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Original scientific paper

ULCER LESIONS IN PATIENTS WITH TYPE 2 DIABETES MELLITUS: A CASE REPORT

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Abstract

Diabetes mellitus is one of the most common diseases in Western industrialized nations with an estimated 300 million people affected worldwide. Metabolic condition in diabetics leads to changes in almost all types of cells and organs in the body. Skin complications are among the most common. The fact that skin changes can precede diabetes mellitus, they have great diagnostic importance. Skin changes can also develop during diabetes mellitus, but sometimes they are related to internal organs and their complications or occur as a side effect of antidiabetic therapy. The worldwide prevalence in 2020 was 7.4% with an estimated 385 million affected adults and is expected to increase to 424 million by 2025. We present to you a case report of a 49-year-old patient, who comes for examination due to several ulcerous lesions on the right lower leg of different sizes that appeared two weeks ago, the lower leg is edematous and erythematous, in some places cicatrix from previous lesions can be observed. The patient gives information that she has diabetes mellitus, which is not adequately regulated, she was on tablet therapy for 10 years and for the last 10 years she has been on insulin therapy, but, despite this, the glycaemia is still inadequately regulated.

Keywords: diabetes mellitus, blood vessels, ulcus crurum, peripheral artery disease.

1. Introduction

Diabetes mellitus is one of the most common diseases in Western countries with about 300 million people affected worldwide. Metabolic condition in diabetics leads to changes in almost all types of cells and organs in the body. Skin complications are among the most common. The fact that skin changes can precede diabetes mellitus, they have great diagnostic importance. Skin changes can also develop during diabetes mellitus, but sometimes they are related to internal organs and their complications or occur as a side effect of antidiabetic therapy. Diabetes mellitus is divided into two pathophysiologically different types: DM type I results in autoimmune-induced destruction of pancreatic β-cells, during which endogenous insulin production ceases. The incidence of type II diabetes mellitus increases with age and correlates with body mass index (BMI). Initially, type II diabetes mellitus is not insulin dependent. In addition, other subtypes are distinguished, namely: congenital deficiency of β-cells of the pancreas, disorders of insulin production, signal transduction, diabetes mellitus in the context of exocrine diseases, pancreas and syndromic polyendocrinopathies. Epidemiologically, about 30% of all diabetics develop skin symptoms during their lifetime. They usually occur as the disease progresses, however, in some cases, skin diseases can lead to diabetes mellitus or be a partial symptom of an inherited or acquired syndrome. In general, there is no clear correlation between the incidence or degree of skin symptoms in diabetes mellitus and the severity of the diabetes.

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2. Case report

We present to you a case report of a 49-year-old patient, who came for examination due to several ulcer lesions with fibrin patches on the right lower leg of different sizes that appeared two weeks ago, the lower leg is edematous and erythematous, in some places cicatrixes from previous lesions. The patient gives information that she has diabetes mellitus, which is not adequately regulated, she was on tablet therapy for 10 years and for the last 10 years she has been on insulin therapy, but, despite this, the glycaemia is still inadequately regulated. Echo Doppler sonography of the arterial and venous system was performed on the patient, where dilatation of the entire superficial and deep venous system was noted, but at the same time there was a regular flow, while in the arterial flow a biphasic Doppler signal was registered only on ATA and ADP, on the rest is a three-phase Doppler signal. His laboratory findings showed poor glicoregulation, with HBA1C=10,7%, d-Dimer was also elevated significantly, she was transferred to vascular surgeon for the PAD. She was treated with two broad-spectrum antibiotics and from the wound was isolated Coagulase negative staphylococcus, and locally with an antiseptic. Also his insulinotherapy was modified, tromboprophylaxis was done and after a period of few months his results were better.

3. Discussion

Diabetes mellitus causes damage through many different pathomechanisms. The skin functions in a complex way. Studies of in-vitro cell culture systems show that DM, on the one hand, directly through pathological glucose concentrations, and on the other hand, indirectly, through the formation of the so-called advanced glycation end products (AGEs) have negative effects on almost all cellular parameters. Pathomechanisms lead to diabetic micro- and macroangiopathy, resulting in tissue hypoxia, which also damages nerves. A consequence of diabetic neuropathy is damage to sensorimotor and autonomic nervous functions, resulting in reduced pain perception, increased vulnerability, exogenous trauma, circulation disorders, anhidrosis and xerosis cutis.

4. Conclusion

It is recommended to carry out early angiological diagnostics and, if necessary, recanalization (percutaneous transluminal angioplasty, stent insertion or bypass). Revascularization can reduce the risk of amputation. If this is not possible surgically, therapy with alprostadil or iloprost can be performed to improve arterial flow. Large wound defects can be repaired with skin grafting.

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