RHEUMATOID ARTHRITIS OF THE HAND AND WRIST

WHAT IS RHEUMATOID ARTHRITIS OF THE HAND AND WRIST?

Rheumatoid arthritis destructs the bones and soft tissues of the hand and wrist as a part of the very aggressive form of arthritis. In rheumatoid arthritis, the body produces antibodies that attack the normal lining of the joints and tendons called synovium.

SYMPTOMS:

The patients with rheumatoid arthritis often have involvement of multiple joints including hips and knees as well as the hands and feet. There can be intermittent swelling of the joints, fatigue, stiffness in the morning, rheumatoid nodules, which are firm nodules that frequently occur over the elbows and the dorsum or back of the hands and fingers can also occur as well. Please see Figure 1 for the clinical criteria for rheumatoid arthritis. Rheumatoid arthritis often produces multiple deformities with stiffness and weakness of the wrist, deformities of the thumb and fingers. The fingers can collapse into a boutonniere deformity (Figure 2) or a swan-neck deformity (Figure 3). In addition to damage to the bones, the disease can erode the tendons causing the fingers to droop requiring tendon transfers and repair to function (Figure 4).

WHO HAS RHEUMATOID ARTHRITIS?

The studies have demonstrated that there is a strong genetic pattern to rheumatoid arthritis. However, the inheritance is still incomplete so that the one parent does not always pass it on to a child. Even in identical twin studies, only 30-40% of the identical twins develop rheumatoid arthritis so there is probably a combination of genetic factors plus local environmental factors to stimulate the rheumatoid arthritis to develop.

HOW DO WE DIAGNOSE RHEUMATOID ARTHRITIS?

Rheumatoid arthritis is based on both clinical and laboratory studies. The pattern of joint swelling and deformity follows predictable patterns (Figure 1). Blood tests often, demonstrate elevated rheumatoid factor levels. The bone x-rays demonstrate lesions where a portion of the bone near the joint line has been “punched out” and removed (Figure 5).

HOW DO WE TREAT RHEUMATOID ARTHRITIS OF THE HAND AND WRIST?

The mainstay of treatment is a good medical management program. The development of new disease modifying drugs (DMARDs) focuses on decreasing the special factor called TNF (tumor necrosing factor), which
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has been responsible for the inflammation of the synovium and a subsequent joint and bone damage.

In some mild cases, simple nonsteroidal anti-inflammatory medications are sufficient, but these need to be evaluated and monitored by an internal medicine physician specializing in arthritis. However, once destruction of the joints or tendons has occurred, surgical reconstruction may be necessary, despite the successful use of the DMARDs. These are wide ranging and beyond the complete discussion of this handout, but the key features are the following:

1. **FINGER DEFORMITY FROM BOUTONNIÈRE AND SWAN-NECK DEFORMITY:**
   Repair of the tendons and reconstruct the joints (Figure 2 and Figure 6).

2. **RUPTURE OF THE TENDONS:**
   The damage of the tendon often involves the destruction of the entire segment rather than a simple laceration. Therefore tendon grafts or tendon transfers are necessary, which involve the use of “extra” tendons that can be rotated and sutured to replace the function of the tendon that has ruptured (Figure 7).

3. **REPLACEMENT OF ARTHRITIC JOINTS:**
   These can include replacements of the finger joints (Figure 8) or the entire wrist.

4. **JOINT FUSIONS:**
   In severe cases of joint destruction with deformity, fusions are required to provide stability and improve function such as for the wrist (Figure 9) or the fingers (Figure 10).

5. **REHABILITATION:**
   With rheumatoid arthritis, it is very important to have a functional hand therapy program after surgery that includes supportive splints as well as therapy that is directed specifically to address the issues of the tendons or joints. A careful follow-up program for three months after the surgery is recommended. The specific type of therapy depends on the reconstructive surgery required.

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Thomas E. Trumble, M.D.

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1632 116th Ave NE # C Bellevue, WA 98004 | Ph: 425-458-5543 | Fx: 425-454-9143