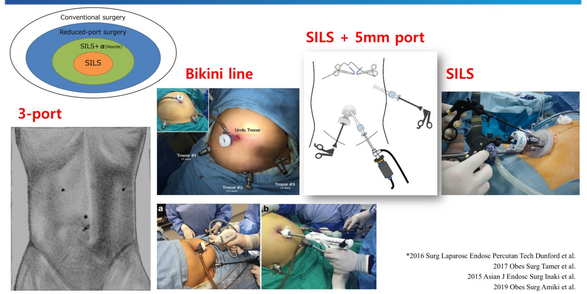
Rate of Conversion to Laparoscopic 4-port and Risk factors During Laparoscopic 3-port Sleeve Gastrectomy in Asian Individuals with Severe Obesity

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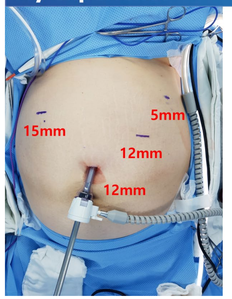
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Various methods

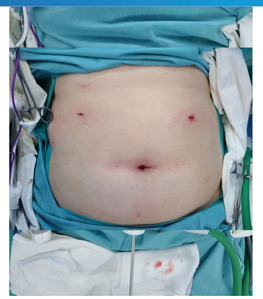


*2016 Surg Laparosc Endosc Percutan Tech Dunford et al.
2017 Obes Surg Tamer et al.
2015 Asian J Endosc Surg Inaki et al.
2019 Obes Surg Amiki et al.

My experience



About **150** cases



Purpose & Methods

Purpose: compare the **feasibility** and **safety** of laparoscopic **3-port sleeve** gastrectomy to **conventional 4-port** surgery in Korean populations with obesity.

Data selection: **consecutive 121 cases** after 3-port sleeve gastrectomy started in **May 2021** at a single institution

Dependent variable:

1. **Operative time, EBL, number of cartridges used, postoperative hospital stay**
2. **Intra- and postoperative complications, readmission, and reoperation rate**
3. **Conversion rate**
4. **% of total weight loss & % of remnant gastric volume on CT at 1 year F/U**

Baseline characteristics

	3-port (N=81)	4-port (N=40)	p
Female	**64 (79.0%)**	**20 (50.0%)**	**0.002**
Age	34.1 ± 10.4	33.4 ± 8.7	0.706
Height	**165.3 ± 7.5**	**169.1 ± 7.7**	**0.013**
Weight	**107.1 ± 19.2**	**128.6 ± 32.5**	**< 0.001**
BMI	**39.1 ± 6.5**	**44.8 ± 10.1**	**0.002**
Combined operation*	12 (14.8%)	10 (25.0%)	0.264

*Combined operation:
3-port: cholecystectomy (6), HHR (1), umbilical hernia repair (4), GY operation (2)
4-port: cholecystectomy (7), HHR (2), umbilical hernia repair (2)

Perioperative outcomes

	3-port (N=81)	4-port (N=40)	p
Operative time	**107.5 ± 18.5**	**127.6 ± 27.7**	**<0.001**
Estimated blood loss	**9.4 ± 8.5**	**17.6 ± 17.0**	**0.006**
Number of cartridges used	**5.3 ± 0.7**	**5.8 ± 0.8**	**0.001**
Removed gastric weight (mg)	**109.5 ± 21.3**	**131.4 ± 30.5**	**< 0.001**
Intraoperative complication	4 (4.9%)	4 (10.0%)	0.506
Postoperative complication	1 (1.2%)	0 (0.0%)	1.000
Major early	1 (1.2%)	0 (0.0%)	
Major late	0 (0.0%)	0 (0.0%)	
Minor early	0 (0.0%)	0 (0.0%)	
Minor late	0 (0.0%)	0 (0.0%)	
Postoperative hospital stay	2.4 ± 0.9	2.3 ± 0.7	0.408
Readmission	0 (0.0%)	0 (0.0%)	1.000
Reoperation	1 (3.2%)	0 (0.0%)	0.929
Mortality	0 (0.0%)	0 (0.0%)	1.000

Perioperative outcomes

Intraoperative complication

3-port (4): bleeding at short gastric vessel → additional 1 port (1)
minor hepatic injury d/t traction device (2)
gastric serosal tear after first stapling (1)

4-port (4): minor hepatic injury d/t traction device (1)
broken device (gold finger) (1)
hematoma at peri-splenic area (1)
gastric serosal tear during dissection (1)

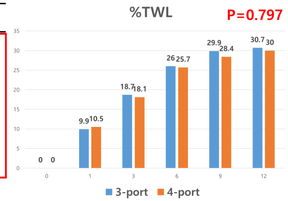
Postoperative complication (Major early)

3-port (1): bleeding at supra-splenic area → **reoperation: no exact bleeding focus**

Weight loss at 1 year F/U

Completion of 1 year follow-up rate: 51/121 patients, 42.1%

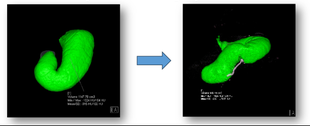
	3-port (N=31)	4-port (N=20)	p
Preoperative BW	107.7 ± 20.4	125.3 ± 26.7	0.004
BW at 1 month	94.3 ± 18.9	112.0 ± 27.8	0.004
BW at 3 month	86.3 ± 19.1	102.3 ± 27.2	0.015
BW at 6 month	77.8 ± 18.7	95.6 ± 26.9	0.011
BW at 9 month	74.7 ± 17.3	91.3 ± 27.1	0.038
BW at 12 month	74.0 ± 17.9	85.7 ± 19.6	0.100
% of TWL	**30.7 ± 7.4**	**30.0 ± 6.4**	**0.797**



No difference at each follow-up period

Gastric volume on CT at 1 year F/U

CT volumetry at baseline and 1 year after surgery



	3-port	4-port	p
Preoperative gastric volume	1031.0 ± 255.0	1144.9 ± 261.7	0.115
Remnant gastric volume at 1 year	202.9 ± 69.0	234.1 ± 96.6	0.508
% of gastric volume at 1 year	**20.4 ± 5.4**	**21.3 ± 8.2**	**0.830**

Conversion to 4-port

Conversion rate (3-port to 4-port): **7**/81 patients, **8.6%**

1st : 29/F, BMI 30.1 ***bleeding* at supra-splenic area**
2nd : 32/F, **BMI 64.2** ***for liver traction** due to heavy liver
3rd : 42/**M**, **BMI 47.5** ***for better vision**
4th : 29/F, BMI 36.5 ***for hiatal hernia repair**
5th : 32/F, **BMI 48.6** ***for liver traction** due to heavy liver
6th : 57/**M**, BMI 34.0 ***for better vision**
7th : 35/**M**, **BMI 51.5** ***for liver traction** due to heavy liver

Risk factor for conversion: Univariable analysis

Independent variables: Sex, Age, Height, Body weight, BMI, combined operation, Estimated blood loss, Resected gastric volume

	Odds ratio	Confidence interval	P value
Sex (ref. women)	1.15	0.94-1.32	0.15
Age	1.08	0.87-1.36	0.47
Height	0.99	0.79-1.25	0.93
Body weight	**1.23**	**0.99-1.54**	**0.06**
BMI	**1.30**	**1.04-1.62**	**0.02**
combined operation	0.99	0.79-1.25	0.96
Estimated blood loss	**1.22**	**0.98-1.54**	**0.07**
Resected gastric volume	1.17	0.94-1.48	0.15

Risk factor for conversion: Multivariable analysis

Independent variables: Sex, Age, Height, Body weight, BMI, combined operation, Estimated blood loss, Resected gastric volume

	Odds ratio	Confidence interval	P value
Sex (ref. women)	1.14	0.91-1.32	0.23
Body weight	0.80	0.50-1.28	0.35
BMI	**1.57**	**1.01-2.44**	**0.04**
Estimated blood loss	**1.26**	**1.02-1.57**	**0.05**
Resected gastric volume	1.12	0.88 -1.42	0.36

Conclusion

1. LSG-3 is feasible in Asian individuals with severe obesity
2. In patients with high BMI or who experience bleeding during surgery, it is recommended to add a port without delay.
3. Large scale, prospective study is needed.

COI disclosure

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