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Tendinitis, Tendinosis -- New Terminology

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It is often assumed that if there is pain, there must be inflammation. But on second thought, we realize that a myofascial trigger point or even fibrositis (which implies inflammation) may have a neurogenic origin and not be inflamed. Even the "itis" in tendinitis has been questioned since polymorphonuclear cells and lymphocytes are rarely found. A sports-induced inflammation only occurs if there is injury or destruction to vascularized tissues.¹ Therefore a tear of a tendon or ligament would disrupt blood vessels and an inflammatory reaction would be initiated. It becomes apparent that an acute injury with an inflammatory response should be differentiated from a non-traumatic, chronic overuse injury in which the classic signs of inflammation after injury are not always present or identifiable.²

Leadbetter¹ separates the injury response of a tendon to either an acute macrotraumatic injury or a chronic microtraumatic injury. In the microtraumatic tendon injury the main histologic features represent a degenerative tendinopathy thought to be due to an hypoxic degenerative process. The similarity to the histology of an acute wound repair with inflammatory cell infiltration as in macrotrauma seems to be absent or aborted. A new classification of tendon injury called "tendinosis" is now accepted. Initially tendinosis is asymptomatic. A spontaneous tendon rupture of the supraspinatus or achilles tendon are a prime examples of a preexisting tendinosis.

The American Academy of Orthopedic Surgeons³ have provided a new classification of tendon injuries based on the anatomy of the tendon and its surrounding tissues. They describe four pathologic conditions. For a clearer understanding of the new terminology a review of some aspects of the tendon anatomy is necessary. Tendon fibers group together and form fascicles. Between fascicles is an areolar connective tissue (endotendon) through which nerves and blood vessels run. Enclosing the fascicles is the epitendon (epitenon). The outermost sheath of the tendon is the paratenon. There is fluid between the paratenon and epitenon in order to prevent friction.⁴ Other tendons, especially at the ankle and wrist are supplied with an additional synovial sheath.

The four pathologies of tendons are based on data from references.^{5,6}

The term "paratenonitis" is now used instead of tenosynovitis, tenovaginitis and peritendinitis. It is defined as an inflammation of only the paratenon, either lined by synovium or not. Histologically there are inflammatory cells in the paratenon or peritendinous areolar tissue. Clinically there are inflammatory signs such as swelling, pain, crepitation, local tenderness, warmth and dysfunction.

"Tendinitis" is now used instead of "strain or tear of a tendon." The new definition is symptomatic degeneration of the tendon with vascular disruption and inflammatory repair response. The symptoms are inflammatory. Depending on the stage of tendinitis (acute -- less than two weeks, subacute -- four to six weeks, and chronic -- over six weeks) there may be a hematoma, or atrophy-related cell necrosis.

Histologically there are three recognized subgroups:

1. Purely inflammation with acute hemorrhage and tear.
2. Inflammation superimposed upon pre-existing degeneration
3. Calcification and tendinosis changes in chronic conditions

"Tendinosis" is a term referring to intratendinous degeneration due to atrophy (aging, microtrauma, vascular compromise). Histologically there is a non-inflammatory intratendinous degeneration due to atrophy (aging, microtrauma, vascular compromise). Histologically there is a non-inflammatory intratendinous collagen degeneration with fiber disorientation, hypocellularity, scattered vascular ingrowth, and occasional local necrosis or calcification. Clinically there is often a palpable tendon nodule that can be asymptomatic, but may also be point tender. There is no swelling of a tendon sheath.

"Paratenonitis with tendinosis" is paratenon inflammation associated with intratendinosis degeneration. Histologically it is similar to paratenonitis and tendinosis with no prominent intratendinous inflammation. Clinically it is similar to paratenonitis with possible palpable tendon nodule, swelling and inflammatory signs.

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