

Diabetic cheiroarthropathy

Quieroartropatia diabética

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Keypoints

What is known

- Limited joint mobility associated with diabetes mellitus, involving restricted joint movement, a rare finding amongst pediatric patients.
- Diabetic cheiroarthropathy is a long-term complication of diabetes, causing physical and emotional disability.
- Diabetic cheiroarthropathy is associated with poor metabolic control and microvascular complications.

What is added

- Raises awareness of musculoskeletal complications in pediatric diabetes and the need for therapy referrals.
- Highlights the overlooked impact of diabetic cheiroarthropathy on quality of life and fine motor skills.
- Provides a rare adolescent case linking diabetic cheiroarthropathy to multiple microvascular complications.

Diabetic cheiroarthropathy (DC), though often overlooked in diabetes, profoundly affects patient well-being. Known as diabetic limited joint mobility (LJM), it restricts joint movements, particularly in the small joints of the hands. DC often coincides with other diabetes-related complications¹.

This condition can manifest in both type 1 and type 2 diabetes, with the risk increasing alongside elevated glycated hemoglobin levels and disease duration². Genetic predisposition and the accumulation of advanced glycation end products cross-linking to collagen in the skin, tendons, and ligaments also play pivotal roles^{1,2}.

Clinical manifestations include reduced pain sensitivity, reduced grip strength, and a gradual decline in fine motor skills. Commonly observed are contractures affecting the proximal interphalangeal and metacarpophalangeal joints, accompanied by thickening of the skin and a waxy texture. Diagnosis of LJM relies on these clinical features^{2,3,4}.

Illustrating this discussion is a case involving a 16-year-old female with longstanding type 1 diabetes (diagnosed in the first year of life). She was on a regimen with once-daily insulin glargine and twice-daily insulin aspart, with an HbA1c of 7.7%. She was evacuated from Cabo Verde to Hospital de Santa Maria at 16

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Received: 02-10-2024

Accepted: 25-06-2025

<https://pjp.spp.pt>

Available online: 29-07-2025

Port J Pediatr. (ahead of print)

DOI: 10.24875/PJP.24000083



Figure 1. Fixed flexion contractures at the proximal and distal interphalangeal joints, a “table top” sign, illustrating finger stiffness preventing flat hand placement.



Figure 2. Thickening of the palm surfaces, along with a positive prayer sign, in which the patient is unable to fully press their palms together.

years of age due to retinal detachment resulting from proliferative diabetic retinopathy. She also presented other microvascular complications of diabetes, including moderate distal symmetrical peripheral polyneuropathy and nephropathy. To improve treatment in Cabo Verde, ensuring a consistent supply of insulin, investing in therapeutic education, and enhancing access to advanced technologies is essential.

Upon examining her hands, diabetic cheiroarthropathy was evident, with fixed flexion deformities at all interphalangeal joints. The palms exhibited thickening and induration, with a positive prayer sign^{3,4}. Tests for carpal tunnel syndrome were negative. Neurological assessment also revealed impaired grip strength³. She

was managed with optimized glycemic control and pain management to improve function and prevent progression.

DC remains a frequently neglected late-stage complication of diabetes², significantly impairing physical capabilities for intricate fine motor skills. Beyond its physical constraints, it substantially contributes to psychological and emotional disturbances. This case underscores the importance of recognizing DC in diabetes care, urging early identification and intervention to improve long-term prognosis and mitigate its broader effects on patients' lives.

Author contributions

Mariana Soares: Conceptualization, data curation, investigation and writing. Rafael Inácio: Review, editing. Ana R. Henriques: Conceptualization, review and editing. Joana Coelho: Review and editing. Miguel Bernardo: Conceptualization, review and editing

Funding

None.

Conflicts of interest

None.

Ethical considerations

Protection of humans and animals. The authors declare that no experiments involving humans or animals were conducted for this research.

Confidentiality, informed consent, and ethical approval. The authors have followed their institution's confidentiality protocols, obtained informed consent from patients, and received approval from the Ethics Committee. The SAGER guidelines were followed according to the nature of the study.

Declaration on the use of artificial intelligence. The authors declare that no generative artificial intelligence was used in the writing of this manuscript.

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