ABSTRACT

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Thesis Title	**Measurement of torso muscle volume and its relation to complications in colorectal surgery**

Introduction: Colorectal cancer is frequent oncological disease. The primary solution for cure is surgical resection of the tumor, which can be accompanied by a number of complications. The incidence of postoperative complications also depends on the preoperative condition of the patient, such as nutrition and muscle condition. Sarcopenia is a degenerative disease of skeletal muscle and is one of the predictors of postoperative complications.

Objective: The aim of the thesis was to retrospectively evaluate the connection between occurrence of postoperative complications and muscle volume on the trunk, which was described by psoas density and psoas muscle index.

Methods: On CT images in the area of the 3rd lumbar vertebra (L3), we evaluated psoas density and psoas muscle index. The group consisted of 209 patients who underwent rectal resection at the Surgery Clinic of the Faculty Hospital in Hradec Králové between 2017 and 2021. We assessed the connection between psoas density, psoas muscle index and complications by statistical tests in NCSS 2021 Statistical Software (2021), LLC, Kaysville, Utah, USA. We worked in Excel (Microsoft) to create graphs.

Results: The mean of psoas density in the population was 47,42 $\pm$ 10,31 HU. The mean of m. psoas index was 6,86 $\pm$ 2,05 cm^2/m^2. Out of the total cohort of 209 patients, complications occurred in 82 patients (39,23 %). In the group of patients with complications, the mean psoas density was 45,37 $\pm$ 10,50 HU (p=0,068) and the mean psoas muscle index was 6,84 $\pm$ 2,30 cm^2/m^2 (p=0,828). No significant difference was

found for these two parameters. Diabetes mellitus (p=0,0403), leukocyte level and CRP level on the 3rd and 5th postoperative day had significant diferrence between groups with and without complications (leukocyte level: p=0,0047 and p=0,0038, CRP level: p<0,001).

Conclusion: Complications in colorectal surgery are quite common. By evaluating the patient's preoperative condition, the risk of the occurrence of complications can be determined. Compared to other studies, we did not demonstrate the significant difference between the occurrence of complications, psoas density (it was borderline value) and psoas muscle index. Our results therefore show that neither of these two parameters is suitable as a predictor of complications.

Keywords: skeletal muscles, colorectal cancer, sarcopenia, musculus psoas, complications