



Diabetic Charcot Neuroarthropathy of the Hand: Clinical Course, Diagnosis, and Treatment Options

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During the treatment of diabetic Charcot neuroarthropathy (CN) of the foot in two young patients, we discovered atypical alterations of their hands with loss of strength and paresthesia combined with atypical and nonhealing bone alterations and instability. Whereas CN of the foot is a serious and well-known complication of diabetes, CN of the hand is only mentioned in four articles (1–4).

We reviewed all patients who had been treated in our clinic for CN of the foot ($N = 281$) from 1998 to 2010. We scanned all patient reports for X-rays or complaints of the hand and visible alterations. Photo documentation and X-rays of the affected joints were obtained after the patients had given formal consent and all demands of the Declaration of Helsinki were fulfilled.

Three patients with CN of the hand were included; all of them were female (25, 31, and 62 years old at admission). Two patients had type 1 diabetes, and one had type 2 diabetes. All three were found to have swelling, loss of strength, and severe paresthesia of the hand. All these patients had been suffering from diabetes for more than 10 years, and all showed multiple complications of the diabetes, one of which was severe polyneuropathy of the affected joints. One patient died before the age of 36 years.

All patients complained of loss of strength with trouble to perform activities of daily living, which was verified by neurologists. There was painless paresthesia and swelling of the affected joints. The diagnosis of polyneuropathy and CN of the hand was made in our clinic for the first time at first admission, even though the patients had seen various physicians before. The X-rays showed disintegration of the joints and destruction of the bone comparable to that seen in Eichenholtz stages of CN of the foot (Fig. 1). All patients complained of instability without trauma.

Patients with diabetes who complain of paresthesia, instability, and/or loss of strength in the upper limb should immediately be examined for polyneuropathy of the upper limb, which is often overlooked. X-rays should be performed. We treated all affected joints with immobilization, initially using casts until swelling and redness vanished, signaling remission, after which the patients were supplied with orthoses. Consistent immobilization stopped the process of joint destruction in all cases, similar to CN of the foot.

We assume that there may be a large number of patients with undiagnosed CN of the hand. In two of our patients both hands were affected, which demonstrates even more forcibly how much CN of the hand was a handicap to each



Figure 1—CN of the hand, showing destruction and disintegration of the carpal bones and joints (patient 3). The distal radius and distal ulna have been destroyed. All the carpal bones have disintegrated and are lytic, so that it is not possible to recognize the individual bones and their borders. In addition, there is severe osteopenia and lysis of the base of metacarpal bones II, III, and IV. The bones of the fingers do not seem to be affected, but osteopenia is also evident in them.

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of these patients. More studies are needed in this field, but the initial need is for adequate diagnosis of patients with CN of the hand.

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and searched data and literature. T.M. and K.P. revised the article. H.H.W. co-initiated the study, examined patients, and corrected the article. U.I. is the guarantor of this work and, as such, had full access to all the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis.

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