




# Bariatric Surgery in Nonalcoholic Fatty Liver Disease (NAFLD): Impact Assessment Using Paired Liver Biopsy and Fibroscan

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## Abstract

**Background** Bariatric surgery is associated with a positive impact on the degree of hepatic steatosis and inflammation in nonalcoholic associated fatty liver disease (NAFLD), although its effect on fibrosis is contentious. The role of Fibroscan in the post-bariatric assessment of hepatic steatosis and fibrosis is unclear.

**Objectives** This work aims to study the impact of bariatric surgery on the course of NAFLD using both invasive (liver biopsy) and non-invasive tests (biochemical parameters and Fibroscan).

**Methods** In this prospective study, the impact of bariatric surgery on the course of NAFLD was assessed using paired liver biopsy (intra-operative and post-bariatric surgery 1-year follow-up). The liver stiffness measurement (LSM) and controlled attenuation parameter (CAP) cutoffs for the assessment of hepatic fibrosis and steatosis, respectively, were calculated in both pre- and post-bariatric settings.

**Results** Fifty-eight patients (70.7% females, mean age 39.2 years) underwent paired liver biopsy. Post-bariatric surgery 1-year liver biopsy showed significant improvement in all the histopathological parameters of NAFLD. The mean NAFLD Activity Score declined from 2.81 ( $\pm$  1.08) to 1.31 ( $\pm$  1.39) post-bariatric surgery. Thirty (51.7%) patients showed improvement in fibrosis, eighteen (31%) no change, and ten (17.2%) had worsening. Worsening of fibrosis was associated with a higher median age of 44.5 versus 38 years ( $p$  value = 0.033). The CAP cutoff values for the various stages of hepatic steatosis were higher pre-operatively as compared with those obtained post-bariatric surgery.

**Conclusions** Bariatric surgery is associated with significant improvement in histopathological parameters of NAFLD. Fibroscan shows good diagnostic accuracy in detecting advanced stage and grade of NAFLD.

**Keywords** NAFLD · Nonalcoholic steatohepatitis (NASH) · Bariatric surgery · Liver biopsy · Fibroscan · Obesity

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