

## Joint Contractures in Diabetes Mellitus Mimicking Rheumatoid Arthritis

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### *Abstract*

An insulin dependent adult diabetic with multiple small joint contractures and thickened waxy skin over the hand is reported. The rarity of the problem in adult diabetics and the importance of differentiating it from rheumatoid arthritis is discussed.

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Key words -

**Diabetic hand,**

**Waxy skin,**

**Joint deformity**

True to its reputation as a systemic disease, the manifestations of diabetes mellitus are protean. One such recently observed though not frequently recognized complication is multiple joint contractures with thickened, waxy skin over the distal parts of the extremities [1], [2], [3]. One such case occurring in an adult diabetic is reported in this communication. The distinction of this entity from the rheumatoid arthritis and systemic sclerosis is highlighted.

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### Case Report

Mrs. N. a 45 year old school teacher had a history of poorly controlled diabetes of 8 year duration. She had recurrent episodes of hyperglycemia requiring hospitalizations. Following one such crisis three and a half years ago, she developed pain and stiffness of multiple joints, fingers, wrists, shoulders, toes, ankles, knees and hips. Though the pain subsided over the next few months, she was left with disabling flexion contractures of fingers, left shoulder and both knees. She was unable to contact a flat surface with the palms and she had to walk with a limp. The skin on the dorsal aspect of her hands and fingers was thick, waxy, and shiny. She had evidence of distal symmetrical sensory motor neuropathy and left ulnar neuropathy due to involvement of the nerve by an old injury at the wrist. Except for mild hypertension, other systems were normal.

Her blood sugar was 474 mg%. She had mild hypertriglyceridemia. Investigations for connective

tissue diseases - Rheumatoid factor, L E. cell phenomenon and ANA were negative. X-ray of hands showed diffuse osteoporosis with normal joint space. X-ray of the knee showed evidence of osteoarthritis.

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## Discussion

The syndrome of joint contractions, waxy skin was first reported by Jung and co-workers in 1971 in 23 diabetics with a mean age of 43 years [2]. Similar reports in adult diabetics are rare although, the disorder has been widely recognized in juvenile diabetics [7]. Rosenbloom et al [6] reported that 92 of 309 patients (30%) with diabetes, aged 1 to 28 years had limited mobility of large and small joints. Typically the inter phalangeal and metacarpo-phalangeal joints were involved resulting in inability to contact a flat surface with the palm. After 1 to 3 years of evolution, the contractures became stable or improved partially. X-rays were normal except for periarticular soft tissue thickening. Skin involvement may occur independently but the two are often coexistent. One third of their patients had thick, tight waxy skin over the dorsal aspect of the hands. More recent studies by Rosenbloom et al [6] have suggested a genetic predisposition for joint contractures in diabetics [7]. Its incidence is significantly higher among first degree relatives of patients with Insulin Dependent Diabetes Mellitus (IDDM). Joint curvatures have also been associated with a longer duration of diabetes along with increased incidence of microvascular disease namely, retinopathy and nephropathy [1], [6]. Reports of lung involvement with impaired compliance, however, have been inconsistent [1], [8].

The pathogenesis of these complications of diabetes is not known but increased collagen cross-linkages, possibly secondary to non-enzymatic glycosylation of proteins has been implicated [5]. Improved control of hyperglycemia, for example with insulin pump, has been shown to decrease skin thickness in patients with IDDM and waxy skin [4].

The purpose of this communication is to increase awareness about a not so uncommon complication of diabetes involving the skin and the skeletal system. Though noticed even earlier it was hitherto not associated with diabetes and was attributed to "Rheumatism". Recognition at an early stage may prevent or help to alleviate a lifelong disability.

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