Title: A Rare Musculoskeletal joint complication associated in children with type 1 diabetes

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Abstract

Background

Diabetes is a multisystem disease characterized by hyperglycemia due to insulin insufficiency. Type 1 diabetes characterized by destruction of beta cells by the immune system and present with Polyuria, polydipsia and weight loss.

Dupuytren contracture (DC) is a fibrosing disorder that results in slowly progressive shorting and thickening of the palmar fascia leads to contracture of the metacarpophalangeal joints or the proximal interphalangeal joints.

This condition usually affects the fourth and fifth digits and the patient will be unable to extend the affected digit.

Dupuytren disease is a rare condition in pediatric age group. Only eight histologically proven cases have been reported. We report the case of child with type 1 diabetes who develop Dupuytren contracture in a short period after the diagnoses of diabetes.

Case Presentation

10 years old girl with type 1 diabetes Diagnosed at the age of 8 years. This patient initially followed in primary health care and recently seen in our institution present with poor control of Diabetes. She is on subcutaneous premixed insulin twice daily around 1 units/kg/day. No history of frequent acidosis no frequent admissions no complains except the limitation of movements in her left 4th finger for few months not improve with time, no history of trauma. Her father also type 1 diabetes with the same problem improve with physiotherapy

On examination not dysmorphic, her growth parameters on 3rd centile, there is lypohypertrophy in both arms (injection site), eye examination was normal, her investigation include thyroid, renal and celiac screen was normal with elevated HbA1c. Skin blanching in left hand (Fig 1), Inability to extend the proximal interphalangeal joint due to muscle contraction (Fig2 & Fig3). Limited joint mobility (Prayer sign) Figure 4.

Discussion

Muscle cramps is the most common musculoskeletal symptoms associated with type 1 diabetes and result may be due to electrolyte disturbance, peripheral neuropathy or vascular insufficiency. Other common musculoskeletal symptoms due to either type 1 or 2 diabetes is limited joint mobility (Fig 4).

Dupuytren's contracture(DC) is a thickening, shortening, fibrosis and nodule formation of the palmar fascia leads to debilitating contractures.

About 5% of patient with Dupuytren contracture are diabetics. DC has been reported in over one third of diabetic patients and mainly in male adult.

The pathophysiology of DC due to myofibroblasts proliferation and deposition of collagen. Also may be due to microvascular ischemia due to smoking, diabetes or trauma. These pathologic changes result in flexion contractures of the fingers particularly fourth and fifth

metacarpophalangeal joints or the proximal interphalangeal joints, but any the second through fifth digits may be involved.
The exact cause still unknown but can be familial or association with Trauma, Diabetes, smoking, epilepsy or alcoholism. The prevalence of Dupuytren contracture increases with disease duration. The right hand is more affected and can be unilateral but bilateral more common.
Around 13 % of patients with DC were found to have high blood glucose level.
Dupuytren disease in patients with diabetes ranges from 1.6-32%, the prevalence of diabetes in patients with Dupuytren disease is 5%.
Patients with diabetes mellitus and Dupuytren disease have a fourfold increased risk of developing comorbidities (retinopathy, nephropathy and neurovascular disease) than do patient with diabetes alone.
Patient with mild DC can be observed closely to follow the progression of the condition and proper intervention.
Treatment consist of optimizing blood glucose control, physiotherapy, local corticosteroid injections associated with a complication like atrophy and Surgical intervention may be needed if function impaired.

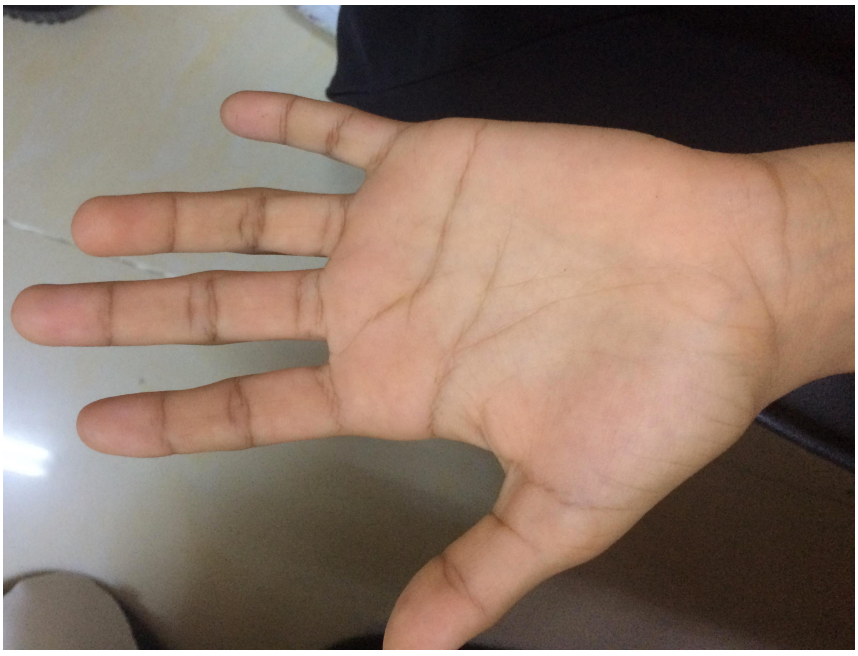


Fig 1



Fig 2



Fig 3

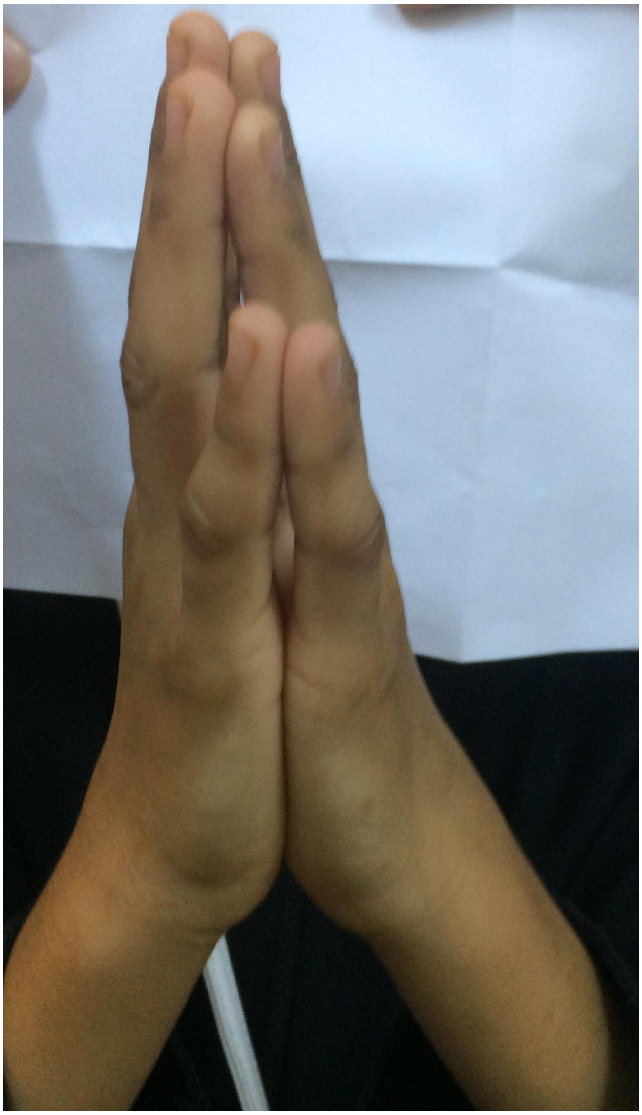


Fig 4

Biography

Dr.Ahmed AL Nahari has completed his Pediatric Endocrinology Fellowship in 2016 from McMaster University , Canada. He is the director of Diabetic and Endocrine Centre in King Fahad Central Hospital in Jazan, Saudi Arabia. He has published case reports and research.

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