Hyperactivity Disorder (A.D.D. and A.D.H.D.)
- Mood swings and mood difficulties
- Sensory Issues (sensitivity to light, sound, touch, or taste)
- Separation Anxiety
- Anorexia
- Rages and Aggressive Behavior
- Zoning out episodes
- Low tolerance for frustration
- Learning difficulties and disabilities

Komt Het Veel Voor ?



P.A.N.D.A.S. STATISTICS

Newsflash! On about.com, I found some more information about P.A.N.D.A.S. Here is some of it:

- 25% of kids with Obsessive Compulsive Disorder once had been infected by strep antibodies. That's 1 out of 4 kids with OCD.
- 0.03% of the population in general have Tourettes.
- 15% of kids with OCD have Tourettes.
- 40 to 60% of kids that have Tourettes have OCD.
- 10% of children with OCD and Tourettes have clear evidence of a trigger of strep infections. That's 1 out of 10 kids with OCD or Tourettes.

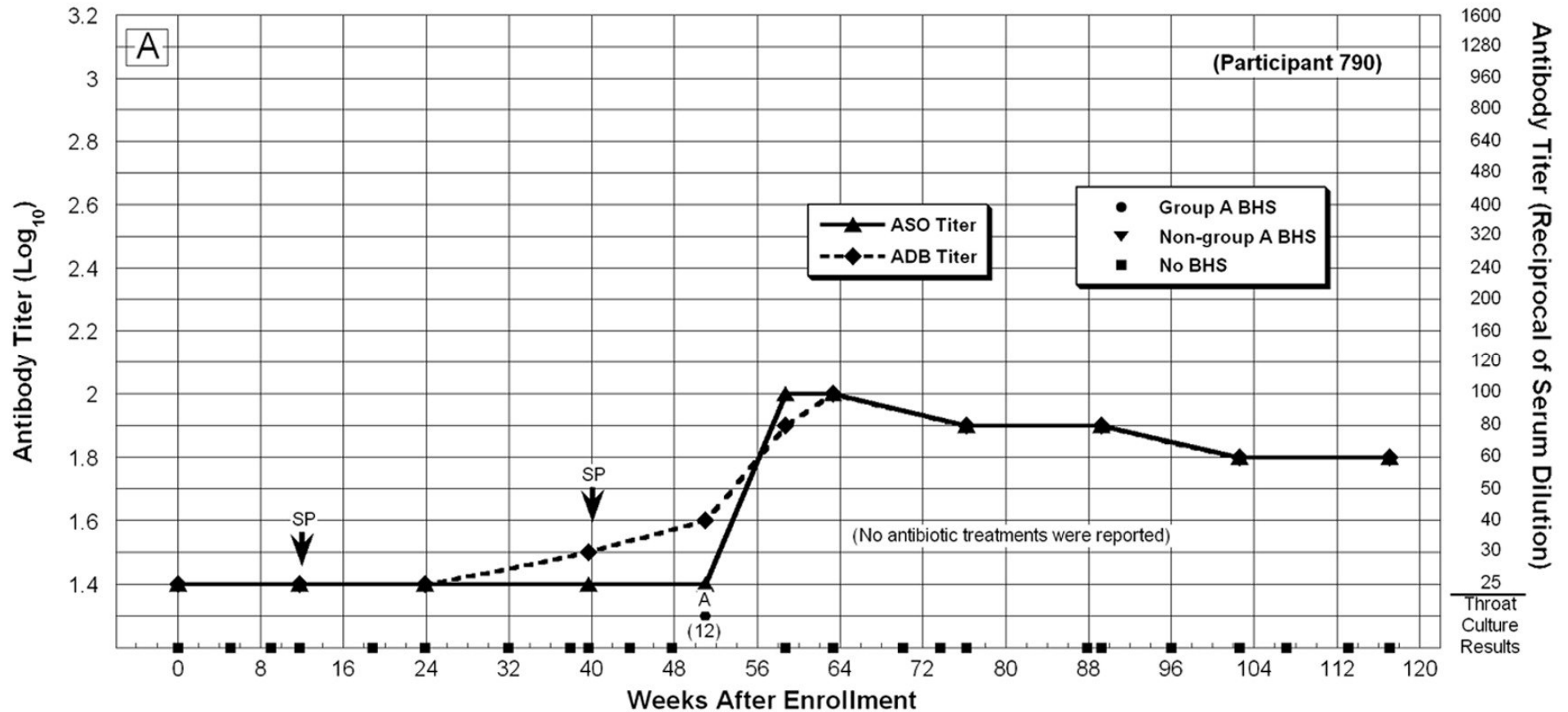
Dwangmatige afwijkingen

- 10% van de kinderen met ODC/Tourette/ Tics hebben Streptococceeninfecties hieraan voorafgaand.
- 1-2% van alle schoolgaande kinderen heeft ODC en 25% een Tic
- PANDAS zou Streptococcegerelateerde ziekte zijn
- Dragerschap GAS 7-28%
- 1/3 kinderen met keelpijn heeft GAS waarvan de helft een immunologische reactie laat zien.

SEROLOGIE en psychiatrie

- Hoe moet je het verband bewijzen?
- Met serologie, maar is die zoals we het gebruiken wel goed genoeg?

The Human Immune Response to Streptococcal Extracellular Antigens: Clinical, Diagnostic and Potential Pathogenetic Implications

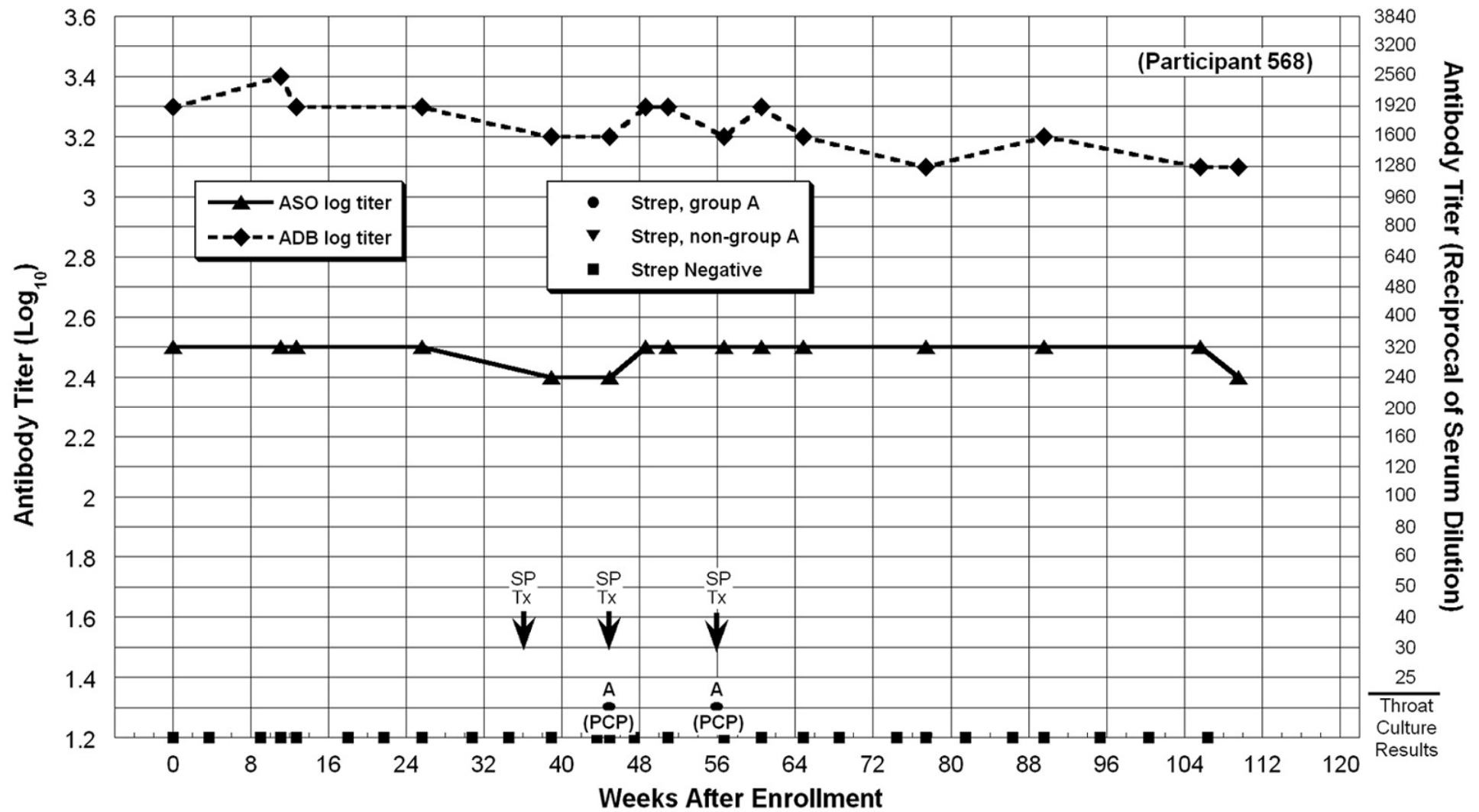


GAS faryngitis

Significante stijging in AST en ADB

Titers blijven onder de cut-off

Blijvend hoge titers in beide testen



-GAS tonsillitis zonder reactie

- Geen dragerschap met blijvend hoge titers boven de cut-off

- 54 sera met AST stijging:
 - 59% piekt onder de grenswaarde
- 51 sera met ADB titerstijging:
 - 61% piekt onder de grenswaarde
- (NB: het betrof hier niet alleen infecties maar ook acquisities)

Streptococcen (en andere) serologie:



Wat is een titerstijging ??

Conclusies 1

Streptococcenserologie

- Beperkt indicatiegebied
- 2 testen naast elkaar scoren beter
- 2 sera nodig met een interval
- Cut off waarde is weinig informatief
- Cut off afhankelijk van regio, seizoen en leeftijd
- Ook titerstijging onder de cut off is relevant
- Titer kan (ook bij niet carriers) lang hoog blijven

