

## Tendinitis

Warren Hammer, MS, DC, DABCO

Patients often present with pain in their hands, elbows, shoulders, wrists, hips, knees or feet and state that their doctor said they were suffering with tendinitis. Upon asking how the doctor determined they had "tendinitis," the patient often states he touched the area and it hurt. In a recent article on patellar tendinitis,<sup>1</sup> the author states that "tenderness to palpation over the insertion of either the quadriceps tendon at the upper pole of the patella or the patellar tendon at the lower pole, or at the tibial tuberosity, is the "hallmark" of patellar tendinitis." I am certain that the doctor who wrote this statement took a complete history and surmised that the patient had patellar tendinitis before he touched the patient, but tenderness on palpation should never be the "hallmark" of a diagnostic conclusion.

Diagnosis is the assessment of function, and without stressing the function of the involved tissue, a diagnosis based on palpation of pain is less than adequate. A heart is stressed and monitored while the patient is on a treadmill. Every part of the human body is eventually diagnosed on how it functions. Palpation for tenderness should only be the main ingredient of a diagnosis when other avenues of examining function is impossible. Ideally, when dealing with the moving parts of our body, palpation for tenderness should follow a specific functional stress test of those parts. The ideal functional test for patellar tendinitis is resisted knee extension.

A tendon is considered part of the contractile muscular unit. Although the tendon does not contract on its own, it can be stressed by the muscle that attaches to it. In order of importance there are four criteria for diagnosing a tendinitis on examination:

1. Pain on resisted testing of the muscle to which the tendon is attached.
2. Pain on passive stretching of the involved muscle-tendon.
3. Pain on use by the patient.
4. Pain on palpation.

Pain on use and pain on palpation, of course, does not have to refer to a tendon, but pain on resisted muscular testing and pain when passively stretched incriminates a tendon if the palpation now localizes the tenderness to the body of the tendon or to the tendon-bone insertion.

Tendinitis refers to inflammation of the tendon and/or the tendon-muscle attachment while tenosynovitis refers to inflammation of the tendon sheath.<sup>2</sup> Tendovaginitis refers to inflammation of the tendon and its sheath.<sup>2</sup> Sheaths usually surround tendons that pass around bony structures and under fibrous retinacula such as the wrist, posterior tibialis, and peroneus longus passing around their respective malleoli.

The basic cause of tendinitis is usually repetitive intrinsic overload and microtrauma leading to an inflammatory reaction. In the shoulder, for example, tissue overload may be predisposed because of

the inherent avascularity of the supraspinatus, infraspinatus, and biceps tendon; or overfatigue and weakening of the cuff muscles may result in a shearing effect of the deltoid, due to loss of balance of the abductor force couple; or weakening of the scapulothoracic muscles resulting in failure of the acromion to get out of the way of the humeral head during abduction; or a traction stress due to clinical and occult anterior instability; or anatomical enlargement of the anterior acromion impinging on the cuff musculature; or overtraining and poor technique in a particular sport, or even thickening and scarring of a bursa which acts to aggravate an associated tendon.

It is always important to seek the underlying etiology or etiologies in order to truly treat and prevent reoccurrences, but first it is equally important to use a functional test to pinpoint the lesion. Another important reason for using a functional test rather than palpation for determining the source of the pain is that the patient can be dismissed based on the lack of pain after functional testing, rather than when the patient feels that the pain is gone. Cortisone often relieves the pain, but repetitive functional testing often indicates that the problem still exists.

### *References*

1. Colosimo, A.A.J.; Bassett, F.H. Jumper's Knee -- Diagnosis and Treatment. Orth Rev 1990; XIX:142.
2. Dorland's Illustrated Medical Dictionary, 26th Ed., Philadelphia, W.B. Saunders, 1981; 1316.

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