



RHEUMATOID NODULES

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Rheumatoid nodules are the most common dermatologic manifestation of Rheumatoid arthritis (RA), occurring in approximately one-fourth of RA patients. Similar to other autoimmune diseases, RA affects women three times as often as men. Antibodies created by the immune system against one's own cells cause inflammation and pain in the synovial lining of joints and other tissues. The results of this inflammation include morning stiffness, joint destruction, symmetric multi-joint arthritis and sometimes lung, heart or other organ complications. Severity of this disease is wide ranging from mild discomfort to complete debilitation and the presence of nodules may signify a more severe and destructive form of RA.

Rheumatoid nodules are well-demarcated, flesh colored, subcutaneous lumps or masses which are usually freely movable, though attachment to underlying tissues is possible. The nodules can vary in size from small, pea sized lesions up to the size of a lemon. RA nodules are most often round though sometimes take a linear shape. To the touch, nodules may feel doughy or firm however are usually not tender unless there is inflammation, ulceration or impingement of underlying structures such as nerves. Typically rheumatoid nodules are distributed over areas of repeated trauma or pressure and occur adjacent to joints on extensor surfaces, such as the elbow, fingers and forearms. In patients who are bedridden, areas of prolonged pressure such as the heel, Achilles tendon, posterior scalp, hip and sacrum are often affected.

Rheumatoid nodules may also occur internally, in sites unassociated with joints, such as in the sclera of the eyes, lungs or vocal cords, however diagnosis in those locations is difficult. In patients treating their RA with methotrexate (an immune modulating drug), accelerated formation and growth of rheumatoid nodules, most commonly in the joints of the hands, may occur. This is known as accelerated nodulosis. Discontinuation of methotrexate or the addition of another medication may reverse or shrink nodules due to methotrexate therapy, though collaboration with the patient's rheumatologist is important before any medication changes. Interestingly, rheumatoid nodules occur almost exclusively in seropositive patients, meaning patients who are positive for a marker of RA known as Rheumatoid Factor (RF).

Diagnosis of rheumatoid nodules can typically be made based on a positive history of RA and thorough physical exam demonstrating asymptomatic, slow growing, moveable subcutaneous nodules on extensor surfaces. This is especially true when the patient's rheumatoid factor titer is high. In most patients, the arthritis symptoms precede the development of rheumatoid nodules, however in a small percentage, nodules are present on initial diagnosis. Biopsy of mature lesions, though often not necessary, show a very typical histological appearance of central necrosis surrounded by palisading histiocytes and macrophages with an outer layer of fibroblasts, lymphocytes and plasma cells owing to the rich vascular supply.

Of note, other immune-mediated diseases, such as systemic lupus erythematosus or ankylosing spondylitis, may produce lesions with a very similar histological appearance. Additionally, in young healthy children, a similar benign often self-resolving dermatologic entity occurs known as subcutaneous granuloma annulare or pseudorheumatoid nodules. The differential diagnosis for subcutaneous nodules is extensive and includes fibromas, tophi (gout or pseudogout), metastatic lesions, xanthomas, epidermoid cysts, subcutaneous granuloma annulare, basal cell carcinoma and a variety of other lesions.

Treatment of rheumatoid nodules is not always necessary, especially when they are mostly a cosmetic concern. Symptomatic lesions however, such as those infected, ulcerated, impinging of underlying nerves, or causing dysfunction due to location (e.g. the bottom of the foot), deserve more aggressive therapy. This is particularly true if a patient is on immunosuppressive medications for their RA. Injection with corticosteroids such as methylprednisolone is one treatment option that is usually successful in decreasing the size of the nodules; however increased risk of infection or ulceration occurs with any type of injection. If lesions are already ulcerated, infected, entrapping peripheral nerves, limiting range of motion or in a location that incurs repeated trauma,

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then surgical excision is indicated. Unfortunately, nodules often recur at sites of excision. Patients should talk with their physician and decide the best course of action in each individual case. Though rheumatoid nodules typically are benign in nature, negative psychological effects due to the physical limitation and deformity are not uncommon. Patients should collaborate with their physician to receive treatment appropriate for their physical and psychological needs.

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