



Common Hand Disorders in Diabetes Mellitus

Individuals with diabetes know of the many effects the disease can have on their health, including kidney failure, loss of vision, heart attacks and loss of sensation in the feet. However, what is relatively unknown is that diabetes can cause hand problems.

There are a number of hand conditions associated with diabetes mellitus, including trigger finger (flexor tenosynovitis), finger stiffness (limited joint motion or cheiroarthropathy), carpal tunnel syndrome, cubital tunnel syndrome (pressure on the ulnar nerve at the elbow) and Dupuytren's Disease (contracture of the fingers). These conditions are more common in insulin dependent diabetic patients versus those individuals who require oral medications. In addition, the frequency of these hand conditions increases as one gets older, the longer one has diabetes and if there is involvement of the retinal vessels in the eye.

Patients with limited joint motion have an abnormal thickening of the skin due to increased amounts of fibrous tissue. This may occur due to sugar-derived molecules combining with proteins in the tissues. Limited joint motion can occur in diabetic children and adults. Limited joint motion may also result from inflammation and thickening of the flexor tendon lubricating membrane or tenosynovium. This condition causes stiffness of the fingers, with inability to fully straighten them. Triggering of the fingers is a common finding in these patients. With finger flexion, the finger locks in the bent position or it straightens out with a painful "pop". This is due to the swollen tendon catching as it passes through a fibrous tunnel (tendon sheath) on the palm side of the finger. In the insulin dependent diabetic, it is common to have multiple trigger digits and in some cases, all five digits on a hand may be affected at the same time. Most digits will respond to injections of steroid (cortisone) into the tendon sheath. However, 50% of diabetic trigger fingers fail to respond to steroid injections compared to 28% of non-diabetic trigger fingers. If non-operative treatment fails, surgery is an option. Surgery is performed as

an outpatient using local anesthesia. The tendon sheath is cut, providing more room for the swollen tendon and eliminating the painful catching of the tendon on the tendon sheath. Good surgical outcomes in diabetics are not as predictable when compared to non-diabetics.

Diabetic peripheral neuropathy commonly affects the feet and hands. This results in a loss of feeling in a so-called “glove and stocking” distribution. This condition has been considered progressive and irreversible once established. However, recent research has demonstrated that many patients have compression of multiple peripheral nerves and that surgical “decompression” of these nerves results in predictable improvement in feeling or sensation. Carpal tunnel syndrome is 4-6 times more common in diabetics versus the non-diabetic person. Most patients complain of tingling and numbness affecting the thumb, index, long and ring fingers. In addition, these patients may also have compression of the ulnar nerve at the elbow (cubital tunnel syndrome), causing numbness in the small and ring fingers. In one study, 88% of diabetics who had surgical decompression of the upper extremity nerves demonstrated improvement in sensation, while 32% of those who had nothing done, demonstrated worsening of their sensation. Decompression of the carpal tunnel and ulnar nerve is an outpatient procedure performed under local or regional anesthesia, where only the affected limb is “frozen”.

Dupuytren’s Disease is a condition that results in progressive flexion contractures of the fingers. The small and ring fingers are most commonly affected. It is more common in men and diabetics. There is a strong genetic factor, in that individuals from the Northern Hemisphere, especially Scandinavia, Scotland and Ireland are commonly affected. Thickening of the normal fibrous tissue in the palm of the hand causes the contracture. When the contracture results in inability to lay the hand flat on a tabletop, surgery is indicated. The surgery is usually performed under regional anesthesia as an outpatient. The surgeon carefully removes all the thickened fibrous tissue from the palm of the hand and finger/s, correcting the contractures. Postoperatively, hand therapy is often required. Hand disorders are common in diabetic patients and can cause severe functional loss. However, good management of blood glucose levels combined with surgery can alleviate most hand conditions.