



Metacarpal-Phalangeal Joint Arthritis and Joint Replacement



Jay T. Bridgeman, M.D.
Randy M. Hauck, M.D.
T. Shane Johnson, M.D.
Alexander Payatakes, M.D.
Kathleen A. Beaulieu, O.T.R./L., C.H.T.
Jana U. Poole, O.T.R./L., C.H.T.
Diane Romanowsky, P.A.-C.

Hand & Wrist Surgical Services

PENNSSTATE HERSHEY



Milton S. Hershey
Medical Center



Penn State Milton S. Hershey Medical Center
30 Hope Drive
Building B, Suite 2400
Hershey, PA 17033-0850
Phone: 717-531-5638

www.PennStateHershey.org/BoneandJoint

PENNSSTATE HERSHEY



Bone & Joint Institute

What is it?

The disease of rheumatoid arthritis often destroys the metacarpal-phalangeal (MCP) joints. This joint is at the first knuckle of the hand and normally is responsible for about 100 degrees of motion of the fingers. This allows the joint to flex to about 90 degrees (making a fist) and to extend 10-20 degrees beyond the position of holding the finger straight.

Patients with advanced arthritis involving the hand often have much difficulty with motion at the MCP joints of the fingers. Many times the progression of the disease in the finger causes the MCP joint to sublux or dislocate and little motion will be possible at this joint.

The deformity is complicated by lateral deformity of the fingers that causes the MCP joint to point to the ulnar side of the hand (little finger). After the joints have been held in this position for some time, the extensor tendons also move to an abnormal location and help to perpetuate the problem of joint subluxation. Normally the extensor tendons travel directly over the MCP joint. With MCP destruction the extensor tendons move to the ulnar side of the joint (towards the small finger). This position accentuates the deformity.



Diagram 1
Normal metacarpal-phalangeal (MCP) joint anatomy

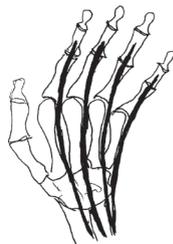


Diagram 2
MCP subluxation (dislocation) and abnormal position of the extensor tendons in advanced rheumatoid arthritis

What causes it?

Arthritis by definition is inflammation of the joint. What happens in rheumatoid arthritis is that one's immune system reacts against the synovial lining of the joints to cause severe swelling and destruction of the cartilage lining of the affected joints. This leads to pain and instability that often results in an abnormal position and appearance of the MCP joints.

What are the signs and symptoms?

The most common problem in late arthritis of the MCP joint is lack of motion and malposition. The MCP joint can be stuck in a flexed (fist) position so the hand cannot be opened. This interferes greatly with grasp and overall hand function.

How is it diagnosed?

This condition is diagnosed by history, examination, and X-ray confirmation of the MCP joint disruption. Most patients complain of increasing disability regarding hand use after initial swelling of the MCP joints. Examination will reveal limited motion and malposition of the joints. The extensor tendons can be seen in the valleys between the knuckles and each is on the ulnar side of the joint. X-rays are done to evaluate the amount of bony destruction and joint subluxation.

How is it treated?

The goal of treatment is to restore function of the hand to the highest level possible. Early disease of the MCP joint is treated with measures to control the overall disease, decrease inflammation and swelling, and splinting to prevent deformity. If the disease has progressed to severe deformity without functional motion at the MCP joint, the joint can be replaced with silicone spacers. During the surgery the extensor tendons are realigned as well as any other measures that may help increase hand use and function. Each hand must be individualized to maximize the desired maximal result.

Surgery is only part of the treatment plan. Since the joints are replaced by silicone that works as a spacer, therapy is paramount to gain optimal function. The body reacts to the silicone to make a shell of scar around the silicone. This scar or capsule is what ultimately gives the reconstructed joints its stability. This scar capsule requires about three months to reach enough stability to withstand the pressures generated by motion at the MCP joints. Cooperation with hand therapy and the wearing of splints to protect the joints in correct position after surgery is just as important and the surgery itself—neither will be successful alone. Most patients will continue to wear a resting night splint to prevent recurrence of the malposition.



Diagram 3
MCP joint replacement and tendon realignment