

## **FLEXOR TENDON CONTRACTURES IN AN INSULIN - DEPENDENT DIABETIC YOUNG GIRL (ROSENBLOOM SYNDROME)\***

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Small stature, rigidity and flexion contractures of the fingers characterize "Rosenbloom syndrome" which is rarely seen in insulin dependent diabetics. This new syndrome was reported by Rosenbloom and Trias in 1974<sup>1</sup>. Limited joint mobility in childhood diabetes indicates increased risk for microvascular disease<sup>2</sup>. The duration of the diabetes, metabolic factors and especially increased collagen turnover might have a significant influence on the process of flexion contractures<sup>3-6</sup>.

In this report we present a fourteen-year-old girl with fusiform thickening and flexion contractures of the small joints of both hands. The patient had neither the classical palmar fascial change nor Dupuytren's contracture.

### **Case Report**

A fourteen-year-old girl was admitted to Alsancak State Hospital with complaints of morning stiffness and difficulty in extending her fingers fully for a period of six months. She had an eight-year history of insulin dependent diabetes.

Physical examination revealed fusiform swollen joints and flexion contractures localized to the distal and proximal interphalangeal joints of both hands. The other joints and physical examination findings were within normal limits. The girl's height was 136 cm (below the third percentile), weight 31 kg (below the third percentile), pubic and axillary hair growth inadequate and she had no beard growth. Roentgenograms of the hands and wrists showed soft tissue swelling, normal bone structures and the bone age was 12 years (Fig. 1)<sup>7</sup>.

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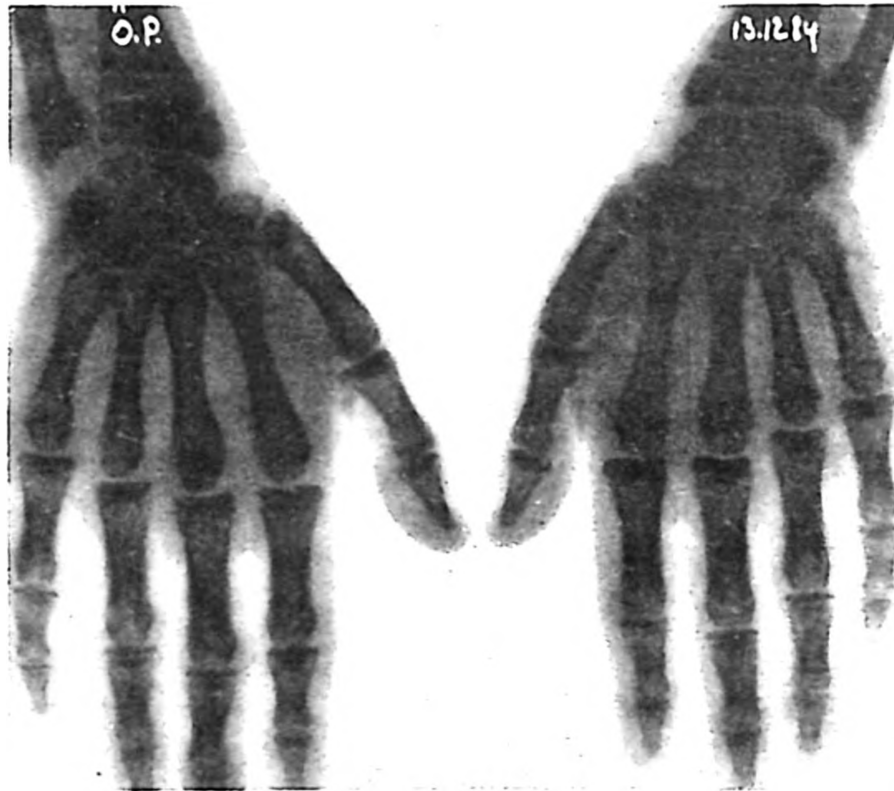


Fig. 1: Normal appearance of the hand-wrist roentgenogram.

#### *Laboratory findings:*

Laboratory studies revealed hemoglobin 12.6 g/dl; urinalysis normal; sedimentation rate 6mm/hr; blood glucose 100 mg/dl; ASO 200 T.U.; CRP(–); and RF(–).

The patient, diagnosed as having Rosenbloom syndrome, had already been followed in our hospital for diabetes mellitus. In order to improve the contractions of the subject's digits, a physiotherapy program consisting of 20 sessions of paraffin baths, ultrasound applications under water and stretching exercises was started in addition to proprioceptive neuromuscular facilitation techniques to relax the digital joints. The physiotherapy resulted in improving the range of motion of joints to only some degree.

A physical examination, one year later, revealed that despite the physiotherapy program, the motion range and fusiform thickening of the digital joints remained unchanged.

#### **Discussion**

Although the pathogenesis of Rosenbloom syndrome is unknown, the most reasonable suggestion regarding the etiology of this condition is the probable effect of hyperglycemia on the collagen structure by non-enzymatic glycosylation leading to increased collagen cross-linkage and turnover<sup>4-6</sup>.

The study by Buckingham et al<sup>5</sup>, examines samples of skin biopsies of three young diabetics with joint contractures which showed increased collagen in the lower dermis, decreased extractability of collagen (suggesting increased cross-linkage) and increased non-enzymatic glycosylation of protein.

Another factor causing Rosenbloom syndrome is the duration of insulin dependent diabetes. The longer the duration, the higher the incidence of this new syndrome<sup>3</sup>.

Although it has been reported that the frequency of lesions is age-related, it has also been suggested that there is a positive correlation between the frequency of lesions and the duration of diabetes<sup>5,9,10</sup>.

Connective tissue abnormalities may be more reversible by an intensive physiotherapy program and regulation of diabetes simultaneously<sup>8</sup>.

In our case and in those in the literature, the localization of lesions in the small joints of the fingers is stressed in this syndrome, but there was no presence of Dupuytren contractures nor abnormality in the other joints.

## Summary

Limited mobility in the fingers of an insulin-dependent diabetic young girl is presented. Special localization of the contractures, fusiform swelling, normal laboratory findings and limited response to conservative treatment are important characteristics of Rosenbloom syndrome. In addition Dupuytren contractures and palmar fascial changes frequently seen in diabetes were not observed.

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