

The diagnosis lipodystrophy in children with type 1 diabetes

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Objectives

Insulin therapy by creating a subcutaneous depot is an integral part of the treatment of diabetes in children [1,3]. Places insulin restricted to certain parts of the body and the condition of subcutaneous fat affects the variability of blood glucose is not less than the quality of insulin [2,5]. Formation of lipodystrophy (LD) causes blood glucose variability, inadequate dose of the drug, difficulties in achieving disease compensation. Nature lipodystrophy continues to be studied and modified [6]. We have investigated the hypothesis about the possibility of identifying the nature of the LD by ultrasound (US) of subcutaneous fat.

Methods

In order to confirm it surveyed 108 children 6 -16 years old, patients with type 1 diabetes treated with insulin from 6 months to 12 years. Observation and palpation techniques, as well as ultrasonography of subcutaneous fat were used in assessing LD in these pathological area of 152 investigated. Lipodystrophy determined visually, by palpation with a mark on the map location and type of insulin lipodystrophy - diffuse hypertrophy, nodular and atrophic LD [4]. The patients and their relatives were interviewed about the technique of injection. It has been a repeated clinical and ultrasound of subcutaneous fat in 6 mons.

Results:



In 74 children (68.5%) were verified by pathological changes in the injection sites with the help of ultrasound subcutaneous fat. In 2 (3%) revealed muscular form of LD, which manifested clinically atrophic areas in the thigh area. In 45 (60.5%) patients with diffuse form of LD, 17 (23%) is local form of LD and 10 children (12.5%) have mixed form of LD. Lipoatrophy can be detected far from the injection site. In the structure of local and mixed forms of LD have allocated to the non-uniform ekhostruktur with a predominance areas of hyper-echogenication inclusions. It is best to treat diffuse form of LD, the most difficult to correct the muscular and atrophic form. Mixed forms of LD often, when that these patients do not often enough needles change (on average one every 4.5 days).

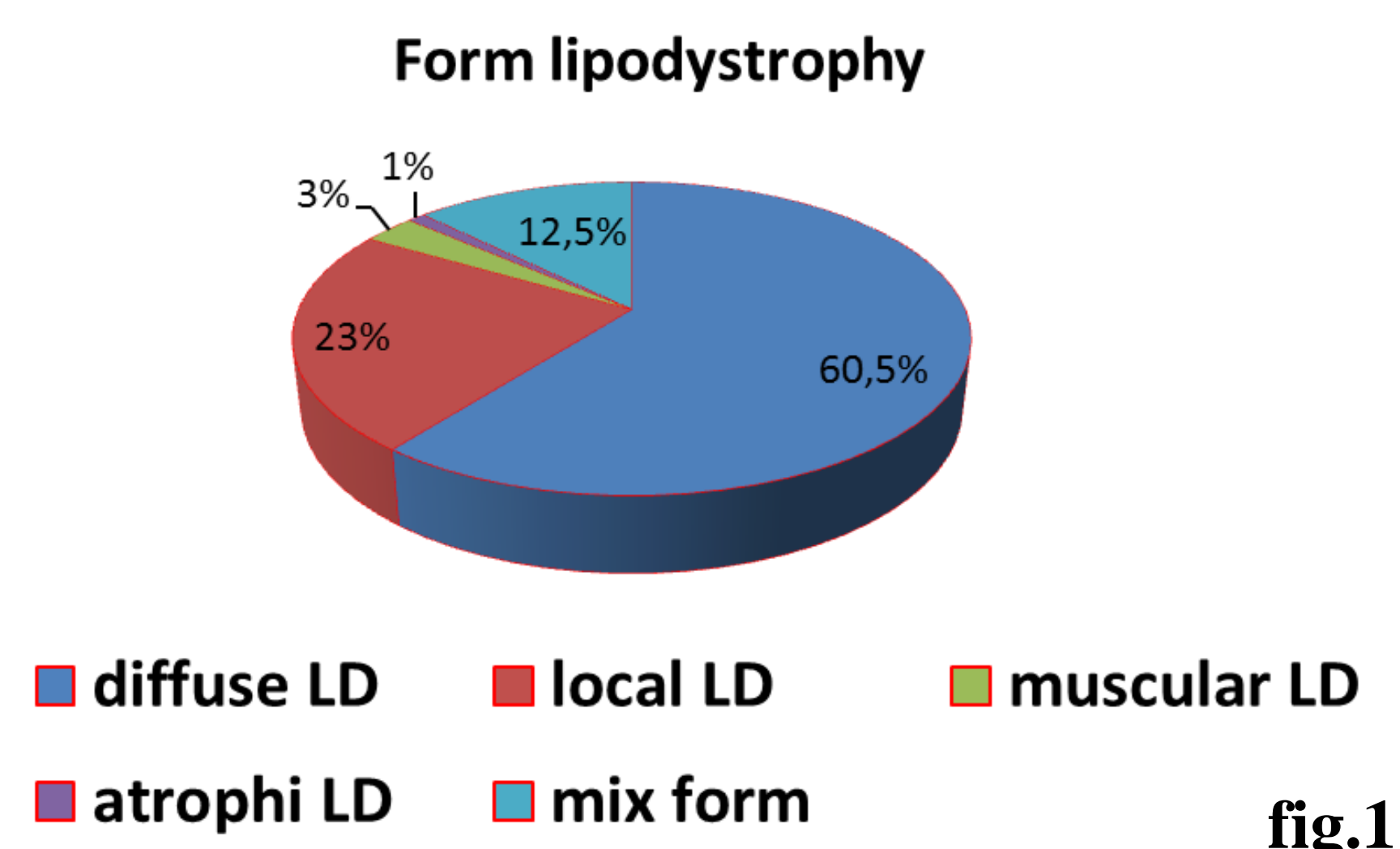


fig.1

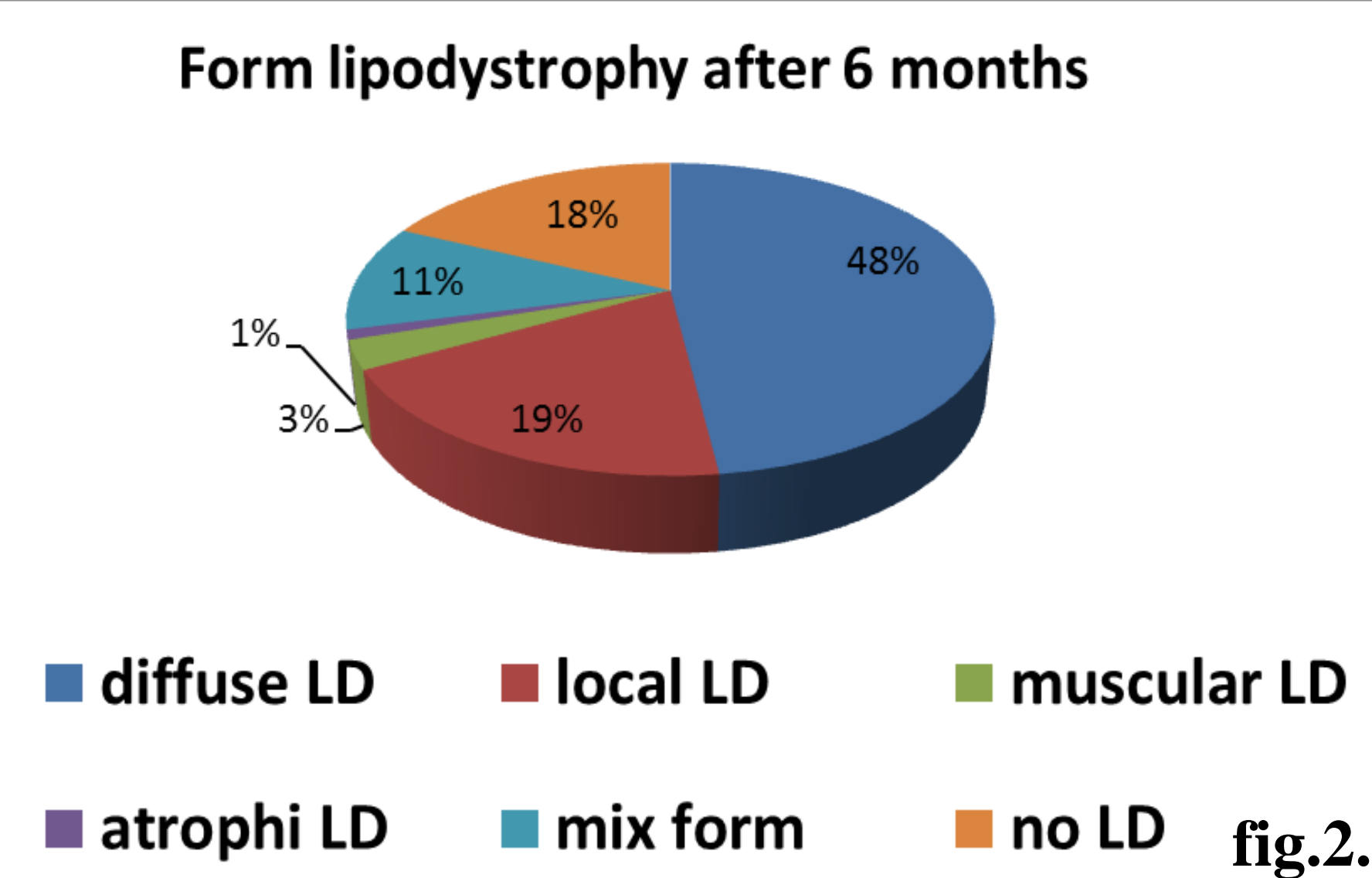
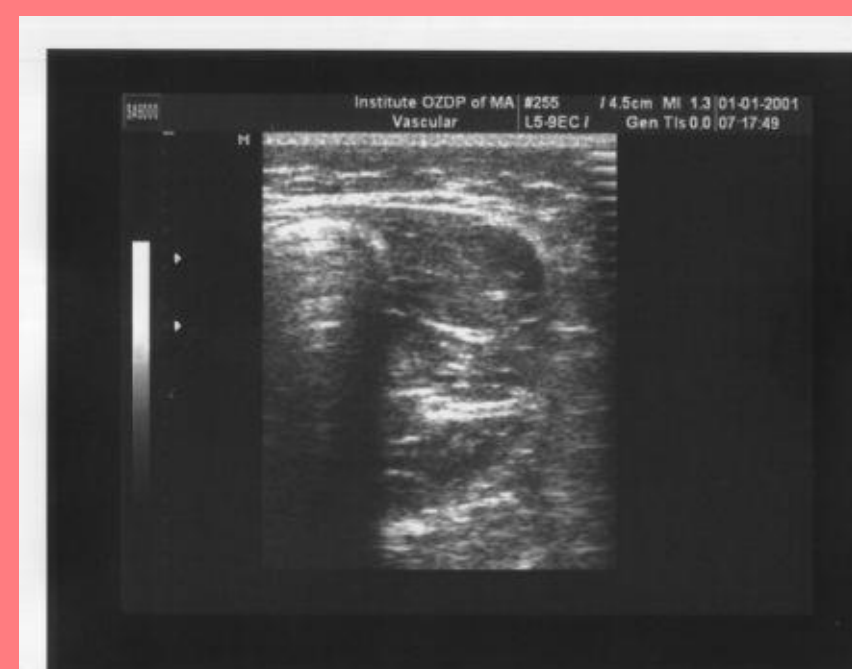
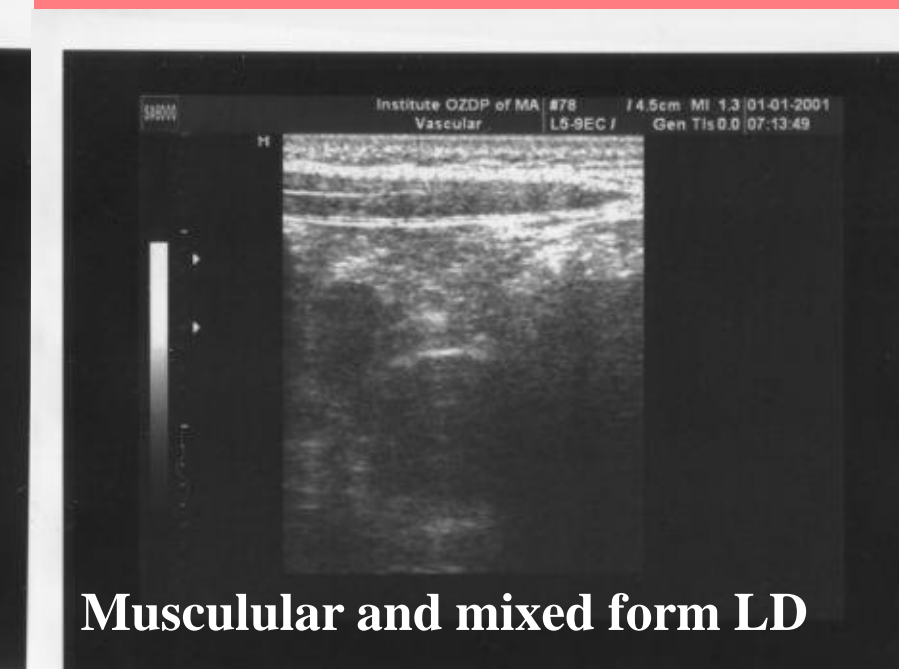


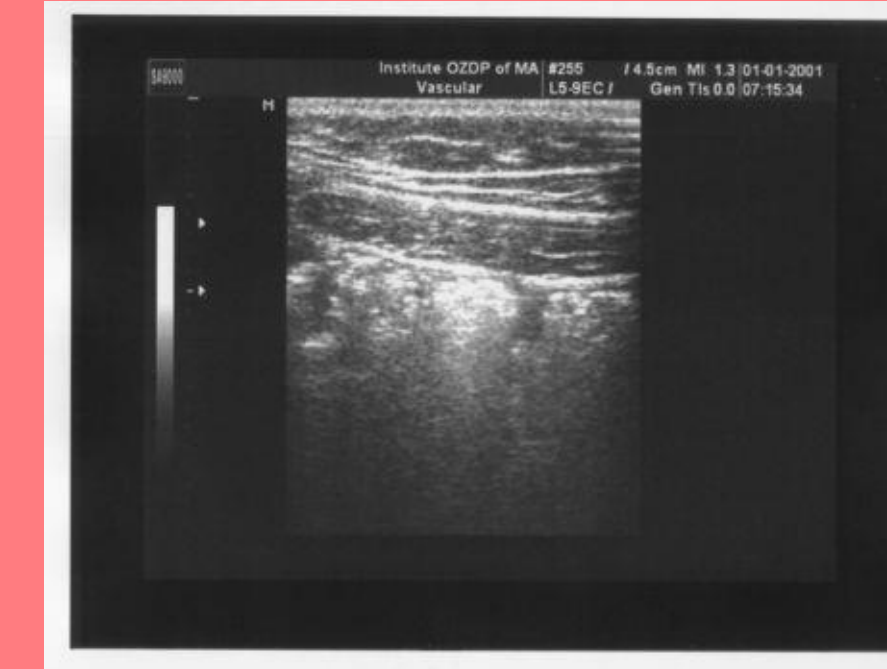
fig.2.



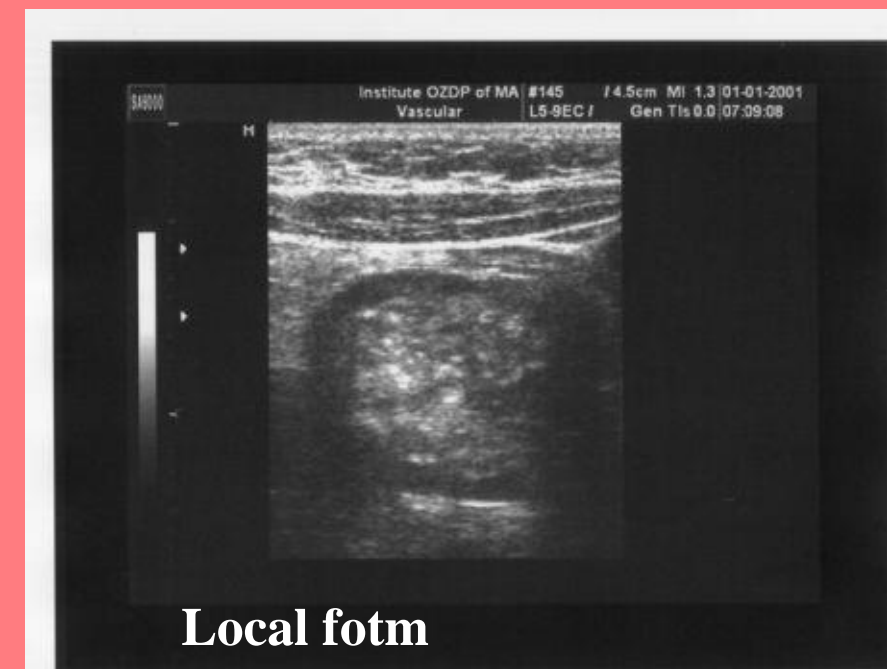
Diffuse form LD



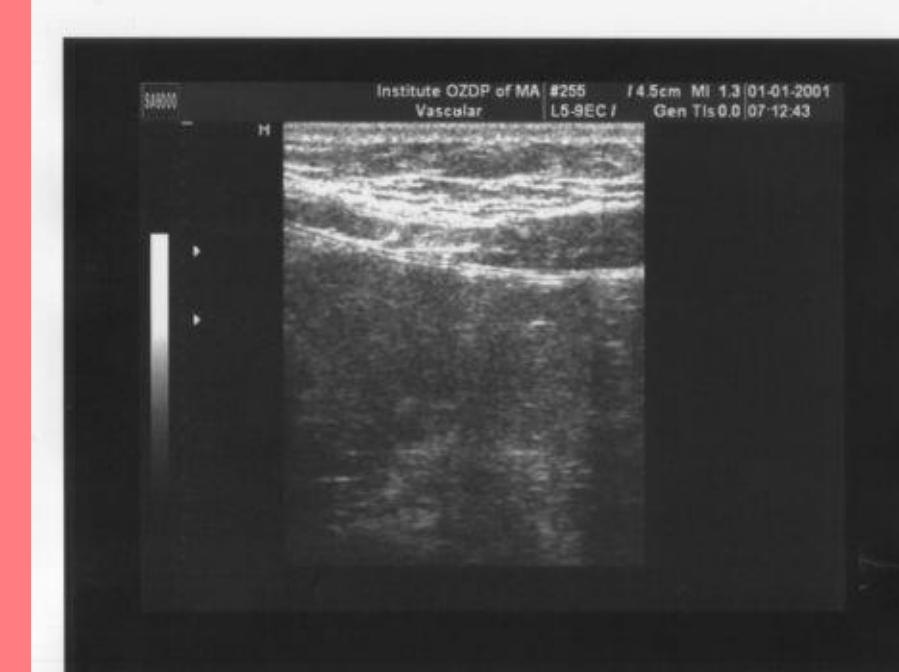
Muscular and mixed form LD



Atrophy form



Local form



Conclusions:

Thus, Ultrasound can be used for early diagnosis of lipodystrophy in children with diabetes. The nature of the different LD. Hyper-echogenic areas in the subcutaneous fat may be regarded as the result of injury or blunt needle foreign inclusions from synthetic needle cover. Such LD as the muscle shapes are difficult to treat and does not disappear after the change of the injection site.

References:

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