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Diabetic foot – morphological study

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Background and aims: The diabetic foot includes neurological disorders, macro and microangiopathy, joint and bone structures abnormalities, lesions of the nails and the skin. The microcirculation in neuropathic diabetic feet is the subject of the same changes found in other end organs of the diabetic patients. In diabetic neuropathy, abnormal neurogenic regulation of the haemodynamics in the small vessels may contribute to the development of microangiopathy, which is manifested as increased basement thickening. Thus, both of neuropathy and microangiopathy are undoubtedly implicated in the pathogenesis of diabetic foot ulceration. The aim of our study is to notice the anatomo-pathological changes in the diabetic foot and their relationship with the degrees of the diseases severity. **Patients and methods:** We studied 25 diabetic patients (type 1 diabetes = 9 patients, 5 males and 4 females, type 2 diabetes = 16 patients, 10 males and 6 females) with a duration of diabetes between 10 and 30 years. All patients had neuropathic ulcerations or gangrenes and they were surgical treated (minor amputations - limited at the inferior level of the foot only). During surgery we sampled biopsy from these lesions which were specifically coloured (with Hemalaun-Eosine, by Tricrom – Szekely and by van Gieson methods). **Results:** In the epidermal layer of the skin we found hiperacantosis due to the intense proliferation of the spinous cells. In the dermal layer we found perivascular haemoragies and venous stasis, both of them determinated by the haemodinamical changes. We also notice structural changes of the sudoriferous glands. In the bioptical fragments studied by optical microscopy we emphasized lesions in the intima and media of the arteriola in different stages of evolution: subendothelial hyperplasia of conjunctive tissue, hialinosis of the intima, mediocalcinosis, mononuclear infiltrate and significant conjunctive tissue development in the media with the fibrosis dissecting smooth musculare fibres. There are also degenerative lesions of the peripheral nerves with significant diminished of the number of the Schwann cells and of the vegetative microganglions. **Conclusion:** During the history of diabetes, the vascular lesions of microcirculation grow progressively worse, in the final being involved arterioles and musculary arteries. The nervous lesions are extending from the nerves to the vegetative microganglions. Morphological picture of the diabetic foot involves also muscular, epidermal and dermal lesions.