

Is 0.0% leak rate a viable goal for sleeve gastrectomy?

A retrospective report of 2,139 cases.

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Introduction

Laparoscopic sleeve gastrectomy (LSG) is a widely utilized and effective surgical procedure for dramatic weight loss and diabetes reversal in obese patients^[1]. Reducing complications is critical to enabling greater acceptance of metabolic surgery. Leak at the sleeve staple line remains the most serious complication of this procedure, occurring in 1–3% of cases^[2–5]. Techniques to minimize the risk of sleeve gastrectomy leaks have been published, although no universally agreed upon set of techniques exists.

Aim

This report describes a single-surgeon experience with a specific 10-point approach to sleeve leak prevention resulting in a progressive decrease in leak rate over 8 years.

Methods

2,139 consecutive sleeve gastrectomy cases between 2012 and 2019 were reviewed retrospectively.

The 10 technical steps include:

1. Use of 40-French sizing calibration tube (*Figure 1*).
2. Allowing generous volume around the calibration tube at curve of incisura (*Figure 2*).
3. Avoiding disruption of cardiotuberosity branch arteries serving as blood supply to proximal stomach in the cardia region (*Figure 3a*), especially posteriorly (*Figure 3b*).
4. Angling the linear stapler to the left and >15 mm away from the true gastroesophageal junction.
5. Use of blue, or 3.5 mm, tissue stapler cartridges in the proximal stomach without staple line reinforcement. (*Figure 4*).
6. Application of fibrin glue sealant (Tisseel, Baxter Corp.) to the staple line.
7. Hand-sewn, interrupted sutures to invert the staple line at proximal 4 cm of the sleeve.
8. Apposition of omentum to rest in proximity to the completed staple line (*Figure 5*).
9. Suturing omentum back to the mid and lower staple line to prevent a potentially obstructing “windsock” deformity.
10. Avoidance of 1-stage revisional sleeves concomitant with band removal.



Figure 1

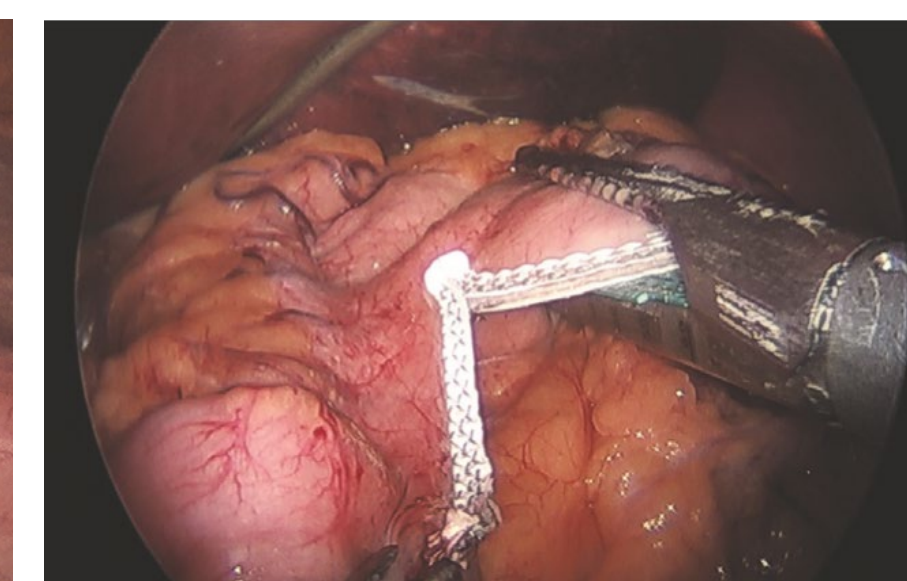


Figure 2

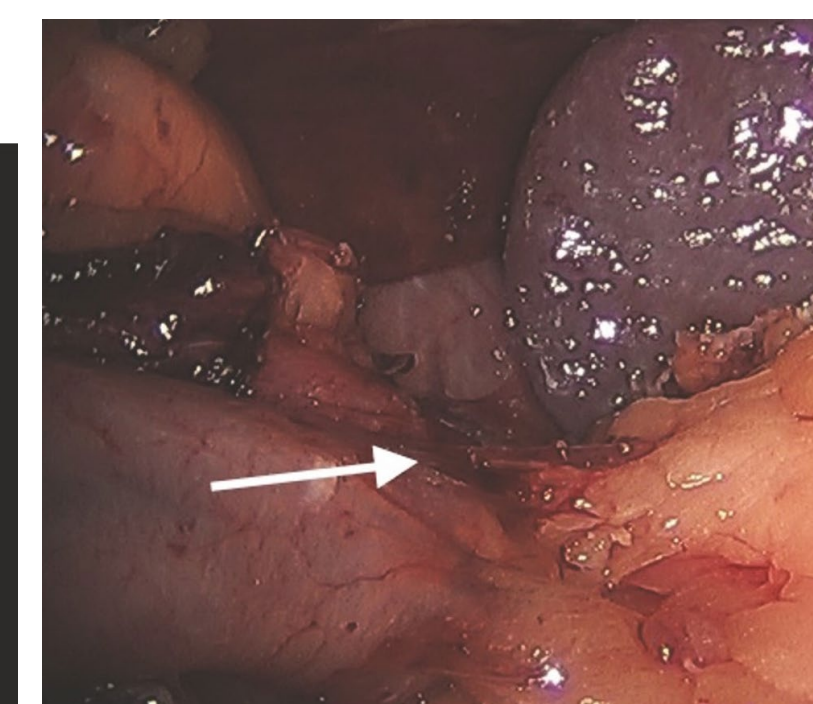


Figure 3a

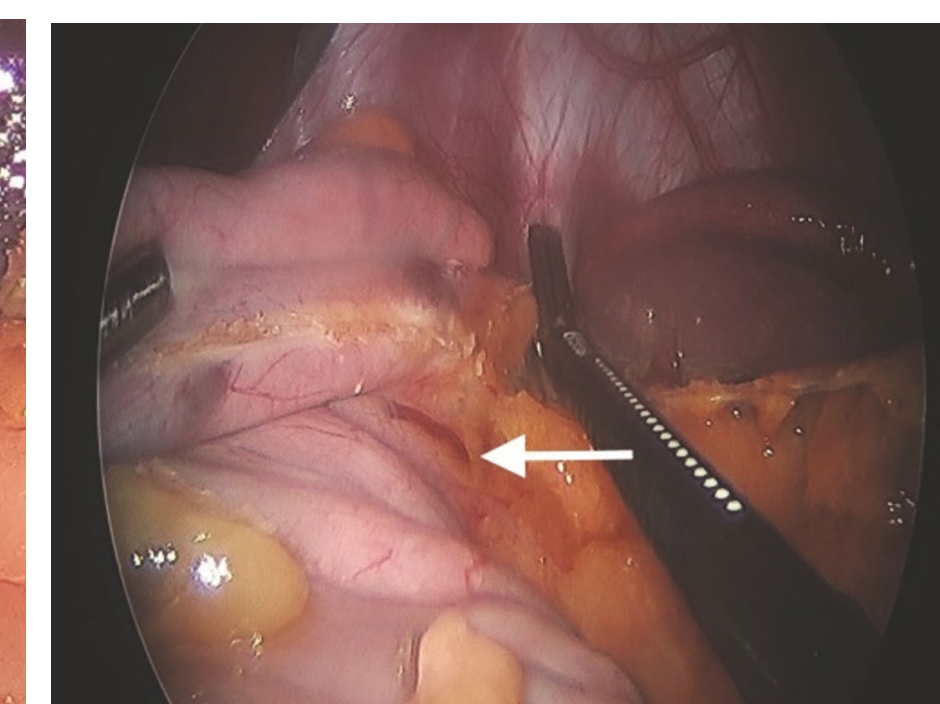


Figure 3b

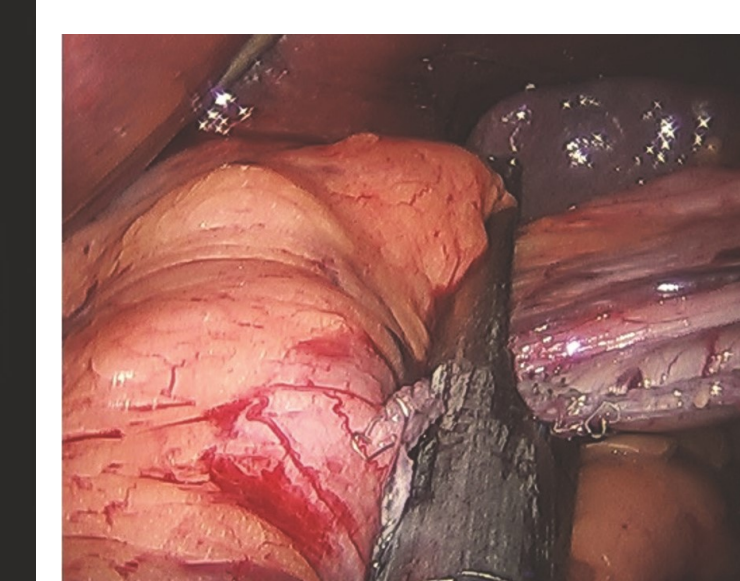


Figure 4

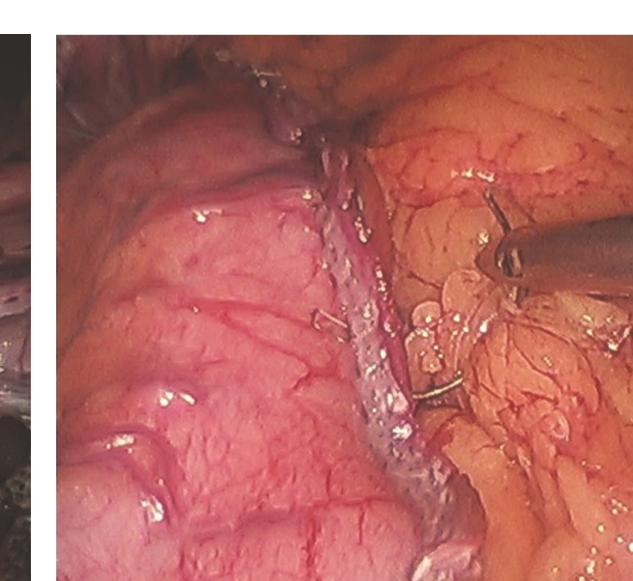


Figure 5

Results

With the implementation of the described techniques of the sleeve gastrectomy, the rate of sleeve leaks fell from 4% (2012) to 0% (2015) and have remained at 0% (2016 – 2019) without a significant change in weight loss, as depicted by 6-month change in body weight and percent excess BMI lost.

Conclusion

In this single-surgeon experience, sleeve gastrectomy leak rate has fallen to 0% since the implementation of 10 specific technical modifications in the procedure. It is plausible that these specific 10 points, or a similar specific technique for each step, could be taught to surgical trainees to reduce the incidence of leaks at earlier stages of the experience learning curve.

References

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