

Prayer sign in diabetes mellitus

Sir,

Limited joint mobility (LJM) is a condition characterized by hand stiffness resulting from flexion contractures of the fingers and thickened, tight, waxy skin.^[1] It is seen in approximately 25-50% diabetics, equally common in both sexes; and commoner in patients on insulin, juvenile onset, and longer duration of the diabetes.^[1,2] It begins as contractures in the distal interphalangeal and proximal interphalangeal joints. Gradually, it increases to involve metacarpophalangeal joints, wrists, and other peripheral joints of both upper and lower limbs [Table 1]. It is usually asymptomatic, but later in the course of illness, the patients complain of stiffness, weakness of grip, clumsiness, and decreased dexterity due to reduced ability to perform fine movements. Typically LJM is painless; however, patients with coexisting neuropathy may report pain.^[1-3] Clinically, it is detected by performing the “prayer sign”^[3] by asking the patient to put his or her hands together in a praying position with the fingers fanned and to press together the palmar surfaces of the interphalangeal joints and the palms. Normally, an individual is able to oppose both hands together, but a patient with LJM fails to do so as in our patient [Figure 1]. Prayer sign correlates well with goniometer in detection of LJM. Another test to detect LJM is the “tabletop test” that is conducted by asking the patient to place his hands palms-down on a tabletop with the fingers spread.^[1] A normal individual should be able to make contact of palmer surface of hand; however, a patient with LJM will not be able to do so. In case of positive test, the examiner may confirm limitation of joint motion with passive extension of the fingers. Differential diagnosis includes Dupuytren contracture, tenosynovitis of the finger flexor tendons, reflex sympathetic dystrophy, palmar fasciitis, and scleroderma.^[1]

Results of laboratory (erythrocyte sedimentation rate, antinuclear antibodies and rheumatoid factor), radiographic

Table 1: Classification of LJM^[3]

Stage	Stage	Description
0	No limitation	Includes equivocal or unilateral findings
1	Mild or slight limitation	Involvement of one or two interphalangeal joints or only the metacarpophalangeal joints bilaterally
2	Moderate limitation	Involvement of three or more interphalangeal joints or one finger and one large joint bilaterally
3	Severe limitation	Obvious hand deformity at rest

LJM: Limited joint mobility



Figure 1: Positive "prayer sign" in a young girl with juvenile onset diabetes of 5 years duration

evaluation, and nail fold capillaroscopy are usually unremarkable.^[1] Biopsy of the skin and periarticular tissues in patients with LJM has shown abnormal thickening of the dermis and fibrosis of subcutaneous tissue that occurs as a result of non-enzymatic glycosylation of collagen consequent to prolonged hyperglycemia.^[2] This glycosylation results in abnormal cross-linking of collagen that renders it resistant to mechanical and enzymatic degradation and subsequent collagen and extracellular matrix accumulation. This leads to alteration of cellular and structural components of the microvasculature, thickening of the capillary basement membrane, low-grade ischemia, and chronic tissue injury. Additionally excessive flux through aldose reductase pathway results in depletion of essential osmolytes, cytotoxic edema, and membrane injury. All of these abnormalities lead to excessive fibrosis that is reversible early in the course of disease but become irreversible later.^[1,2]

LJM is associated with microvascular (2-3 fold higher risk) i.e., neuropathy, retinopathy, nephropathy, and macrovascular complications (3-4 fold higher risk) i.e., coronary heart disease and cerebrovascular disease, and its presence should alert the physician to the likely presence of microvascular or macrovascular disease or both.^[1] Treatment options include strict control of blood glucose, passive stretching and digital extension and occupational therapy. No drugs are approved for treatment of LJM; however, injection of corticosteroids in the palmar flexor tendon sheath, aldose reductase inhibitors, penicillamine, and aminoguanidine have been tried with variable results.^[1]

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