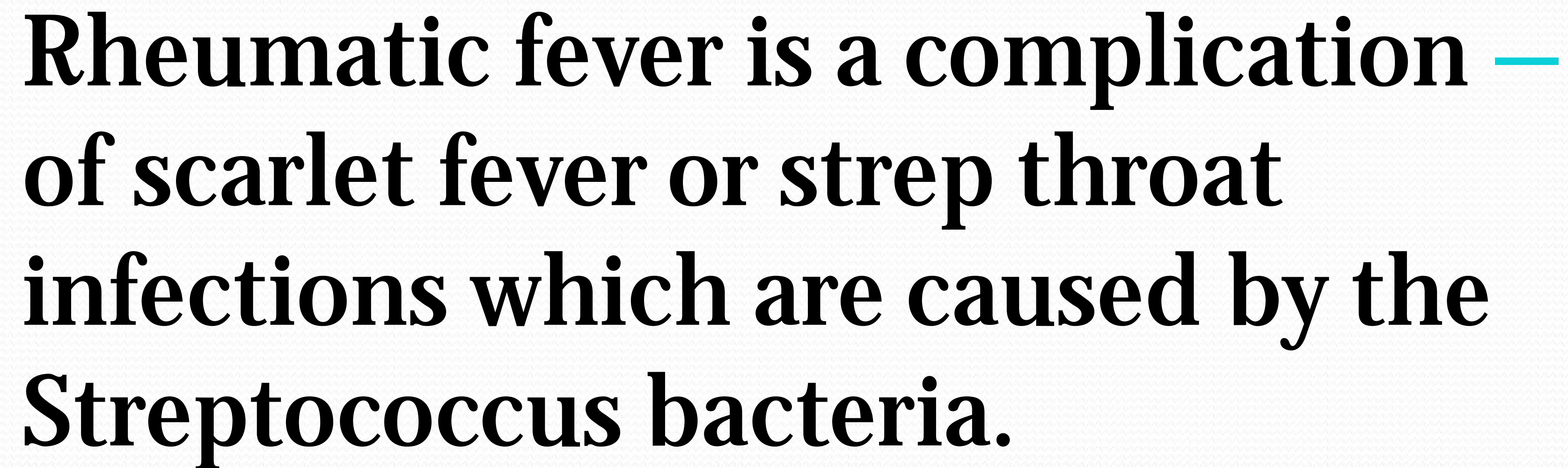
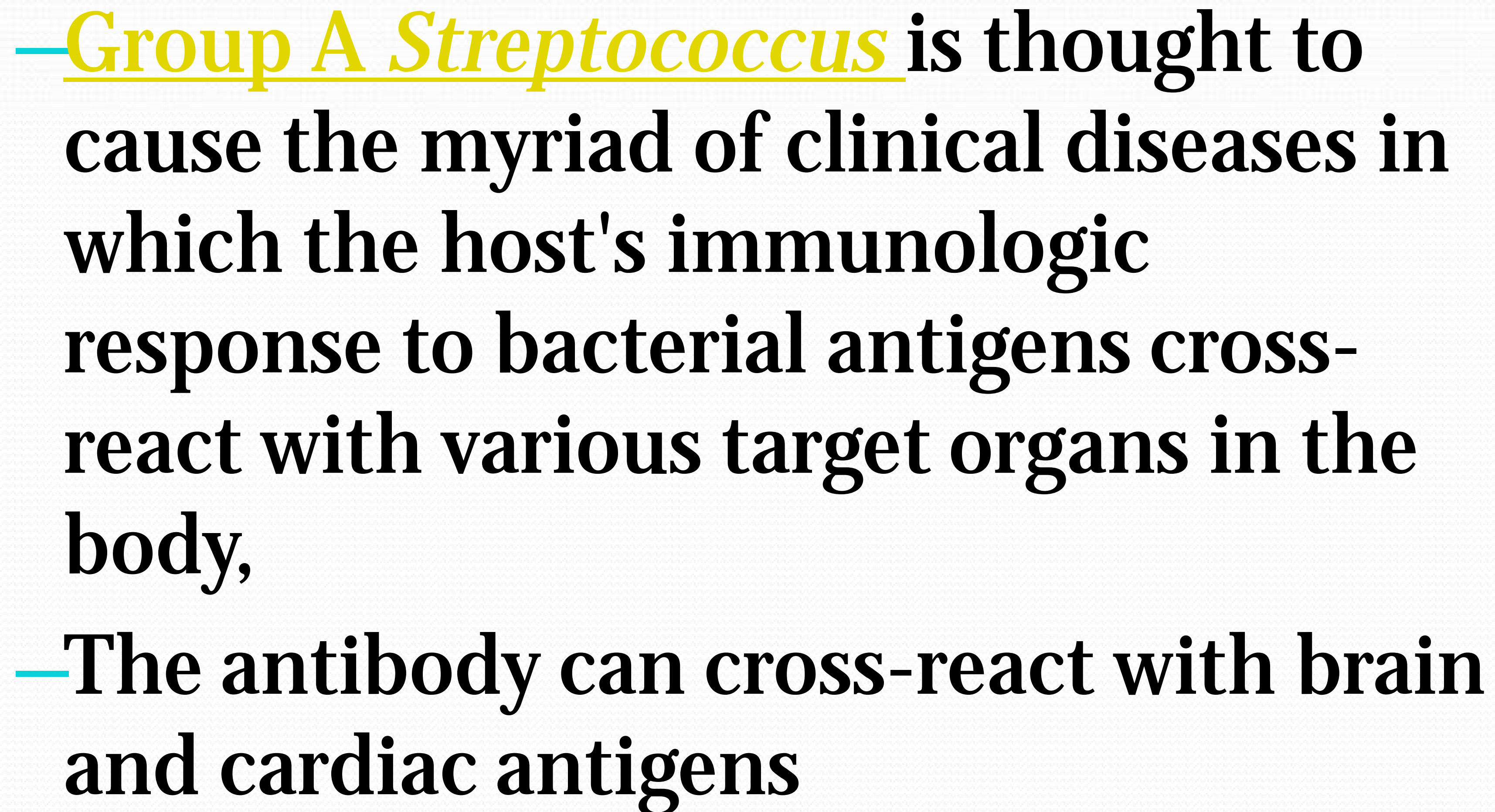
Rheumatic Fever

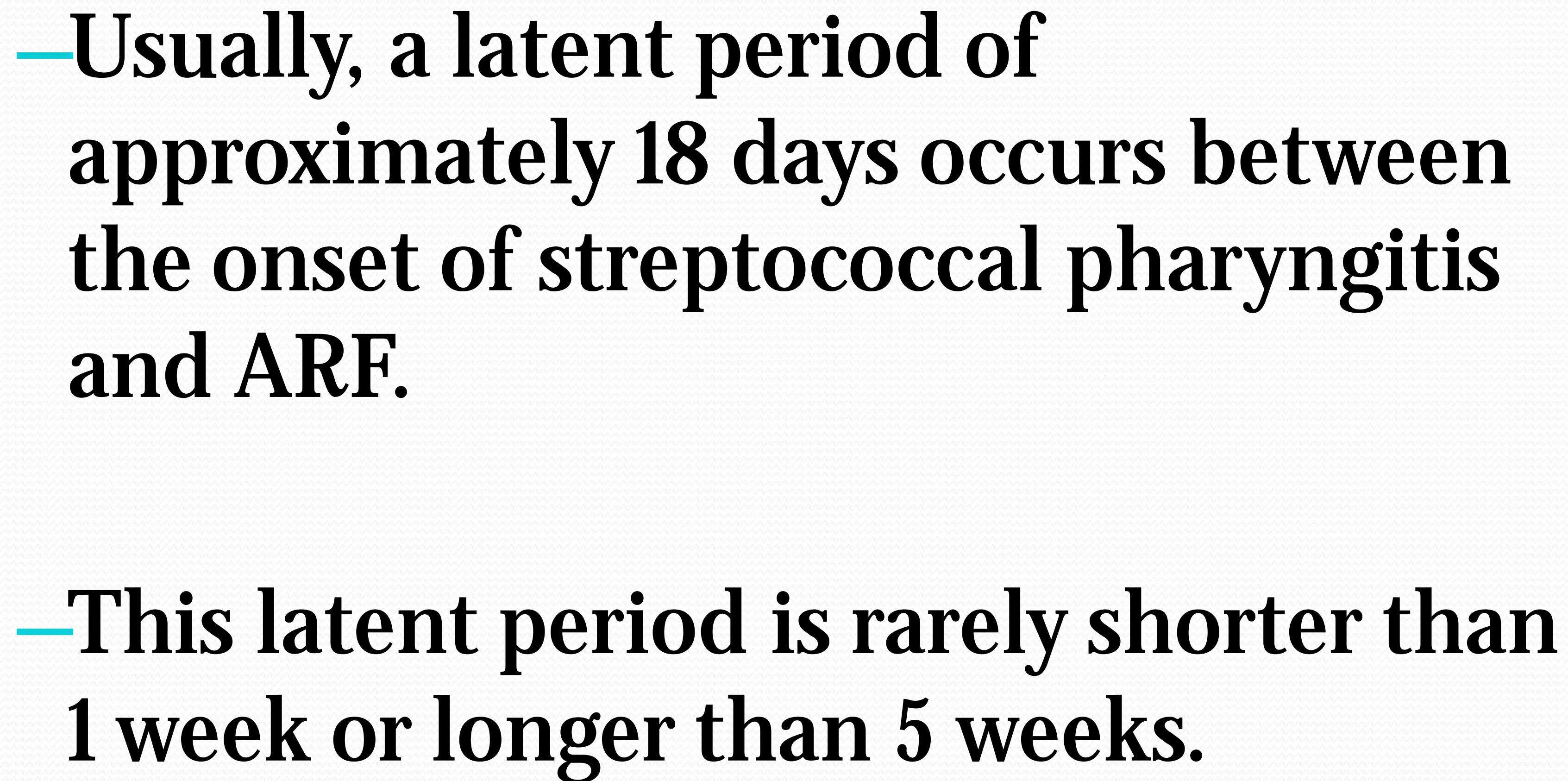
Professor AR Alhumrani

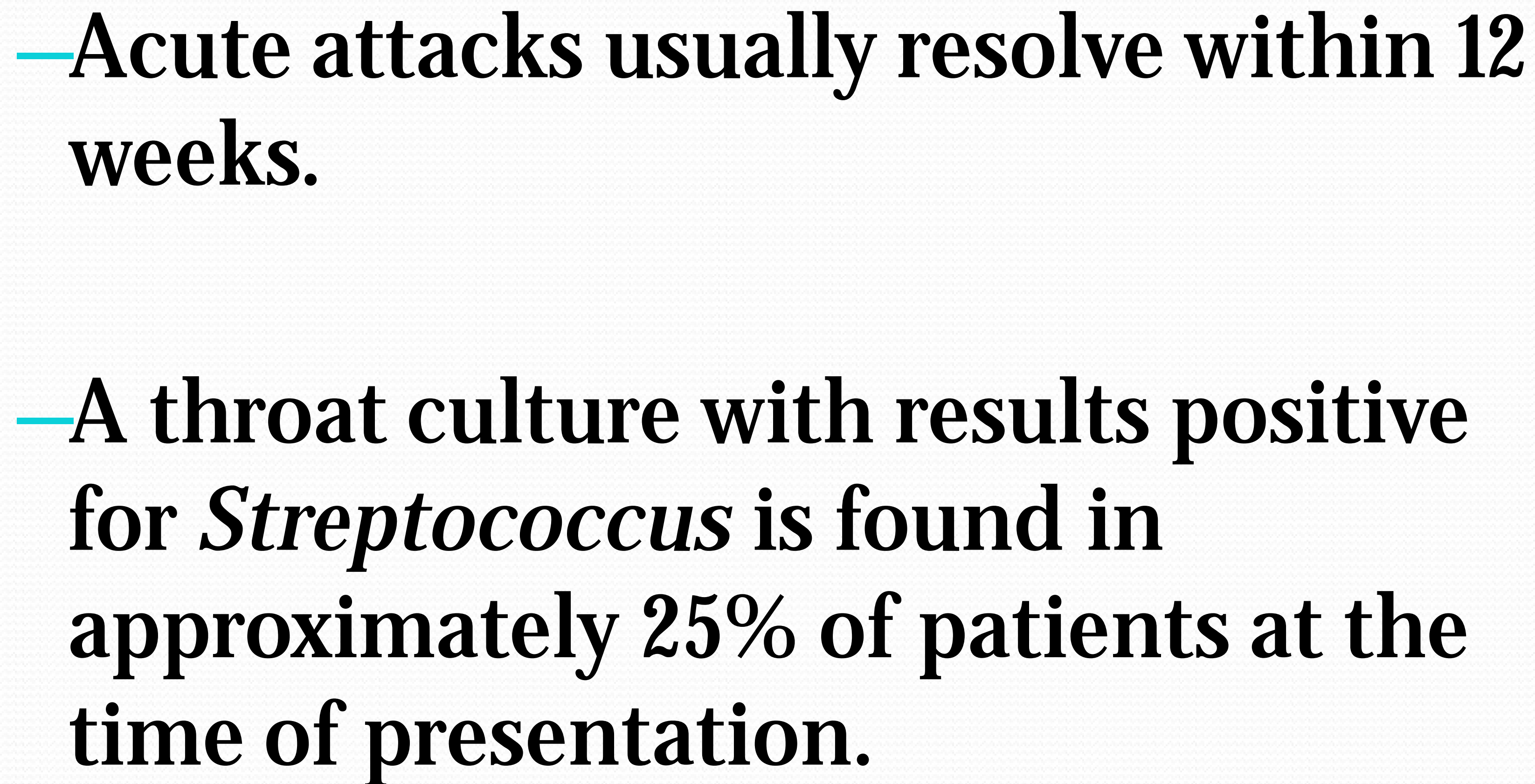

Rheumatic fever is a complication –
of scarlet fever or strep throat
infections which are caused by the
Streptococcus bacteria.

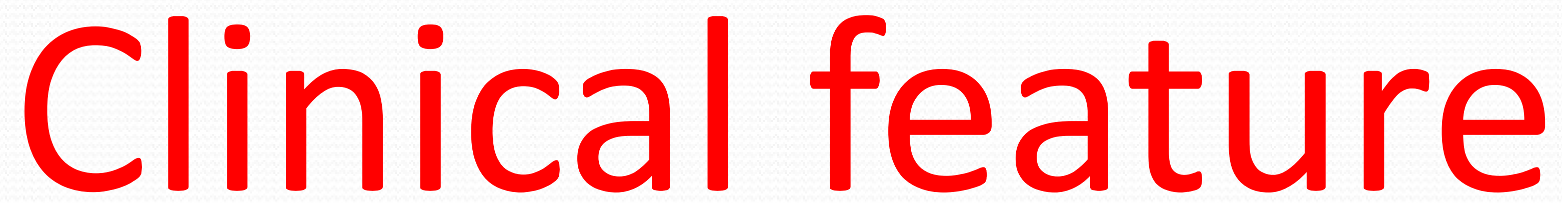


- Group A *Streptococcus* is thought to cause the myriad of clinical diseases in which the host's immunologic response to bacterial antigens cross-react with various target organs in the body,
- The antibody can cross-react with brain and cardiac antigens

- Age
- The initial attack of ARF occurs most frequently in persons aged 6-20 years and
- rarely occurs in persons older than 30 years.
- The disease may cluster in families.

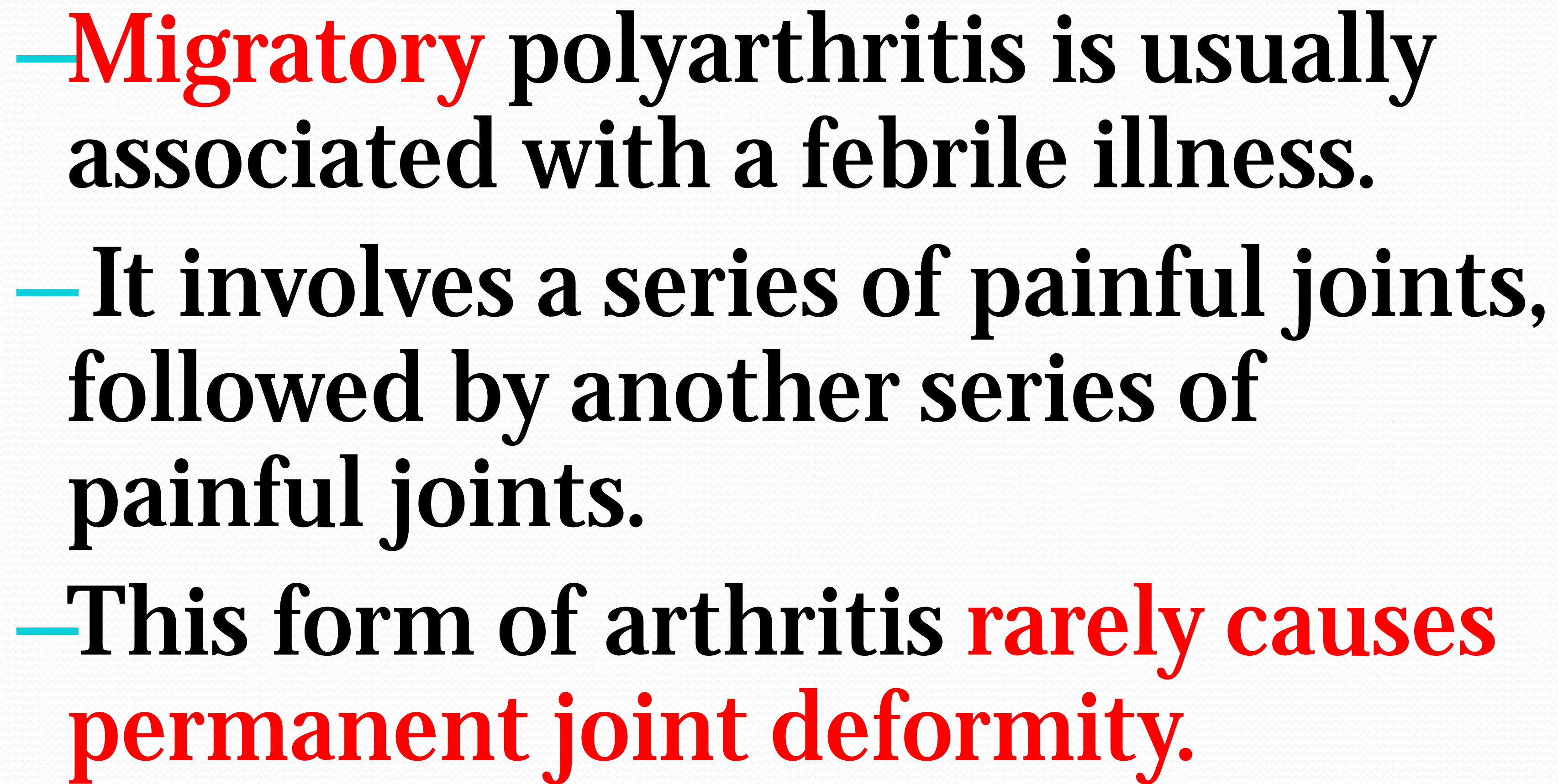

Usually, a latent period of approximately 18 days occurs between the onset of streptococcal pharyngitis and ARF.
This latent period is rarely shorter than 1 week or longer than 5 weeks.

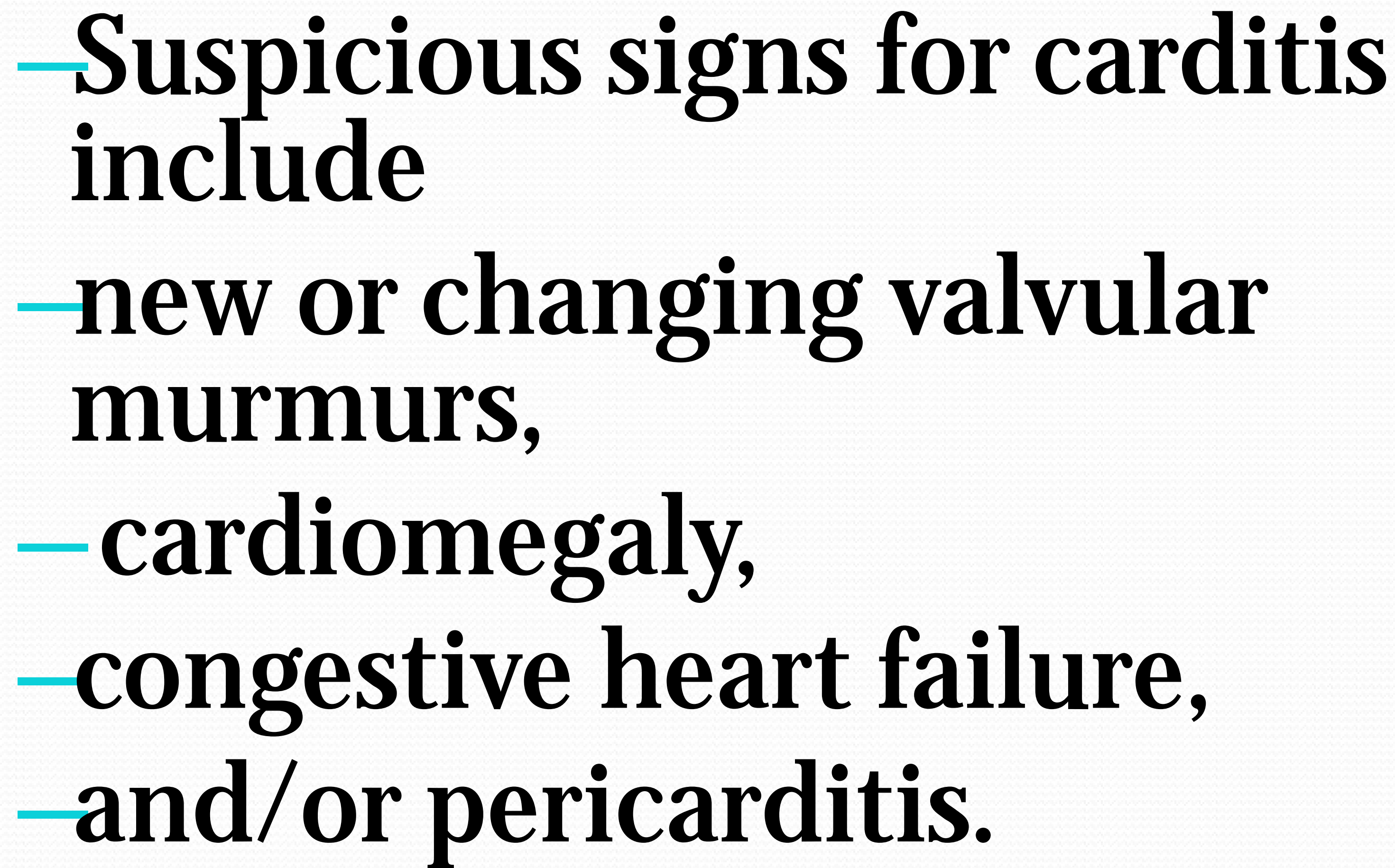

Acute attacks usually resolve within 12 weeks.
A throat culture with results positive for *Streptococcus* is found in approximately 25% of patients at the time of presentation.

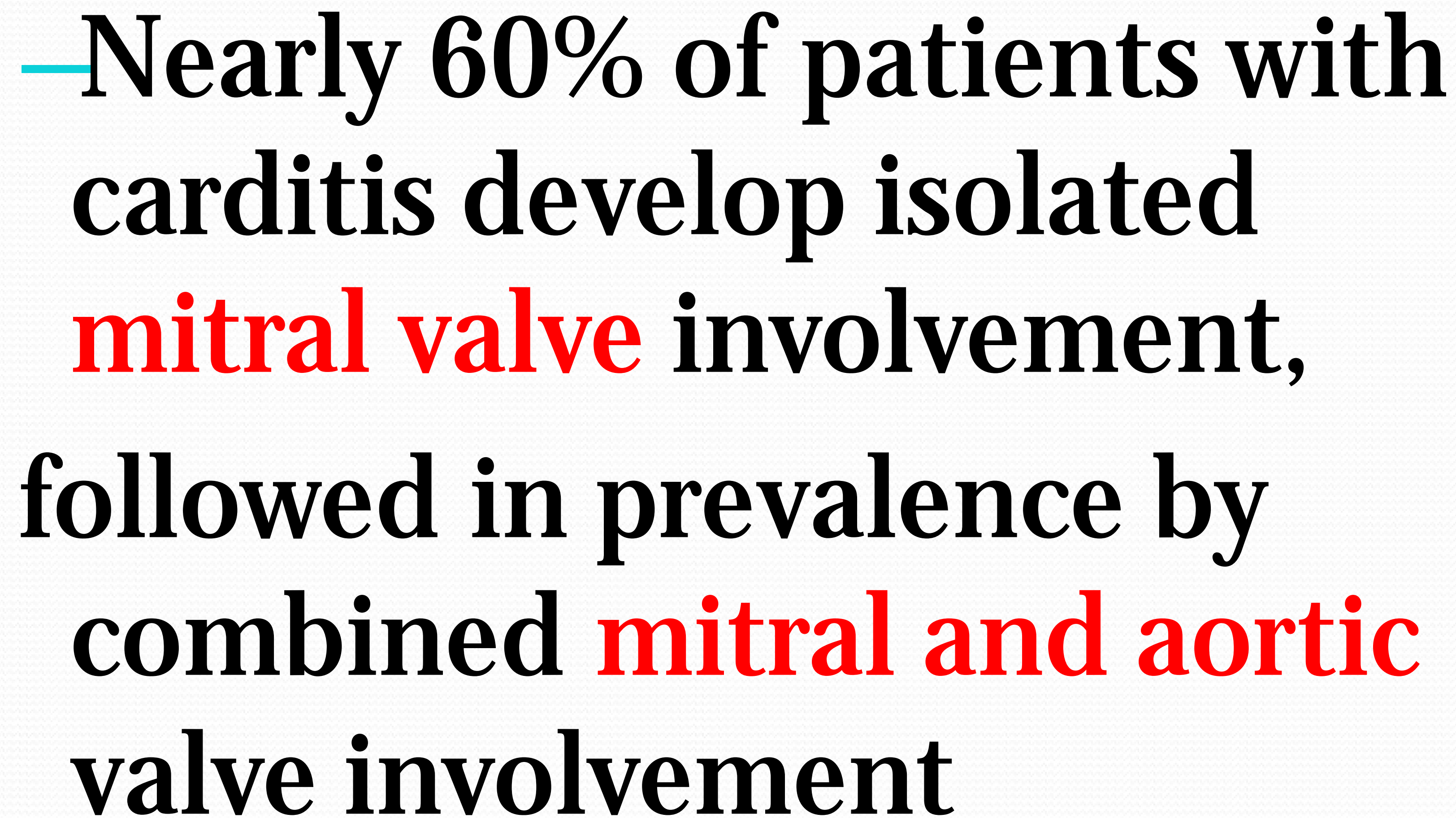

Clinical feature

- The earliest and most common feature is a painful migratory arthritis, which is present in approximately 80% of patients.

- Large joints such as knees, ankles, elbows, or shoulders are typically affected.


Migratory polyarthritis is usually associated with a febrile illness.
It involves a series of painful joints, followed by another series of painful joints.
This form of arthritis rarely causes permanent joint deformity.

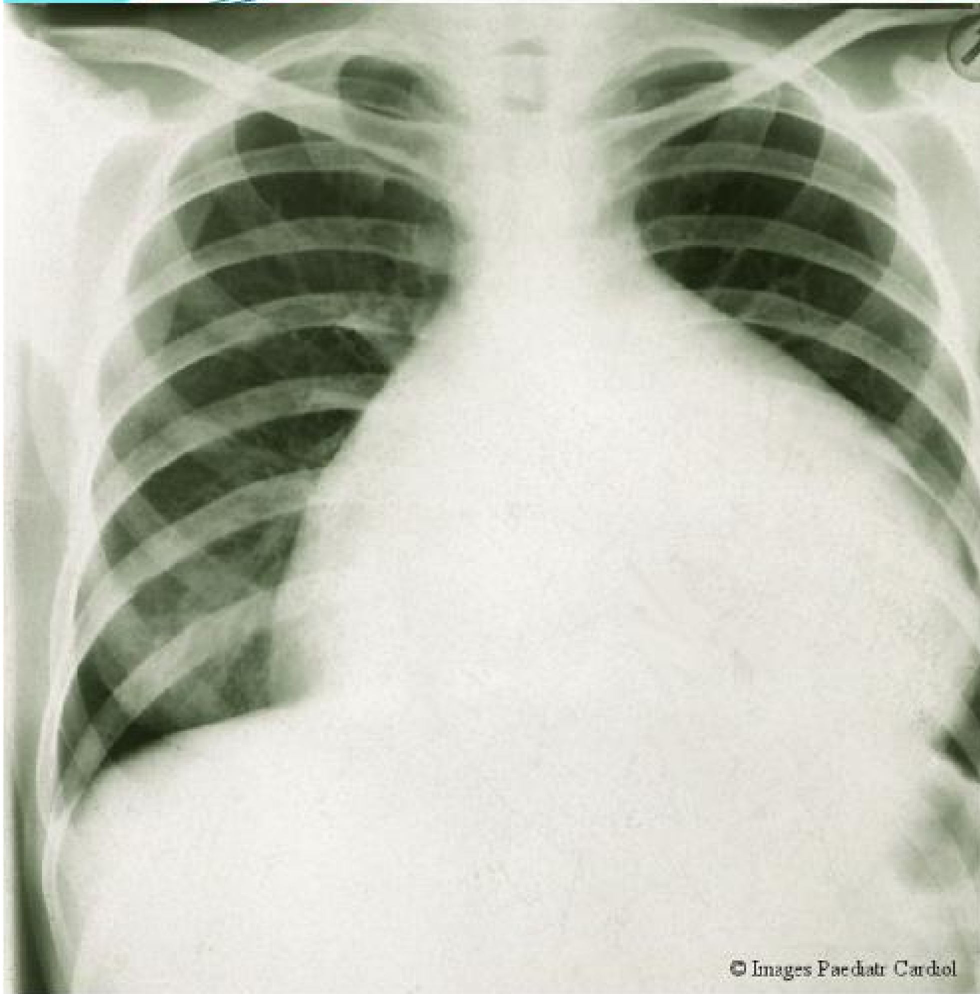

Suspicious signs for carditis include
new or changing valvular murmurs,
cardiomegaly,
congestive heart failure,
and/or pericarditis.


Nearly 60% of patients with carditis develop isolated mitral valve involvement,
followed in prevalence by combined mitral and aortic valve involvement

- Sydenham chorea is seldom evident at the time of initial presentation.

- Erythema marginatum and subcutaneous nodules are rare (< 10% of patients).

Carditis (with progressive congestive
heart failure, a new murmur, or
pericarditis)
may be the presenting sign of
unrecognized past episodes and is the
most lethal manifestation.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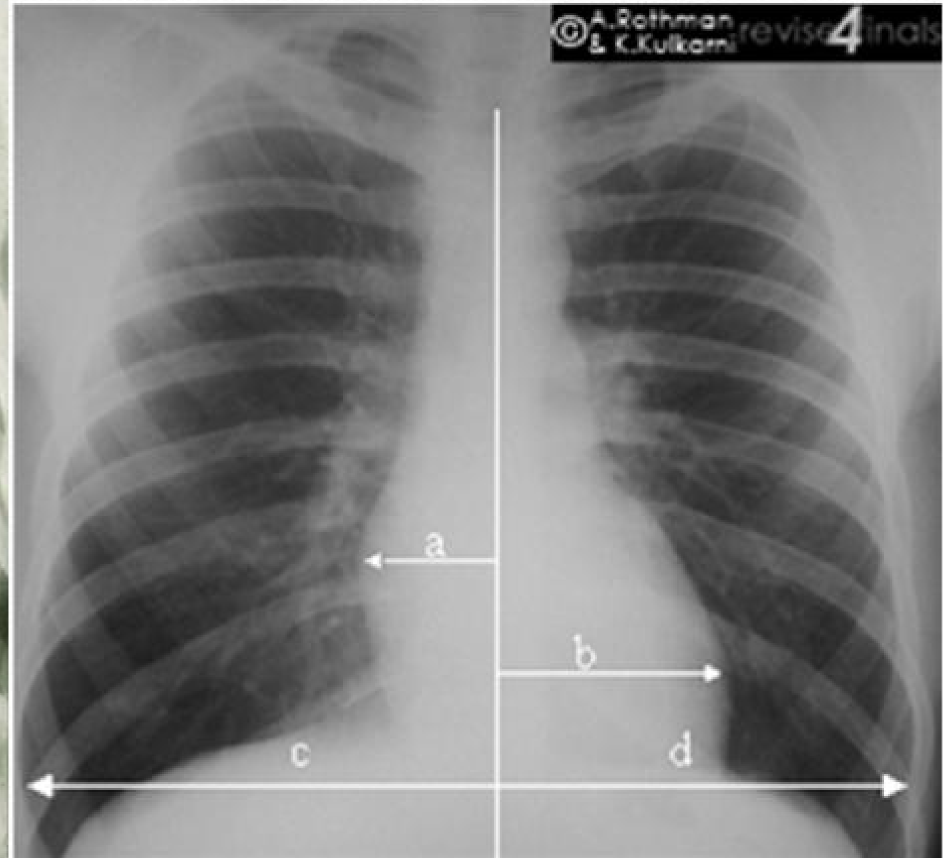
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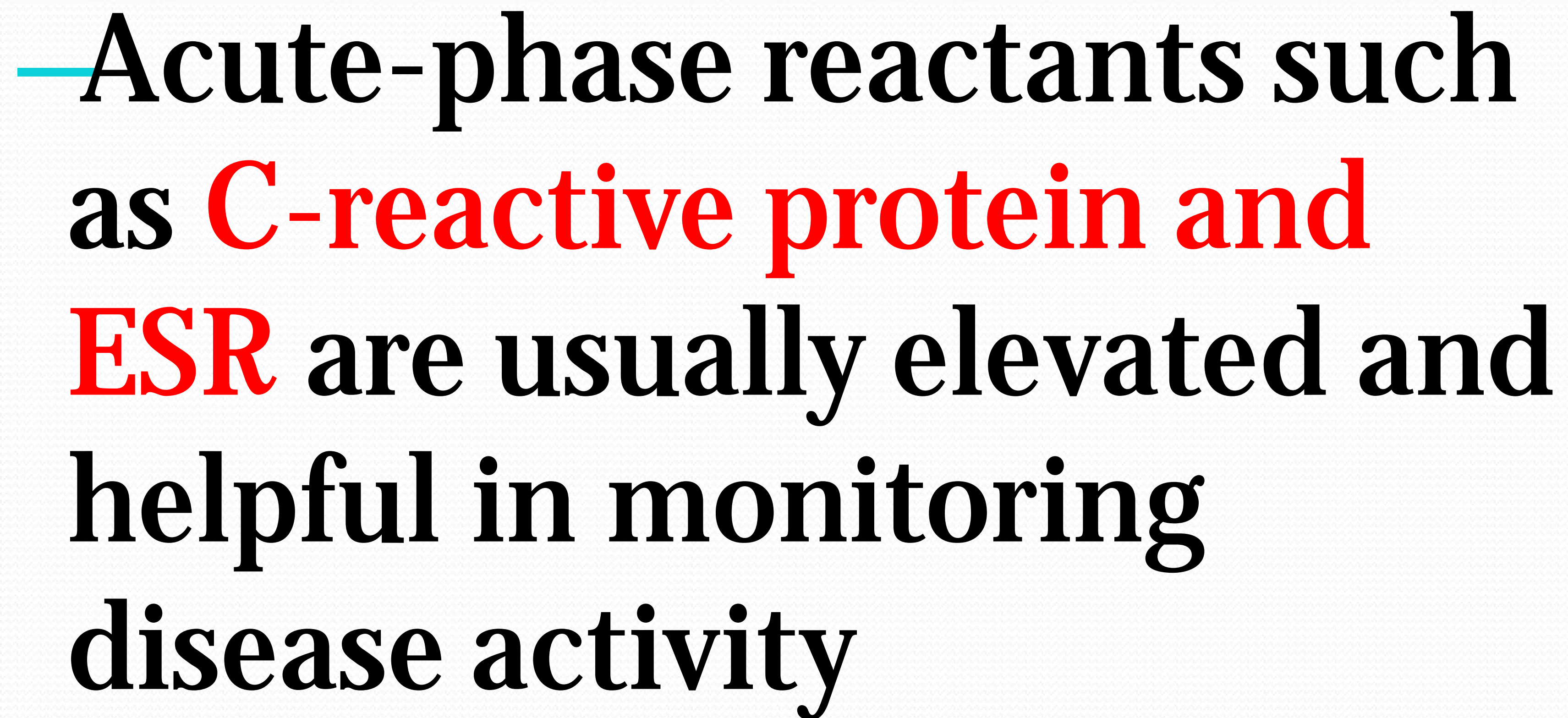
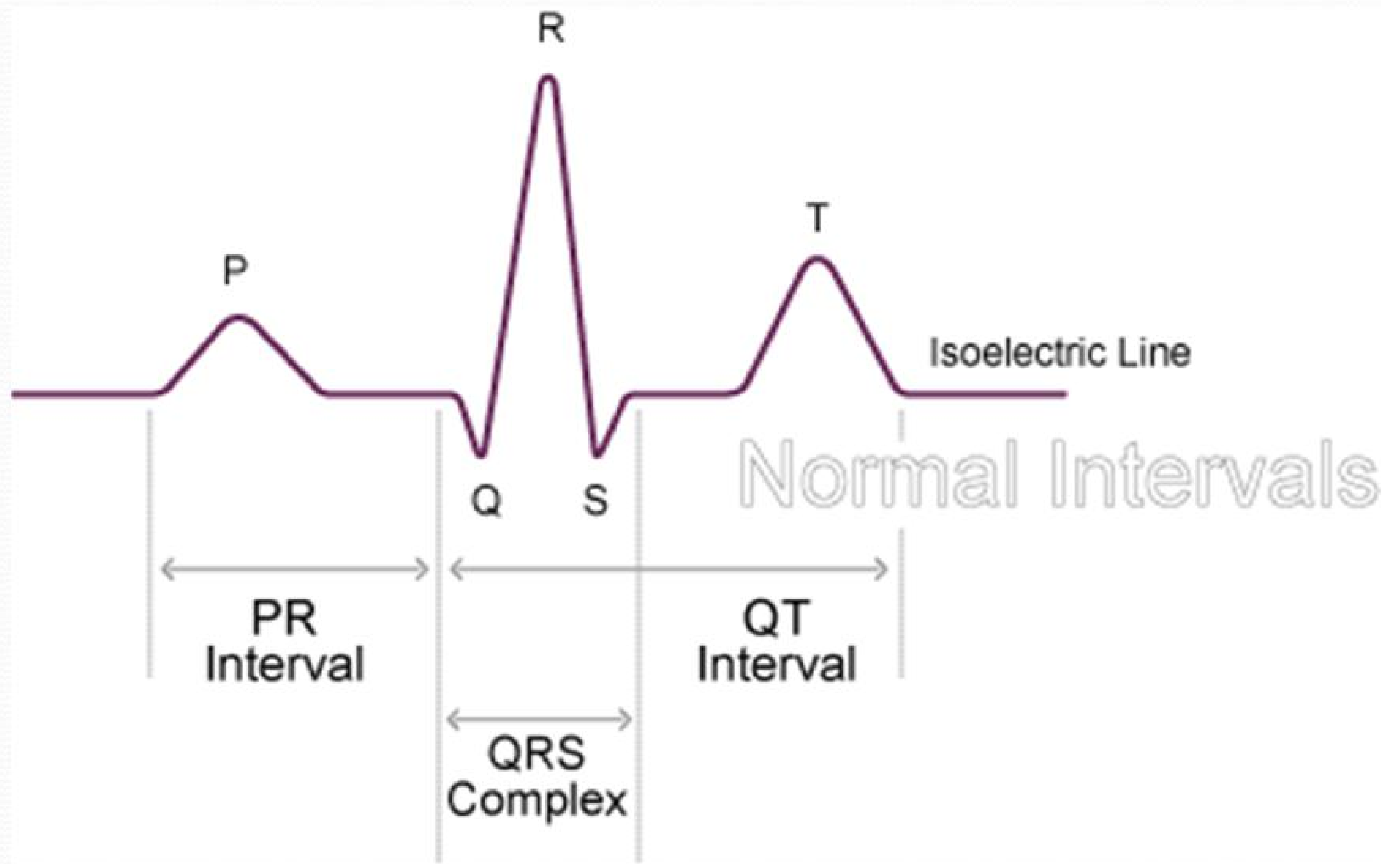
Labrtory test

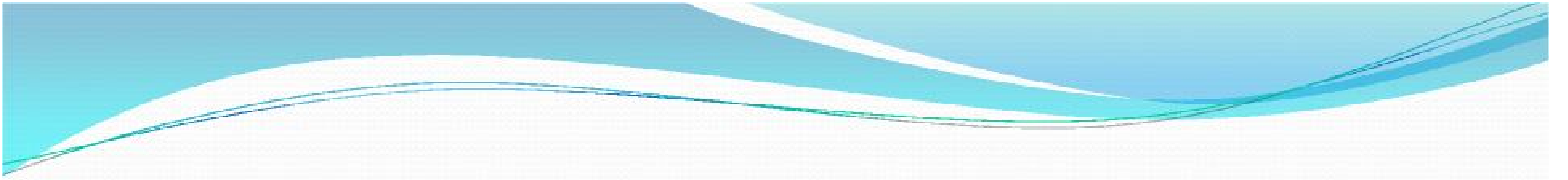
- ASO is found in 80-85% of patients with ARF.
- The sensitivity of an elevated ASO titer in addition to anti-DNAse B or antihyaluronidase is 90%.
- The sensitivity of throat culture as evidence of recent streptococcal infection is 25-40%.


Acute-phase reactants such as C-reactive protein and ESR are usually elevated and helpful in monitoring disease activity

- is helpful for diagnosing carditis and may reveal a **prolonged PR interval**,

- but this finding is not necessarily associated with later cardiac sequelae.


R
T
P
Isoelectric Line
Q
S
Normal Intervals
PR
Interval
QT
Interval
QRS
Complex



Diagnosis

- According to John criteria
- Two major

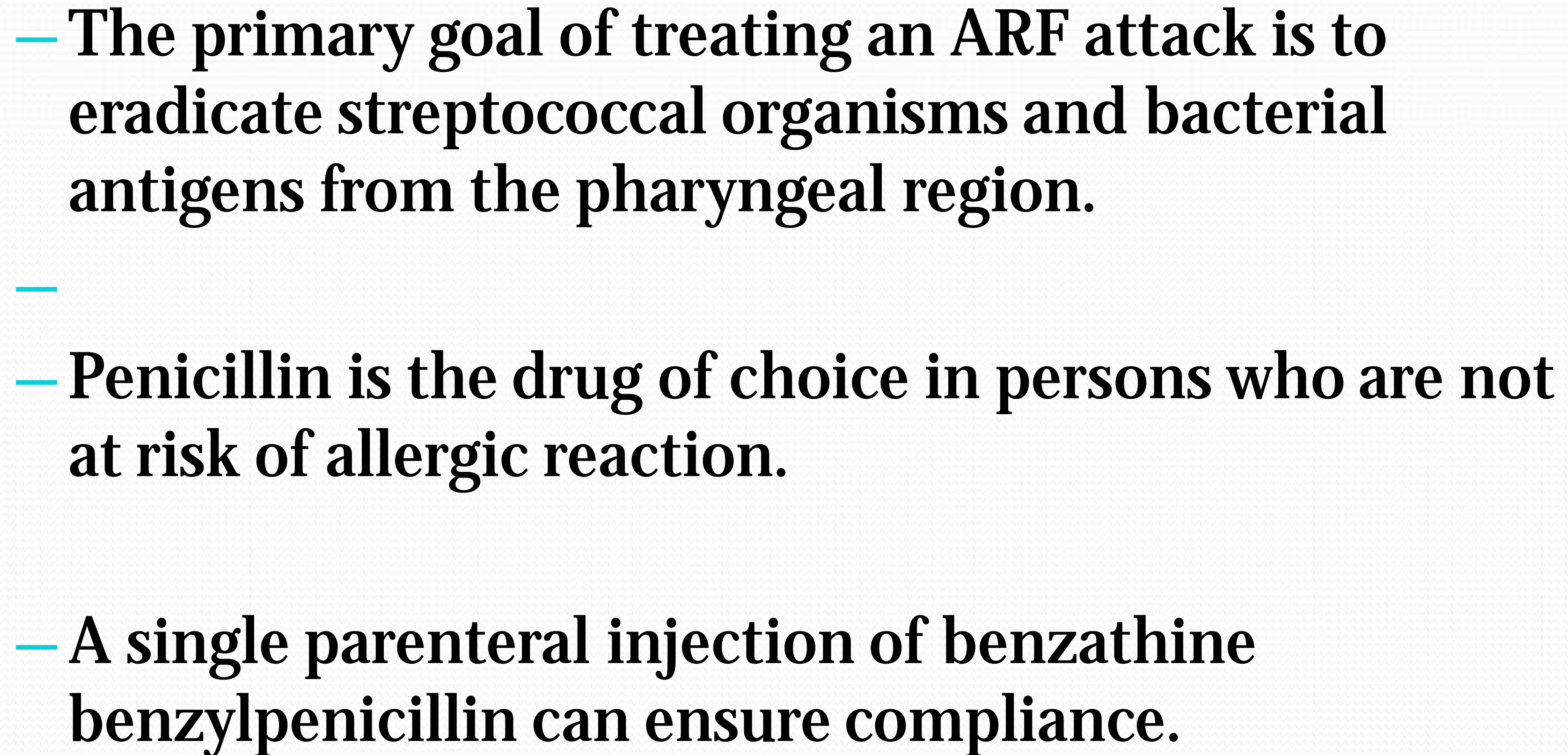
  or
- One major two minor

- Plus evidence of streptococcal infection

MAJOR CRITERIA	MINOR CRITERIA
Carditis	Fever
Migratory polyarthritis	Arthralgia
Sydenham chorea	Elevated acute phase reactants
Subcutaneous nodules	Prolonged P-R interval

Treatment

- management of an acute rheumatic fever (ARF) attack,
- management of the current infection, and
- prevention of further infection and attacks


– The primary goal of treating an ARF attack is to eradicate streptococcal organisms and bacterial antigens from the pharyngeal region.
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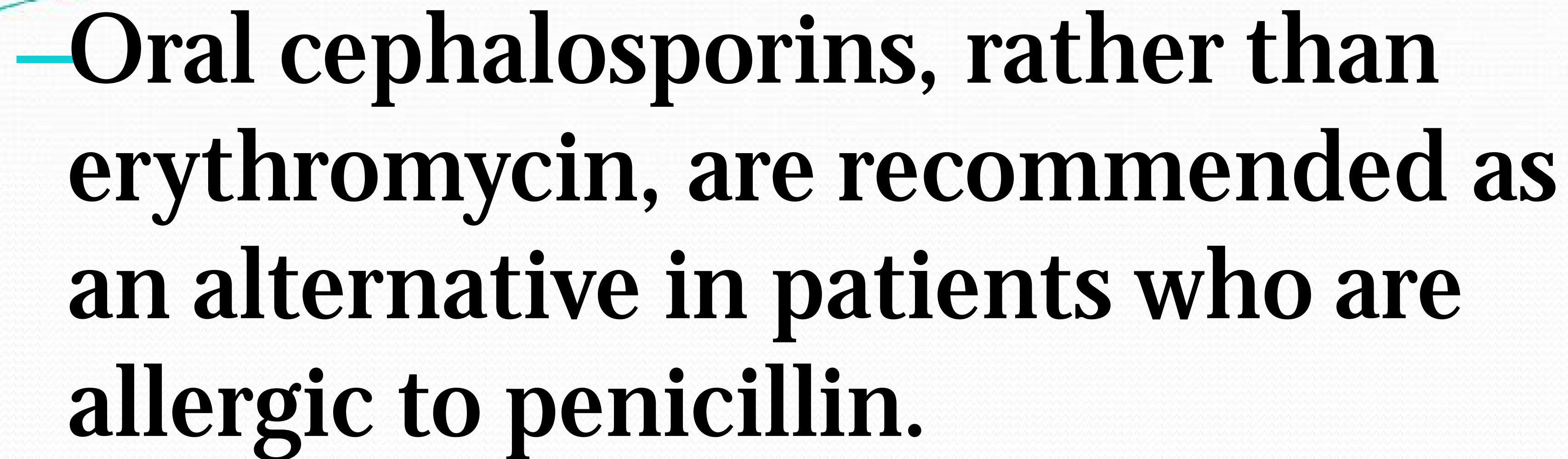
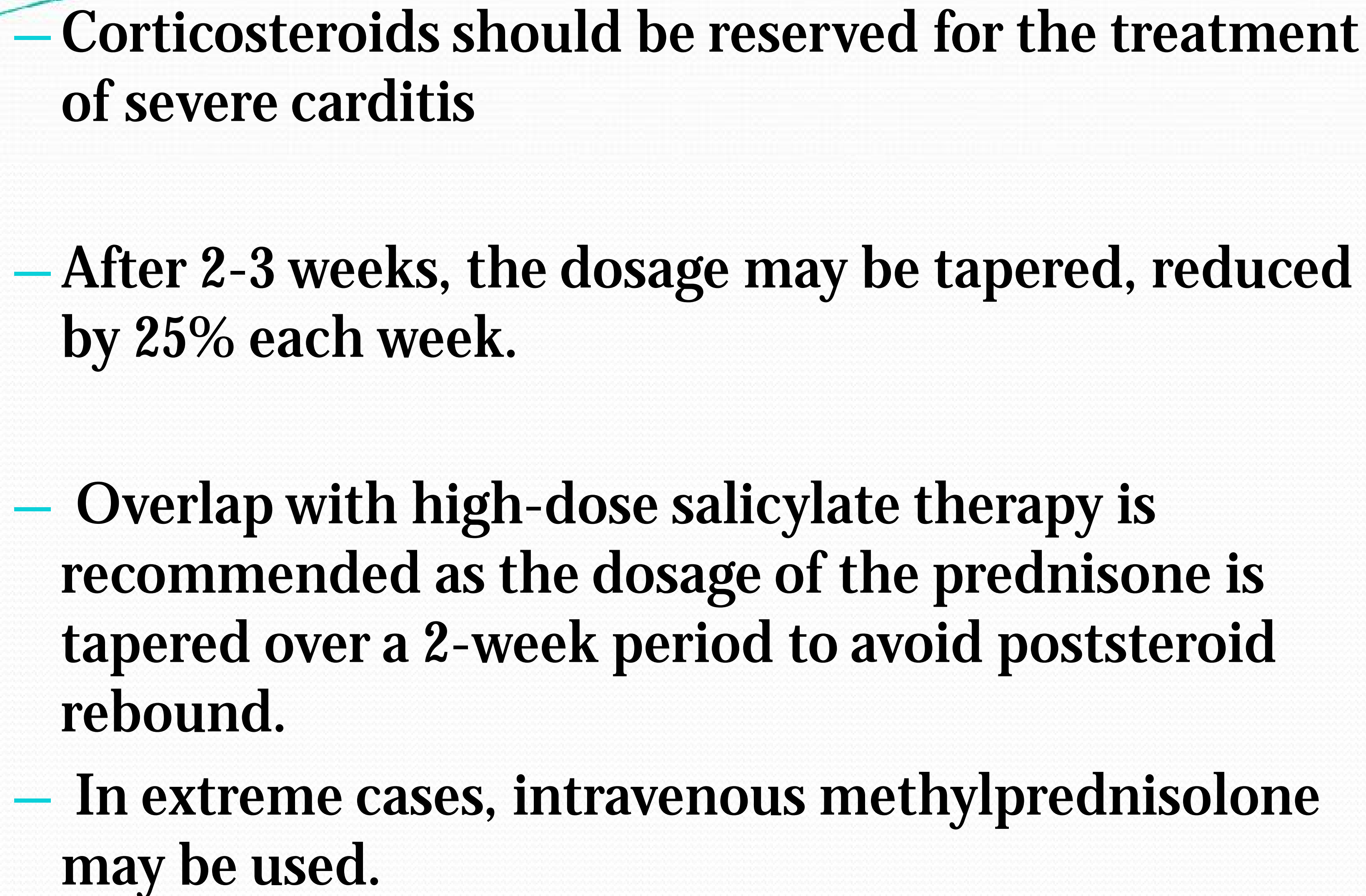
– Penicillin is the drug of choice in persons who are not at risk of allergic reaction.
– A single parenteral injection of benzathine benzylpenicillin can ensure compliance.



- Oral cephalosporins, rather than erythromycin, are recommended as an alternative in patients who are allergic to penicillin.

- However, be cautious of the 20% cross-reactivity of the cephalosporins with penicillin.

– Analgesia is optimally achieved with high doses of salicylates, often inducing dramatic clinical improvement



- Corticosteroids should be reserved for the treatment of severe carditis

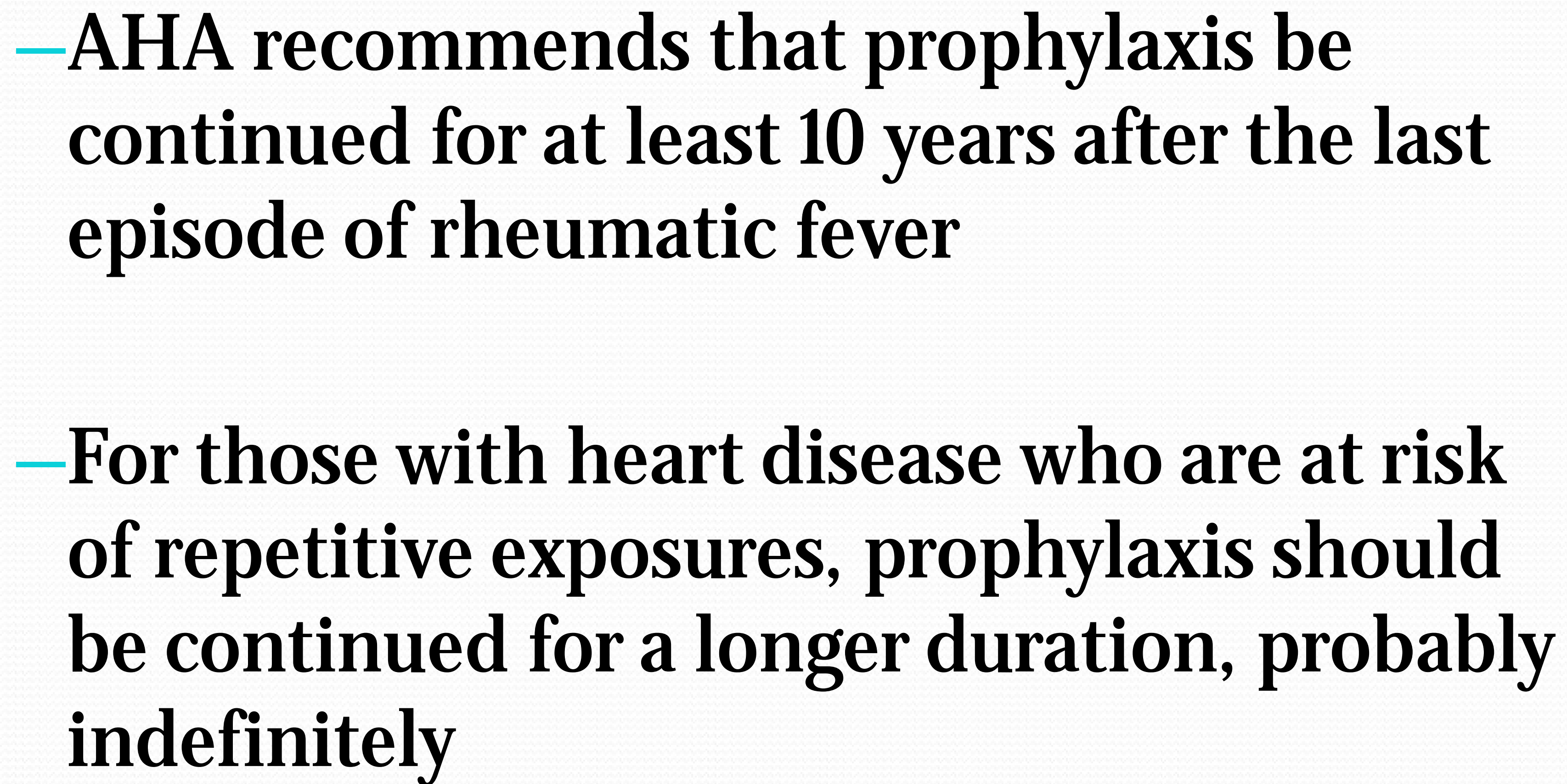
- After 2-3 weeks, the dosage may be tapered, reduced by 25% each week.

- Overlap with high-dose salicylate therapy is recommended as the dosage of the prednisone is tapered over a 2-week period to avoid poststeroid rebound.
- In extreme cases, intravenous methylprednisolone may be used.

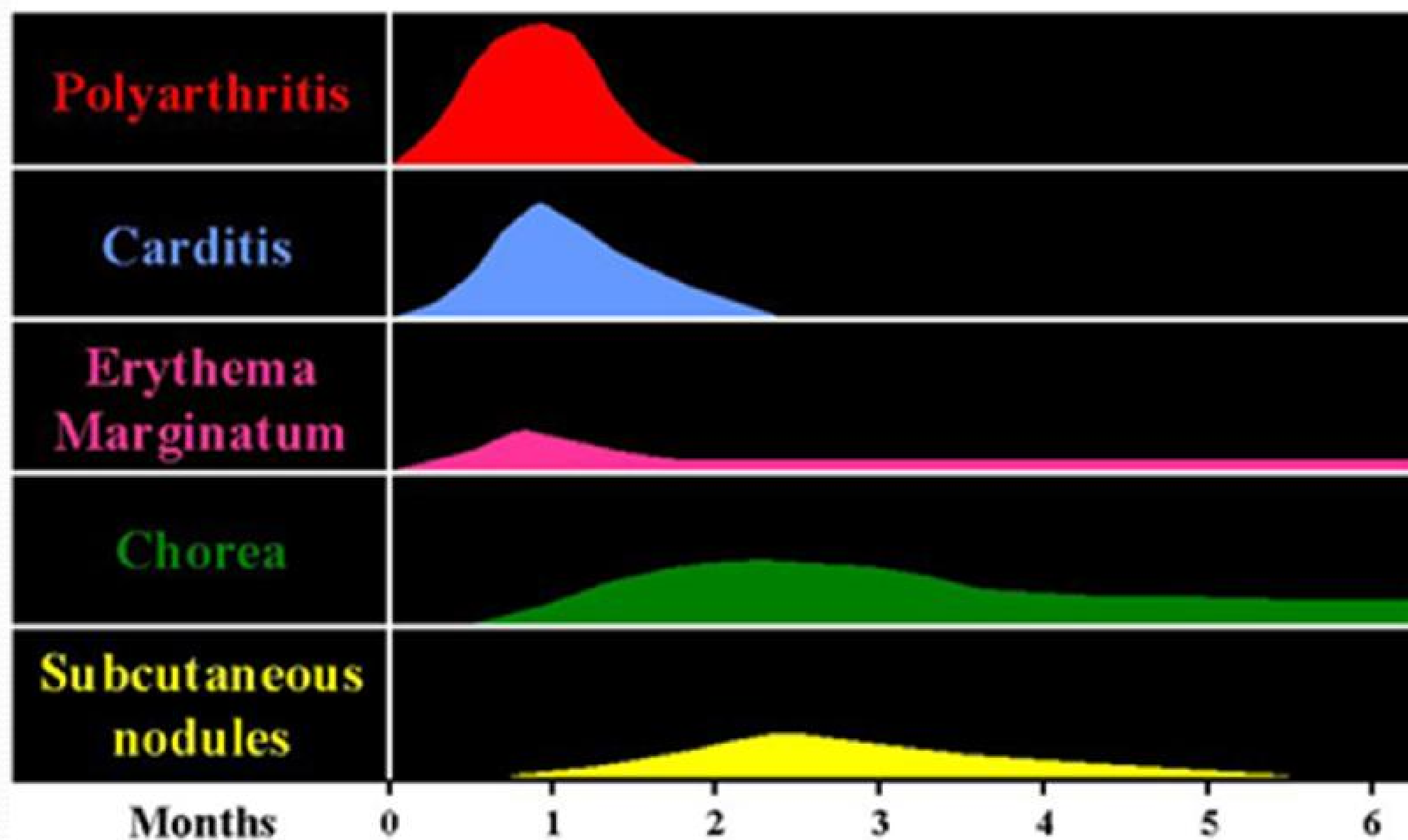
Protracted Sydenham chorea has responded to haloperidol

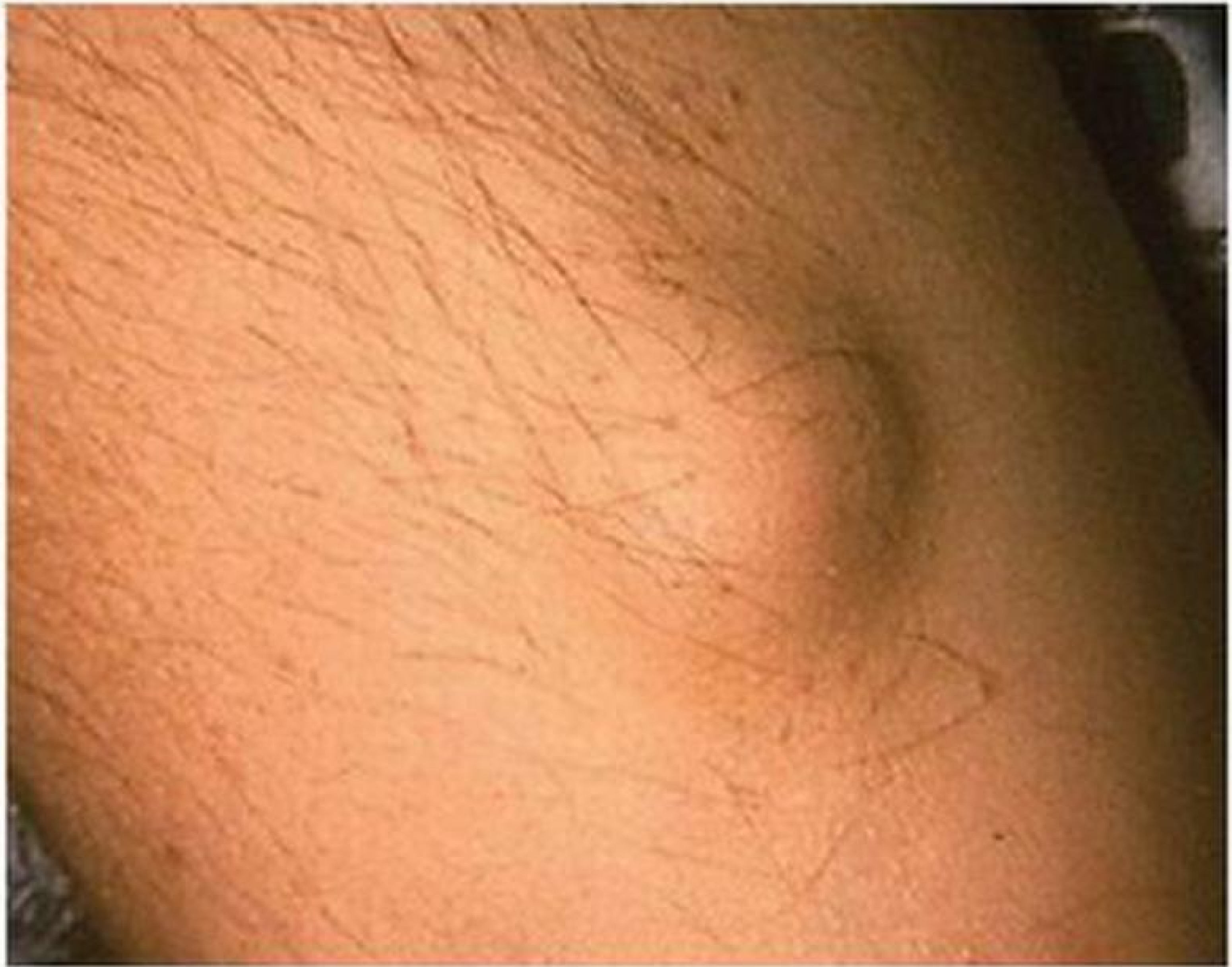
Prevention

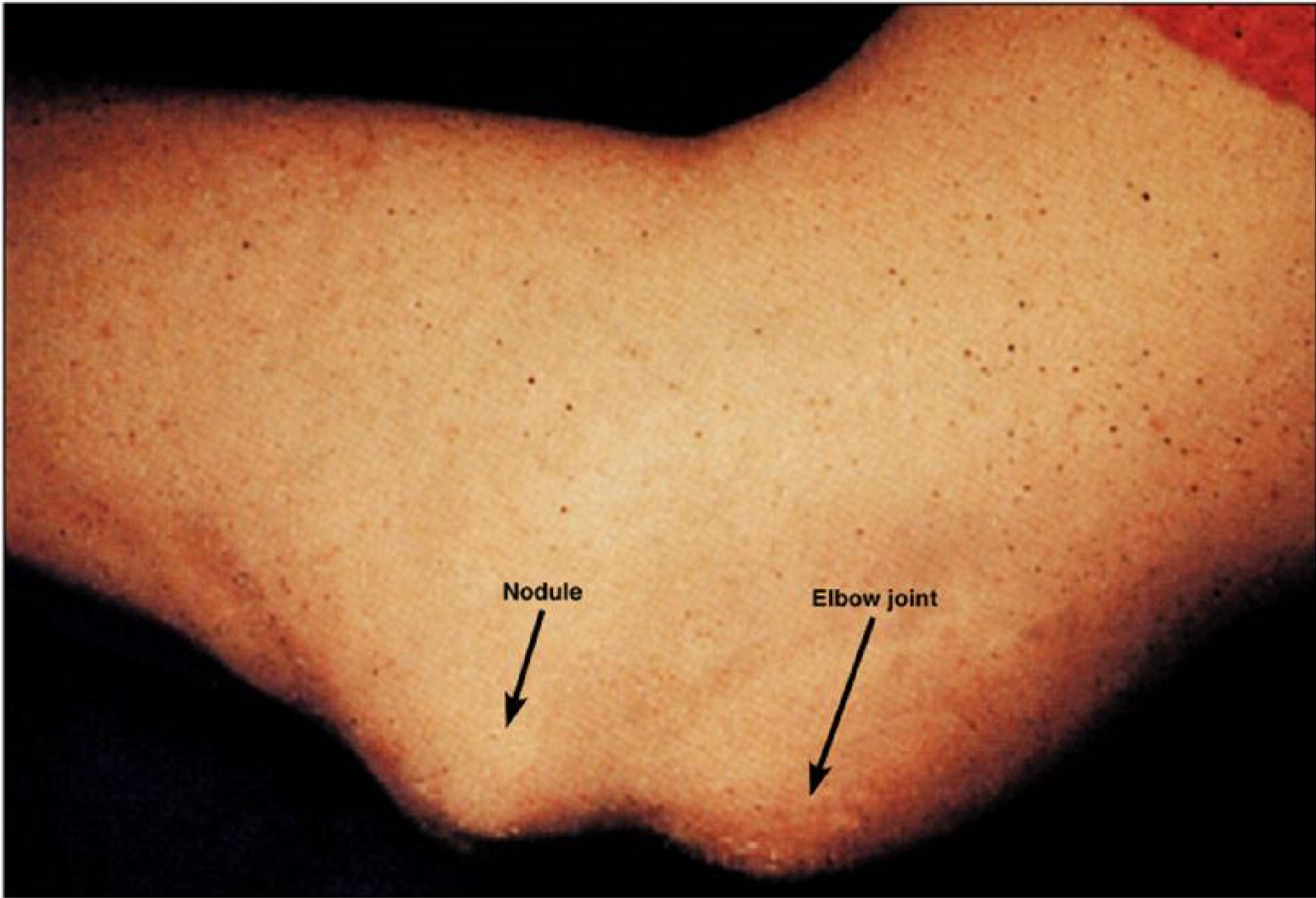
- benzathine benzylpenicillin at 1.2 million units intramuscularly every 4 weeks.
- However, in high-risk situations, administration every 3 weeks is justified and advised.


–AHA recommends that prophylaxis be continued for at least 10 years after the last episode of rheumatic fever
–For those with heart disease who are at risk of repetitive exposures, prophylaxis should be continued for a longer duration, probably indefinitely

Clinical Manifestations of Acute Rheumatic Fever







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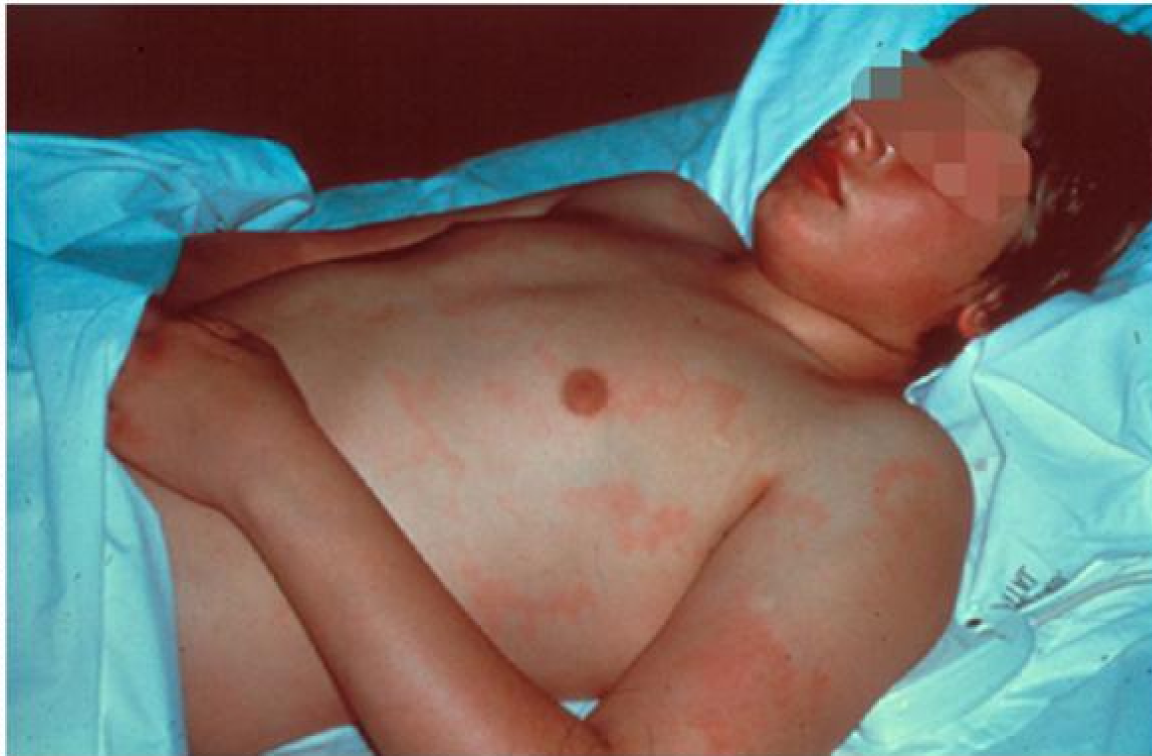

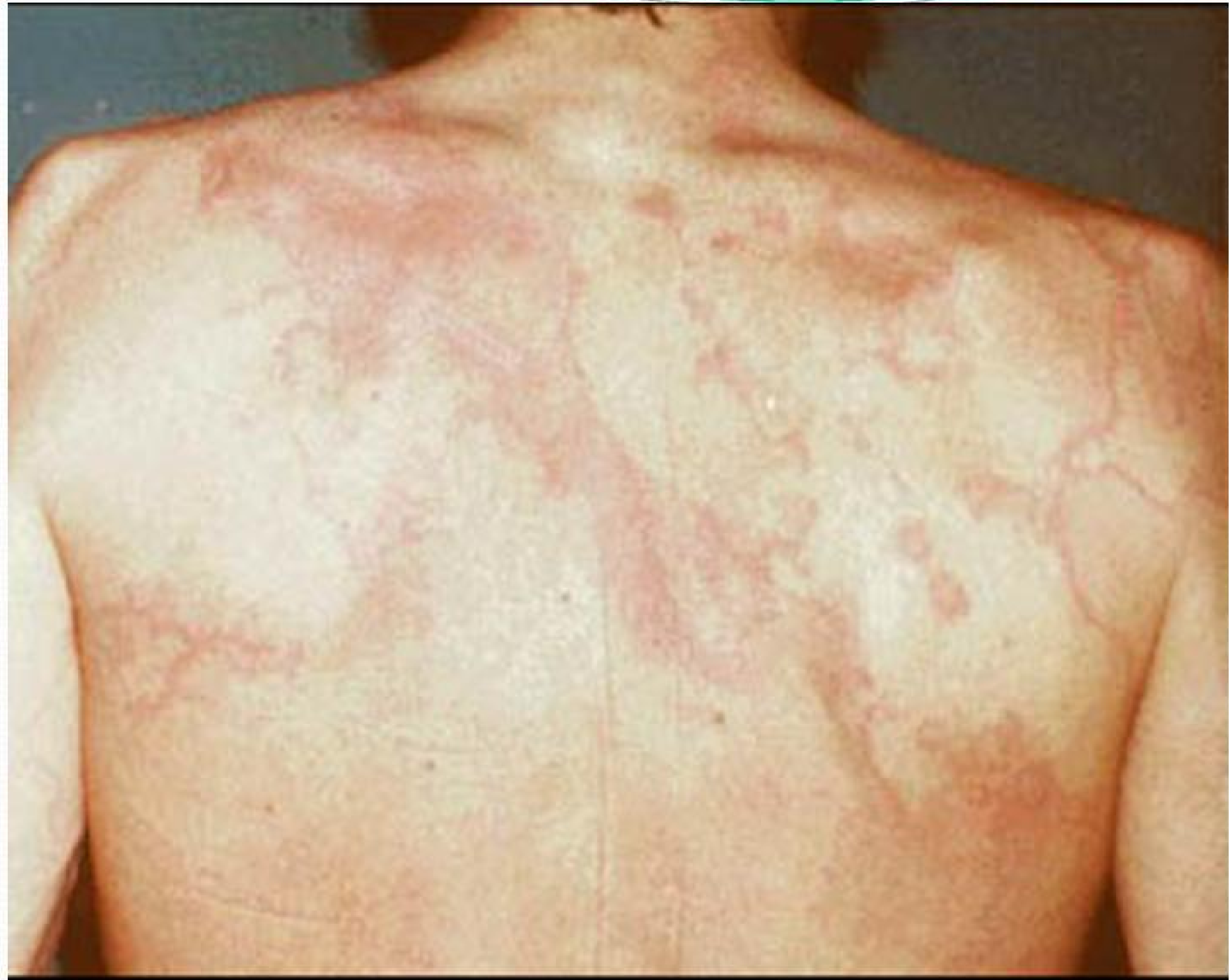

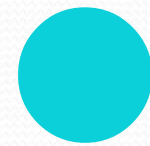

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