Rheumatic Fever Assessment

Rheumatic fever (RF) is an inflammatory autoimmune disease that affects the connective tissues of the heart, joints, subcutaneous tissues, and blood vessels of the central nervous system. It usually manifests 2 to 6 weeks after an untreated or partially treated group A beta-hemolytic streptococcal (GABHS) infection. Major diagnostic criteria includes carditis, polyarthritis, erythema marginatum, subcutaneous nodules and chorea, while minor symptoms include fever, arthralgia, and elevated ESR and C-reactive protein. RF can lead to rheumatic heart disease, which is characterized by scarring and deformity of the heart valves.



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Mechanism

Aschoff Bodies
Ash-pile
Nodules, called Aschoff’s bodies, are inflammatory, hemorrhagic lesions that form following GABHS infection causing swelling, fragmentation, and alterations in connective tissue. As the Aschoff’s bodies age, these lesions become more fibrous, and scar tissue forms in the heart, blood vessels, brain, pleura, and joint surfaces.

Signs and Symptoms - Major

Carditis
Heart-card
Carditis is a major manifestation of RF and is defined as inflammation of all parts of the heart, primarily the mitral valves. Symptoms may include tachycardia, pericardial friction rub, muffled heart sounds, apical systolic murmurs (due to mitral regurgitation), and peripheral edema. As this continues, rheumatic heart disease can develop, which affects the cardiac valves, particularly the mitral valve.

Subcutaneous Nodules
Sub-Q-tip Knobs
Assess the patient’s skin for subcutaneous nodules often over the joints and bony prominences. Nodules range in size from 0.5 to 1 cm and are hard, painless, and freely movable.

Polyarthritis
Polly-King-Arthur
Polyarthritis is the most common finding in RF and includes swelling, heat, redness, and limitation of motion, especially at the joints (elbows, knees, ankles, wrists).

Chorea
Korean-flag
Chorea is major CNS manifestation of RF and is defined as involuntary, purposeless, rapid motions of the extremities and face. This can cause facial grimaces, muscle weakness, altered speech and gait.

Erythema Marginatum
Red Marching-band
Erythema marginatum are pink or red lesions (erythematous macule) beginning on the trunk and spreading peripherally to the inner surface of the upper arms and thigh. The lesions are nonpruritic.

Signs and Symptoms - Minor

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Fever

Fever-beaver

A low-grade fever that spikes in the late afternoon may be present. When assessing a child with suspected rheumatic fever, be sure to inquire about a history of a sore throat as rheumatic fever manifests 2 to 6 weeks after an untreated or partially treated group A beta-hemolytic streptococcal infection of the upper respiratory tract.

Arthralgia

King Arthur-algae

Arthralgia is joint pain that can affect one or more joints and is a minor clinical manifestation of RF.

Elevated ESR and C-reactive Protein

Up-arrow ESR tubes and Up-arrow C-reactive Mr. Protein

Laboratory findings include an elevated ESR and CRP.

Complications

Rheumatic Heart Disease

Roman Heart

RF can lead to rheumatic heart disease, which is characterized by scarring and deformity of the heart valves, particularly the mitral valve.

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