

# Outcome of Laparoscopic Sleeve Gastrectomy With and Without Staple Line Oversewing in Morbidly Obese Patients: A Randomized Study

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## Abstract

**Introduction:** Laparoscopic sleeve gastrectomy (LSG) is a popular bariatric procedure with a low complication rate. Serious complications after LSG include gastric leak and staple line bleeding. In order to reduce these complications, staple line reinforcement has been practiced variably by many surgeons. There is no conclusive evidence to suggest that routine oversewing of the staple line or reinforcement with buttressing material after LSG decreases these complications. We therefore undertook a prospective randomized controlled trial to evaluate the impact of oversewing of the staple line in preventing complications after LSG.

**Patients and Methods:** Sixty patients undergoing LSG were randomly allocated to two groups. In Group A, the entire staple line was reinforced with continuous suturing, and in Group B, no reinforcement was used. Thirty patients were enrolled in each group. Indications for this procedure were morbidly obese (body mass index  $\geq 40$  kg/m<sup>2</sup>) or severely obese (body mass index  $\geq 35$  kg/m<sup>2</sup>) patients with comorbidities including type 2 diabetes mellitus, hypertension, sleep apnea, and osteoarthritis. Complications including gastric leak, bleeding, and stricture were recorded.

**Results:** The demographic parameters were comparable in the two groups. Two cases of early gastric leak occurred in Group B and none in Group A. There was no case of staple line bleeding or stricture in either group, although 1 patient in Group B had bleeding from the omentum that required re-operation. The overall surgical complication rate was 5%. The mean operative time in Group A ( $139 \pm 10$  minutes) was significantly greater than in Group B ( $117 \pm 19$  minutes) ( $P = .02$ ).

**Conclusions:** Oversewing of the staple line may lead to reduction in leak rate, although a larger study is required to reach a definitive conclusion. The incidence of staple line bleeding can be minimized by following meticulous technique and adequate compression time after closure of the stapler rather than placing undue emphasis on oversewing and expensive buttressing materials.

## Introduction

LAPAROSCOPIC SLEEVE GASTRECTOMY (LSG), initially introduced as a part of a duodenal switch operation,<sup>1</sup> has become a popular stand-alone procedure for weight loss surgery.<sup>2,3</sup> At our center, LSG has been used as the principal bariatric procedure in most patients with excellent short-term results in terms of weight loss and resolution of comorbidities.

One of the key unresolved technical issues is the staple line reinforcement (SLR) during LSG.<sup>4</sup> The staple line can be reinforced either by oversewing of the staple line or by use of buttressing material. The purported advantages of SLR are a

decrease in bleeding from the staple line and a decrease in the rate of leaks. However, it is unclear whether SLR leads to a decrease in staple line leaks. Another fringe benefit could be further narrowing of the sleeve size, which could result in better weight loss. However, oversewing of the staple line could result in an increased rate of stricture. It also adds to the operative time as well as to the cost. Paradoxically, it can also lead to an increased rate of staple line leaks by causing distal narrowing and resultant increase in intragastric pressure.

In view of some recent reports<sup>5,6</sup> suggesting that oversewing of the staple line may not be necessary, we conducted a study to compare the outcome in two groups of patients