

Morphometric analysis of adipocytes in epicardial adipose tissue of the right atrium – preliminary data

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Introduction: Excess cardiac visceral adipose tissue, which includes epicardial adipose tissue, is a risk factor for the development of coronary heart disease, arterial hypertension, diabetes and metabolic syndrome. Obesity is one of the known predictors of visceral obesity, but its influence on the morphology and function of cardiac adipose tissue is still incompletely elucidated¹.

Materials and Methods: The research included post-mortem analysis of 8 samples (4 male and 4 female) of the right atrium with associated epicardial adipose tissue. The exclusion criterion was cardiac pathology affecting the right heart. All 8 samples were fixed in formalin and embedded into paraffin blocks and processed for staining with hematoxylin and eosin. The epicardial adipose tissue was measured using FIJI, a distribution of ImageJ software with Adiposoft plugin (v1.16) (Figure 1). Samples were compared on the gender and waist circumference basis. The criteria for visceral obesity were waist circumference with a cut-off value of >80 cm for females and >94 cm for males.

Results: There were 4 samples (2 male and 2 female) of patients with increased waist circumference and the same number and gender distribution with normal waist circumference. No statistically significant difference was found in the morphometric parameters according to the waist circumference ($p > 0.05$). However, women had a higher median value of adipocyte area, which was compared to men ($p < 0.05$).

Conclusion: The obtained preliminary data indicate a different cellular morphology of atrial visceral adipose tissue according to gender, but to obtain more convincing results, research on a larger sample is needed².

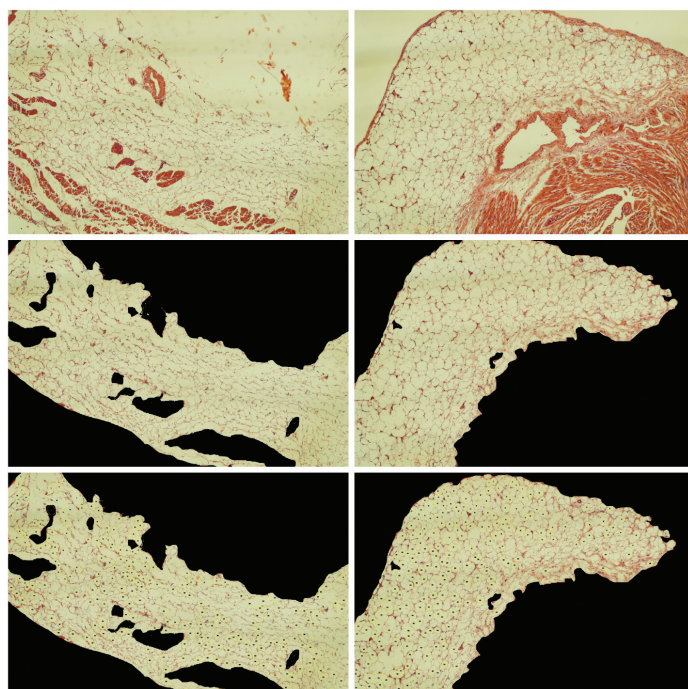


FIGURE 1. Processing of histological samples (sample from a male patient on the left, sample from a female patient on the right). Images A and B represent the "native" histological sample of the right atrium with associated epicardial adipose tissue (stained with hematoxylin and eosin), images C and D were processed by Paint.net software with the aim of isolating only adipose tissue and images E and F are the results of morphological quantification of adipocytes using FIJI, a distribution of ImageJ software with the Adiposoft plugin (v1.16).

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LITERATURE

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