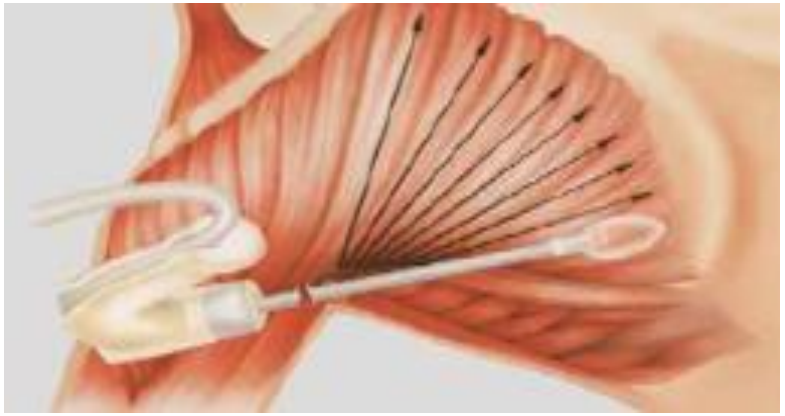
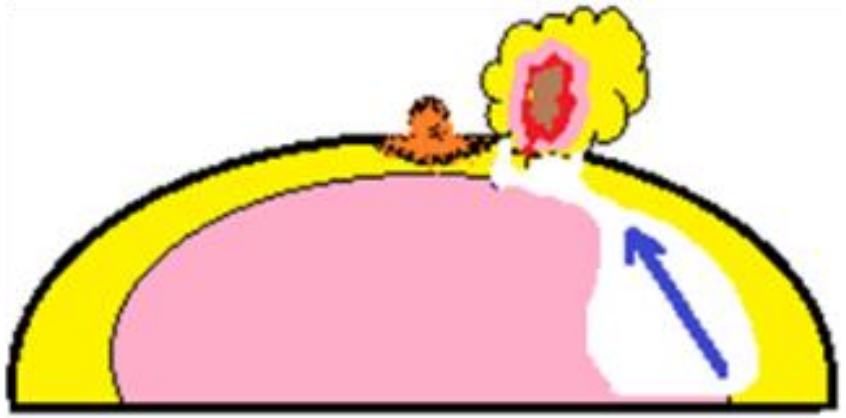




Application of Robotic Surgery (da Vinci) Surgical platform in Breast cancer operation and Reconstruction

Hung-Wen Lai, MD, PhD

Director of Endoscopy and Oncoplastic Breast Surgery Center

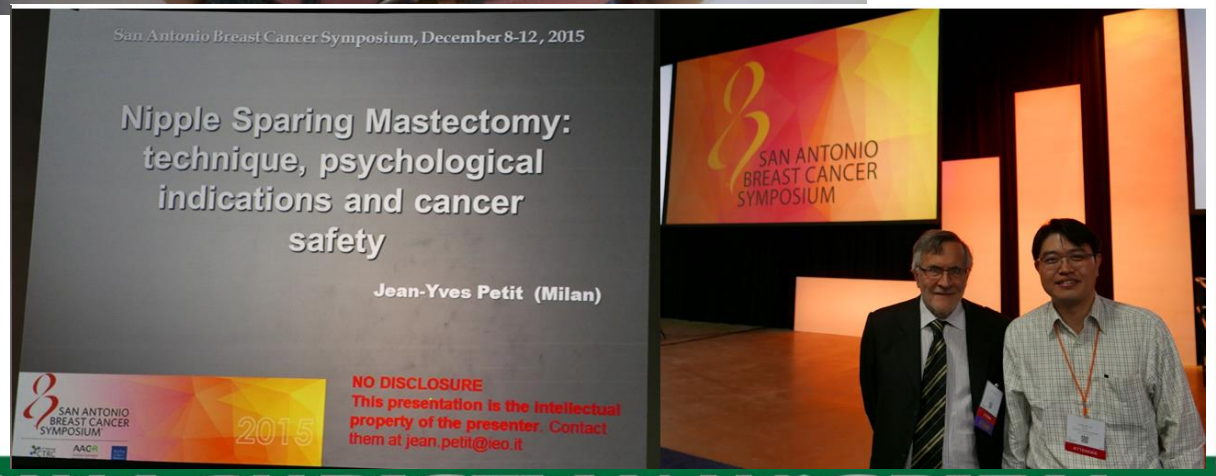
Changhua Christian Hospital, Taiwan

Taiwan

THE HEART OF ASIA

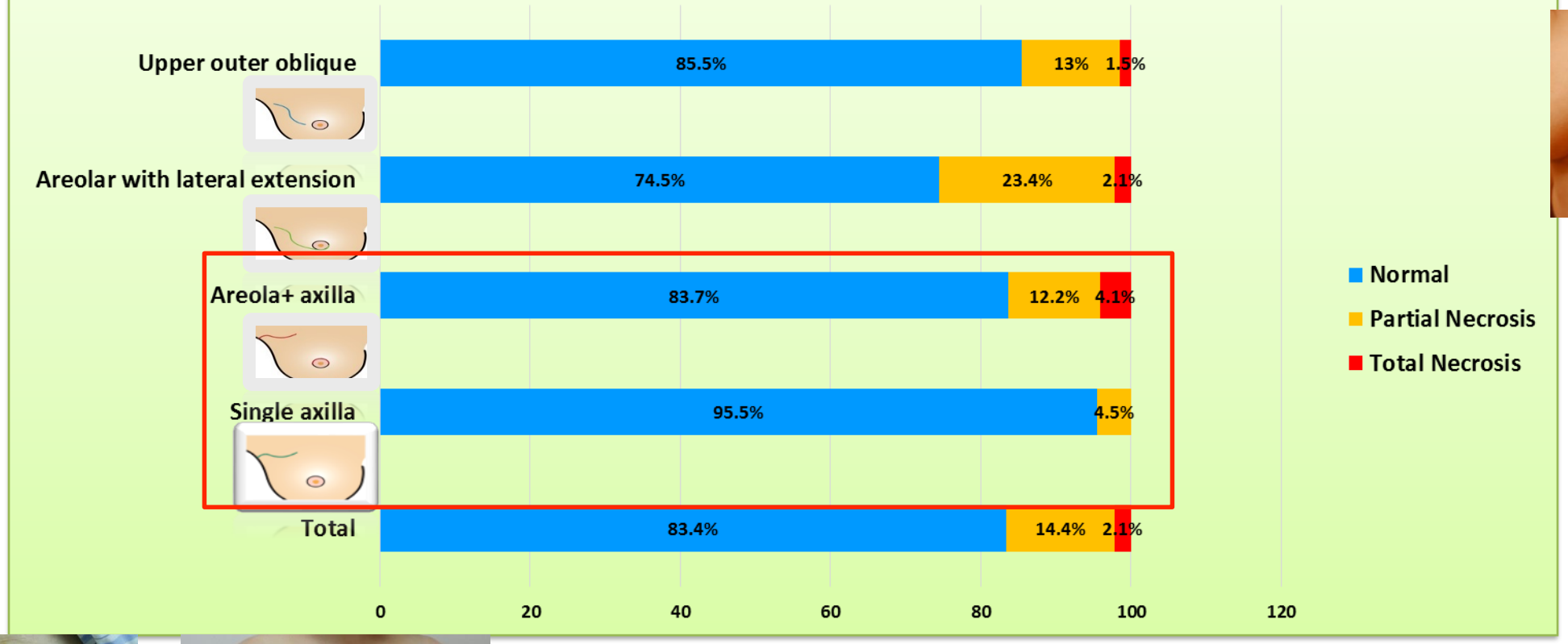
Nipple sparing mastectomy

The nipple-areola complex (NAC) invasion rate : 7.7%-58%.



Prof. Petit, EIO

Nipple ischemia necrosis versus skin incision



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Annals of
SURGICAL ONCOLOGY
OFFICIAL JOURNAL OF THE SOCIETY OF SURGICAL ONCOLOGY

ORIGINAL ARTICLE – BREAST ONCOLOGY

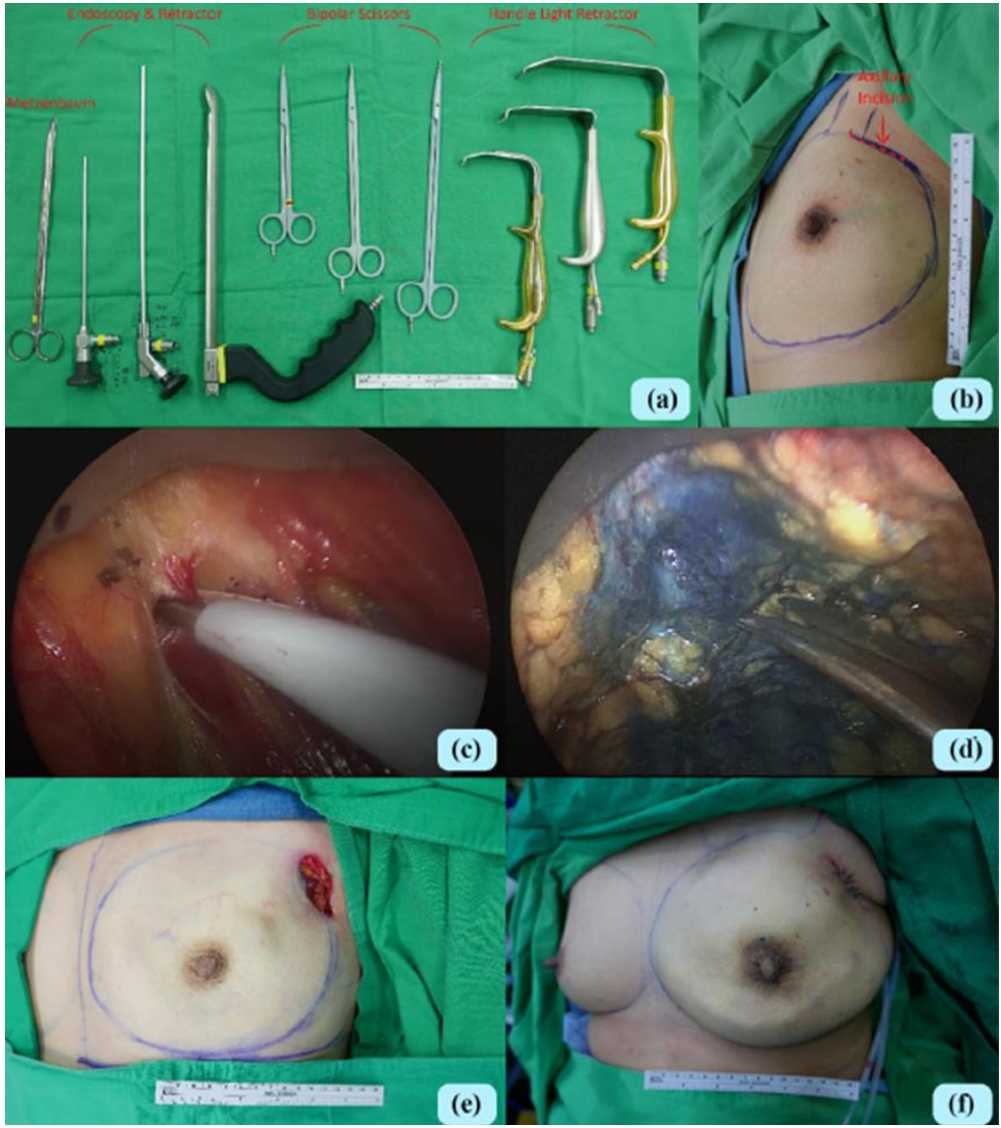
Single-Axillary-Incision Endoscopic-Assisted Hybrid Technique for Nipple-Sparing Mastectomy: Technique, Preliminary Results, and Patient-Reported Cosmetic Outcome from Preliminary 50 Procedures

Hung-Wen Lai, MD, PhD[1,3,4,5], Shih-Lung Lin, MD[6], Shou-Tung Chen, MD[1,2,3], Ka-Man Kuok, MD[2], Shu-Ling Chen, MS[1,3], Ya-Ling Lin, BS[1], Dar-Ren Chen, MD[1,2,3], and Shou-Jen Kuo, MD[2,3]

[1]Endoscopy & Oncoplastic Breast Surgery Center, Department of Surgery, Changhua Christian Hospital, Changhua, Taiwan; [2]Division of General Surgery, Department of Surgery, Changhua Christian Hospital, Changhua, Taiwan; [3]Comprehensive Breast Cancer Center, Department of Surgery, Changhua Christian Hospital, Changhua, Taiwan; [4]School of Medicine, National Yang Ming University, Taipei, Taiwan; [5]Division of Breast Surgery, Yuanlin Christian Hospital,

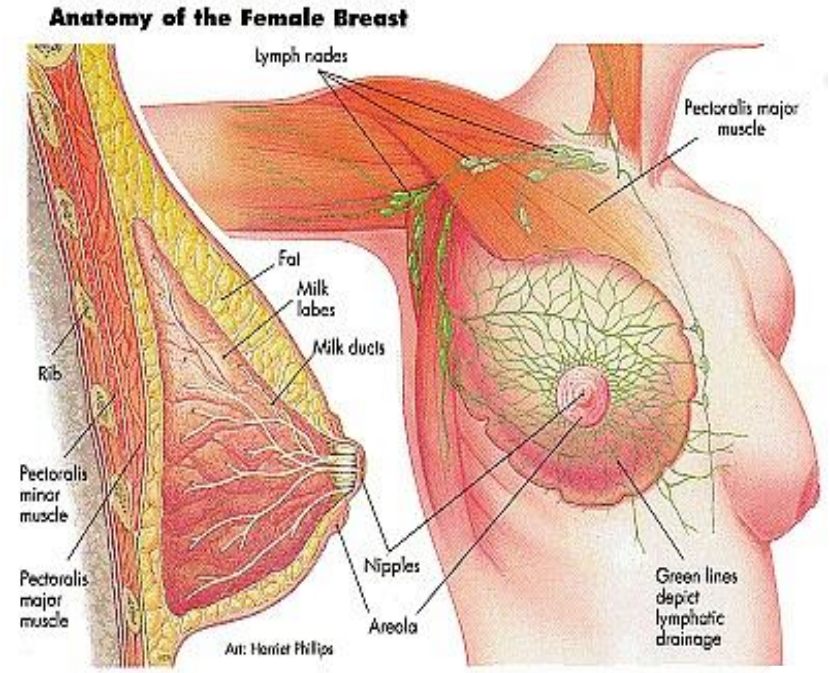
	Single
OP time all (min)	210.1 ± 51.9 (138–385)
Mean mastectomy time (min)	157.2 ± 63.2 (83–385)
Mean reconstruction time (min)	64.4 ± 18.0 (55–145)
Blood loss (ml)	55.5 ± 25.8 (25–140)
Mean hospital stay (days)	5.6 ± 1.4 (3–8)
Complication	
Yes	3 (6%)
Nipple partial ischemia	1
Seroma formation*	2
Total nipple necrosis	0
Implant loss	0
No	47 (94%)
Recurrence	
Yes	0 (0%)
No	50 (100%)

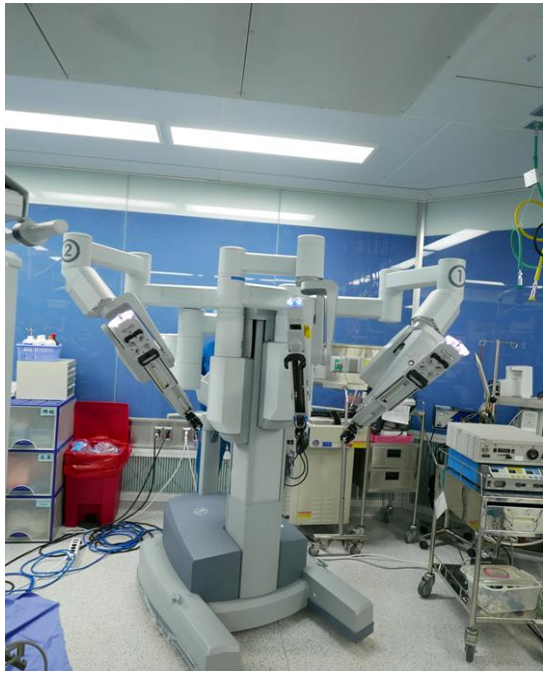
*Seroma formation needed repeat aspiration



Lai HW, et al. Ann Surg Oncol 2018

Robotic surgery in the management of breast cancer ?





Ann Surg 2015 Oct

LETTER TO THE EDITOR

Robotic Nipple-sparing Mastectomy and Immediate Breast Reconstruction With Implant: First Report of Surgical Technique

To the Editor:

Technical innovations have made it feasible to conduct endoscopic nipple-sparing mastectomy (NSM), which has been reportedly well tolerated and associated with greater patient satisfaction.[1] However, the endoscopic technique (ET) has not had a wide diffusion and many centers have abandoned this technique because of technical

FIGURE 1. Single-port axillary access before robot docking and instrument positioning.

avoid conflicts during dissection. The cavity was observed through a 30° 12-mm-diameter

patients were discharged on the second postoperative day. After a mean follow-up of 8 months, no long-term complications were observed.

Although experience with NSM carried out by robotic-assisted technique is very limited and initial, we clearly noted 2 main advantages:

(1) The use of carbon dioxide enables the reduction of bleeding, offering a better view of the proper surgical dissection plane. The tenfold image magnification, the 3-dimensional view, and the intense lighting increase the difference in contrast of colors of different structures, thus highlighting blood vessels, lymphatics, adipose lobules, the crests of Duret, Cooper's ligaments, the mammary gland itself, and the skin. Sharpness and clarity

Robotic-assisted Nipple Sparing Mastectomy: A feasibility study on cadaveric models

Dear Sir,

Nipple-sparing mastectomy (NSM) is increasingly popular for the treatment of selected breast cancers and prophylactic mastectomy. Surgical scarring and esthetic outcomes are important patient related cosmetic considerations.[1,2]

Figure 1 Final Surgical position: patient in supine position with arm above the head to keep the axillary area and the working space clear.

J Plast Reconstr Aesthet Surg. 2016 Nov

Contents lists available at ScienceDirect

The Breast

journal homepage: www.elsevier.com/brst

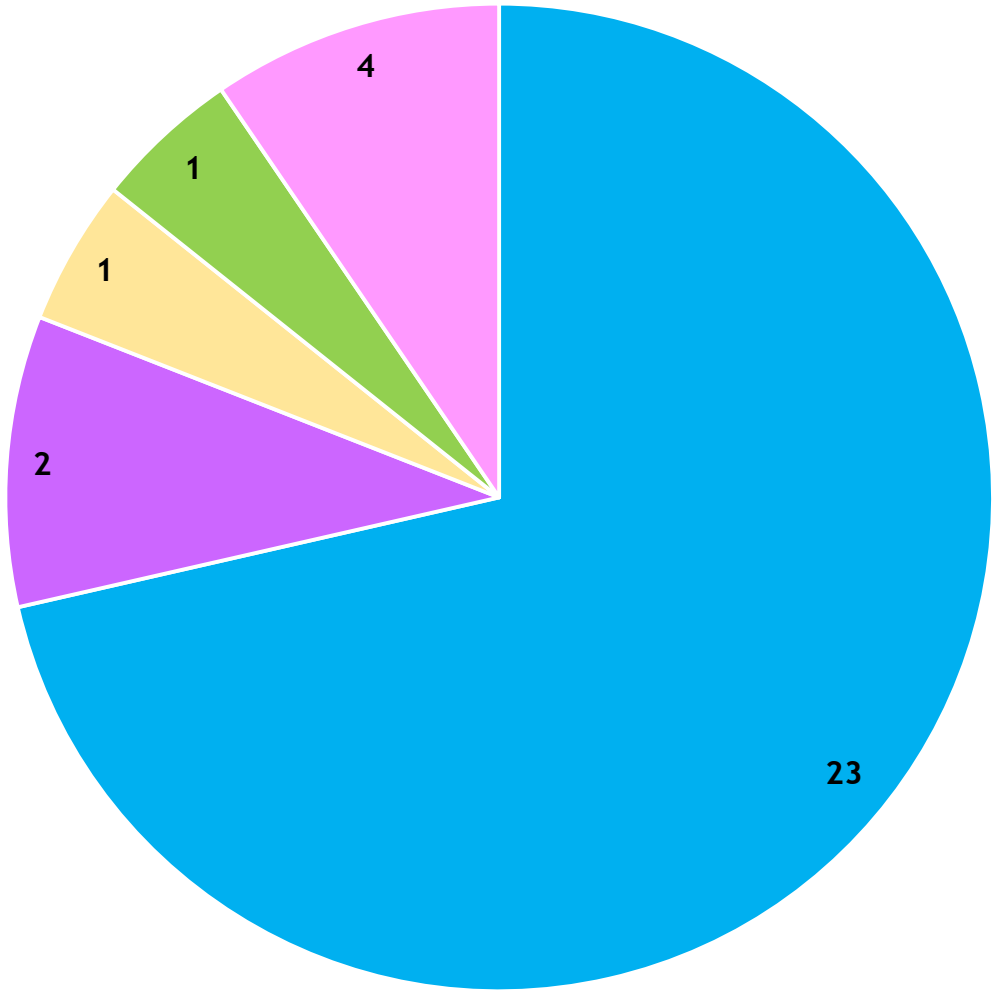
Original article

Robotic nipple-sparing mastectomy for the treatment of breast cancer: Feasibility and safety study

Antonio Toesca [a,*], Nickolas Peradze [a], Andrea Manconi [b], Viviana Galimberti [a], Mattia Intra [a], Marco Colleoni [c], Bernardo Bonanni [d], Giuseppe Curigliano [e], Mario Rietjens [b], Giuseppe Viale [f,g], Virgilio Sacchini [a,g], Paolo Veronesi [a,g]

Breast 2017 Feb

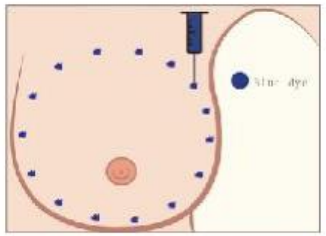
From Mar 2017 to Feb 2018, 31 Robotic breast surgery was performed.

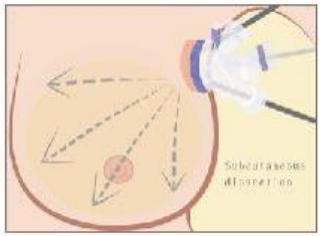


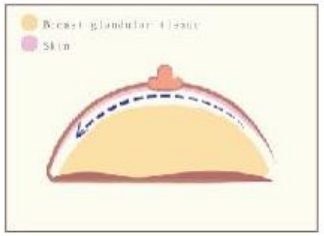
- NSM with Gel implant reconstruction
- NSM with LD flap reconstruction
- Partial mastectomy with omentum flap reconstruction
- Partial mastectomy with LD flap reconstruction
- NSM without reconstructoin

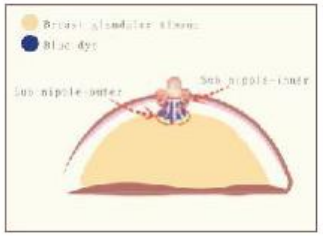
29 R-NSM
2 partial mastectomy

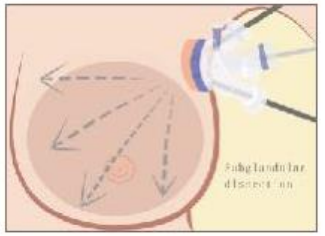
Robotic NSM with IBR with implant

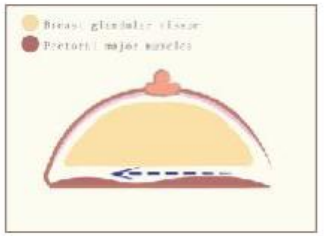


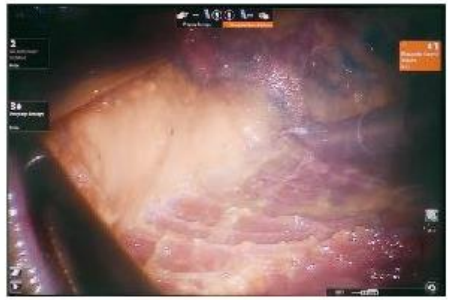


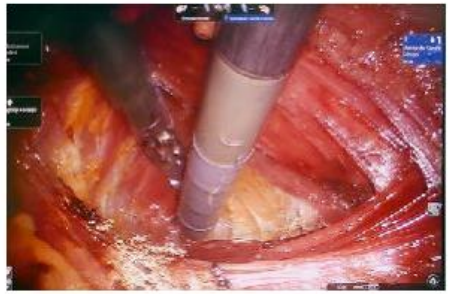


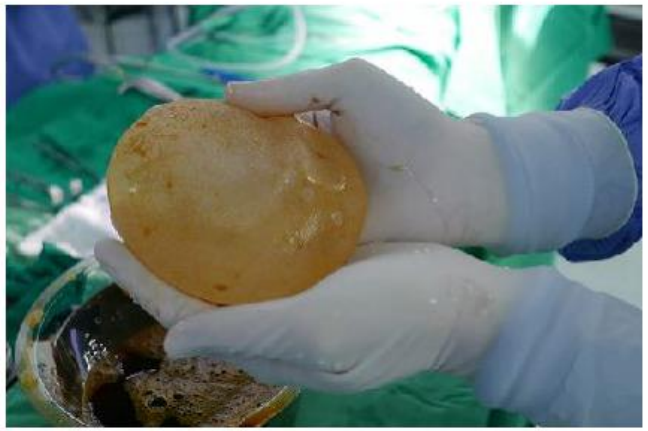










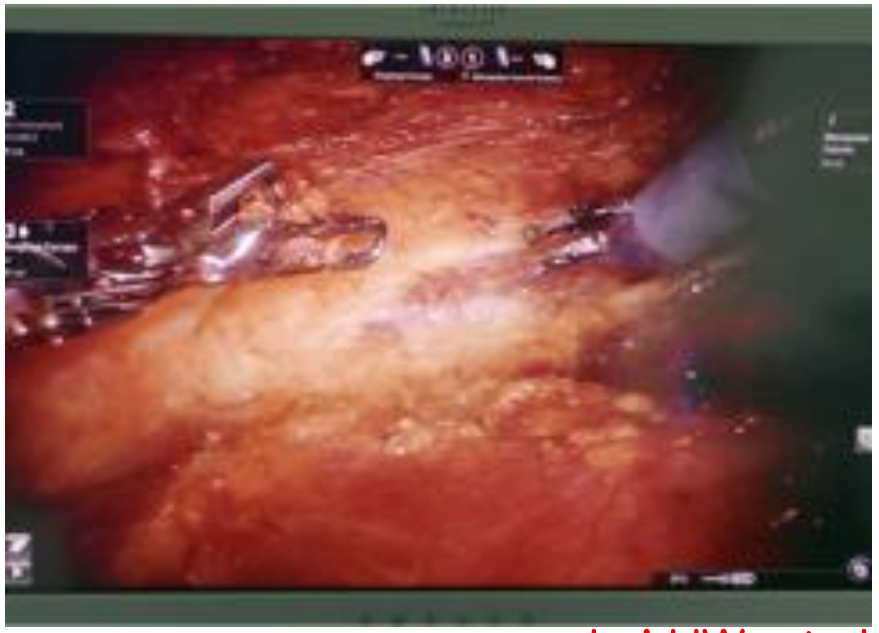
Lai HW, et al.
PRS GO 2018

Pre-OP

Post-OP 3 weeks

Conventional simple mastectomy +
LD flap reconstruction

Robotic assisted harvested of LD flap



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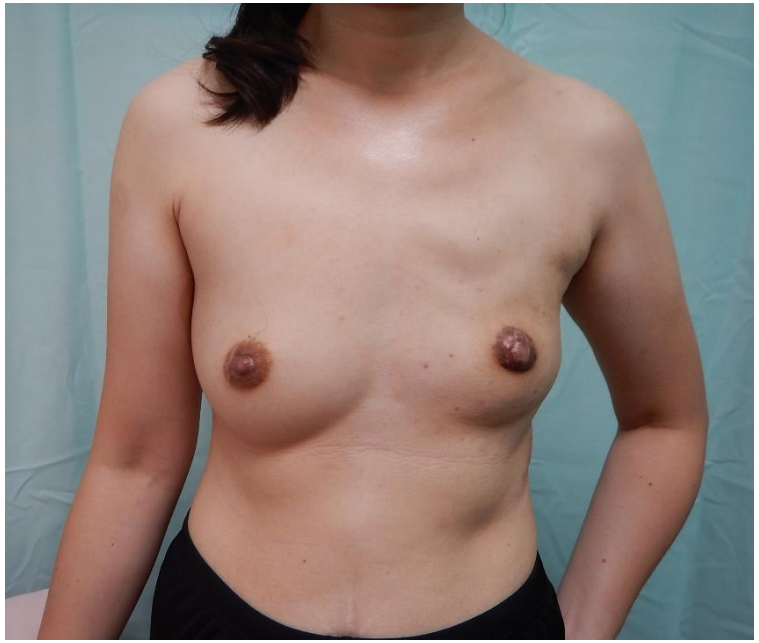
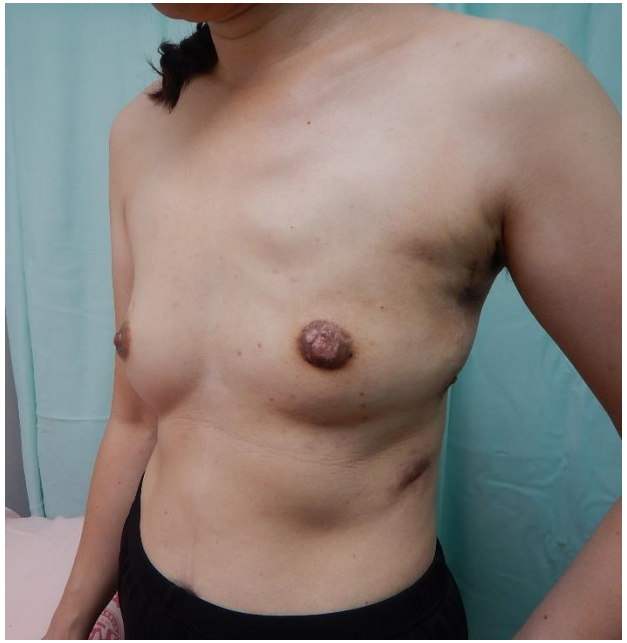
Left breast ca post R-NSM + RALD harvest

Conventional simple mastectomy +
LD flap reconstruction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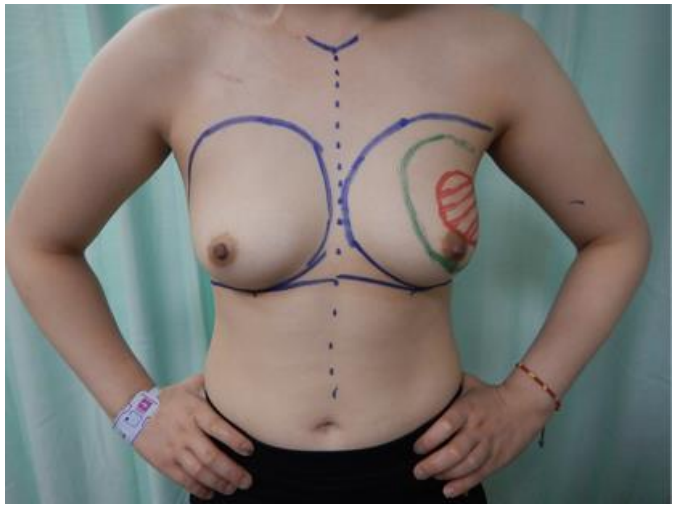
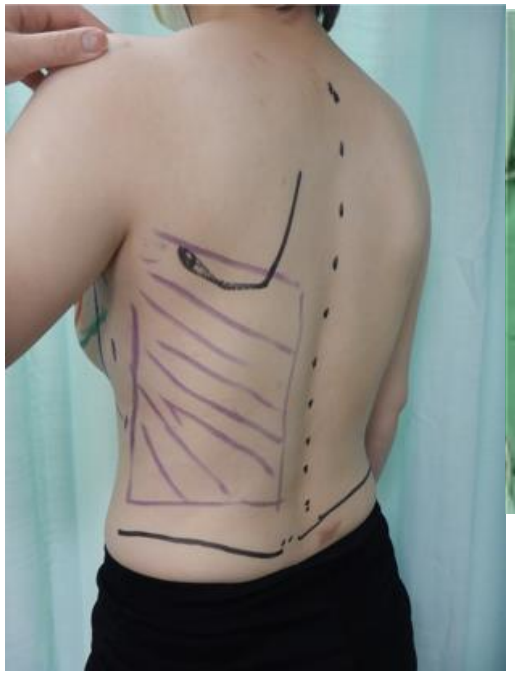
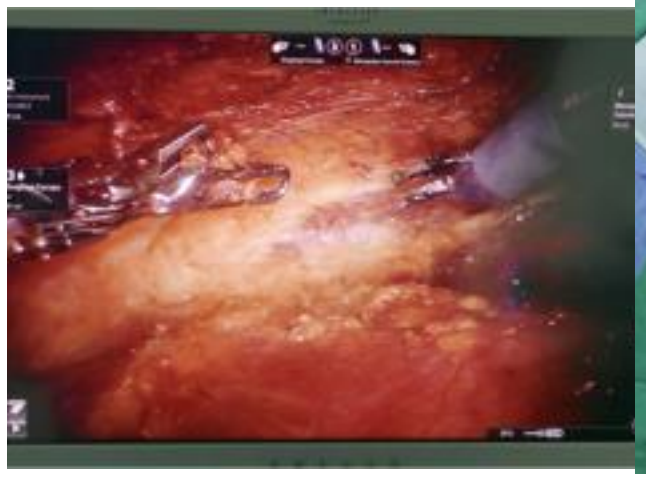





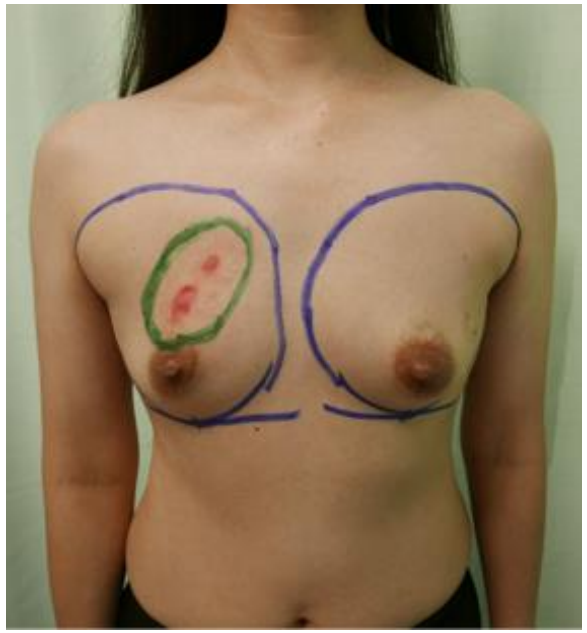

Lai HW, et al. Medicine in submission

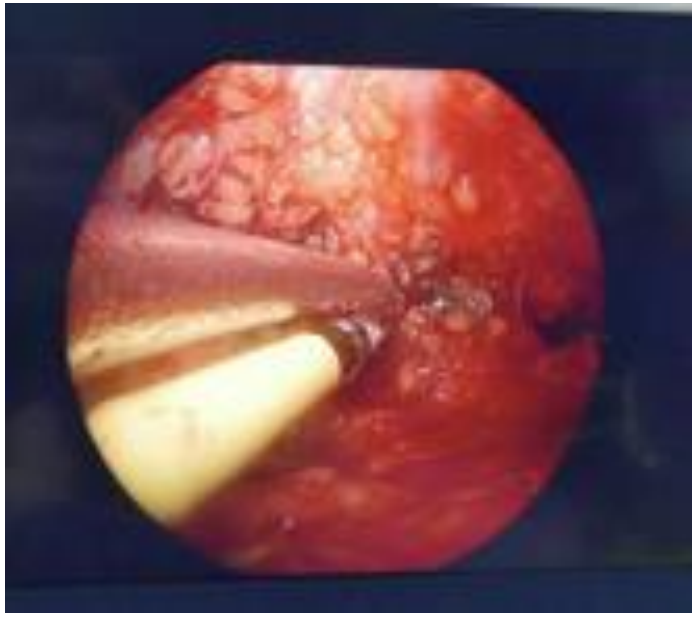
Left breast ca post me-adjuvant chemotherapy and Robotic partial mastectomy + robotic harvested of LD flap repair



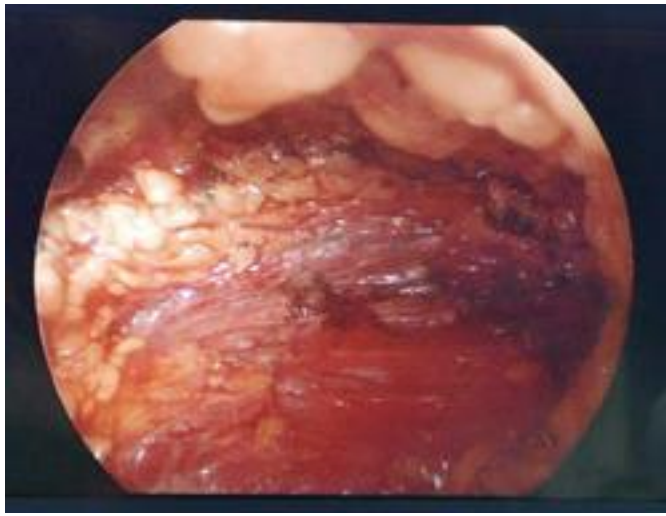


Lai HW, et al. Medicine in submission






SKIN MARKER



Age	49 ± 10.1	(20-74)
Pathology tumor size(cm)		
Invasive	1.9 ± 1.2	(0.1-3.8)
In situ	1.7 ± 1.2	(0.7-3.0)
Clinical stage (NA=4)		
Tis	7	(22.6%)
I	3	(9.7%)
IIA	13	(41.9%)
IIB	3	(9.7%)
IIIA	1	(3.2%)
Pathologic stage (NA=2)		
Tis	6	(19.4%)
I	8	(25.8%)
IIA	9	(29.0%)
IIB	4	(12.9%)
IIIA	2	(6.5%)

Lymph node metastasis		
No	21	(67.7%)
Yes	10	(32.3%)
Lymph node stage		
N0	21	(67.7%)
N1	8	(25.8%)
N2	2	(6.5%)
Multi-centric/multi-focal lesion		
Yes	5	(16.1%)
No	26	(83.9%)
Margin status		
No involved	30	(96.8%)
Involved	1	(3.2%)

*Superficial margin

Lymph node surgery		
SLNB only	22	(71.0%)
SLNB then ALND	5	(16.1%)
ALND	1	(3.1%)
No surgery	3	(9.8%)
Breast reconstruction		
Yes		(87.1%)
Gel implant	23	(74.2%)
LD flap	3	(9.7%)
Omentum flap	1	(3.2%)
No reconstruction	4	(12.9%)

	Gel implant	LD flap
All operation time (minute)	267.6 ± .4	401.3 ± 107.2
Mean mastectomy time (minute)	114.8 ± 45.5	88.3 ± 7.1
Mean reconstruction time (minute)	92.7 ± 55.4	268.7 ± 85.3

Complication		
Delayed axillary wound healing	2	(6.7%)
Skin flap blister formation	2	(6.6%)
Skin flap ischemia necrosis	1	(3.3%)
Transient nipple ischemia	3	(10.3%)
Total NAC necrosis	0	(0%)
Implant loss	0	(0%)

Subcutaneous emphysema may occurred, and subsided spontaneously without complications

Subcutaneous hematoma *1

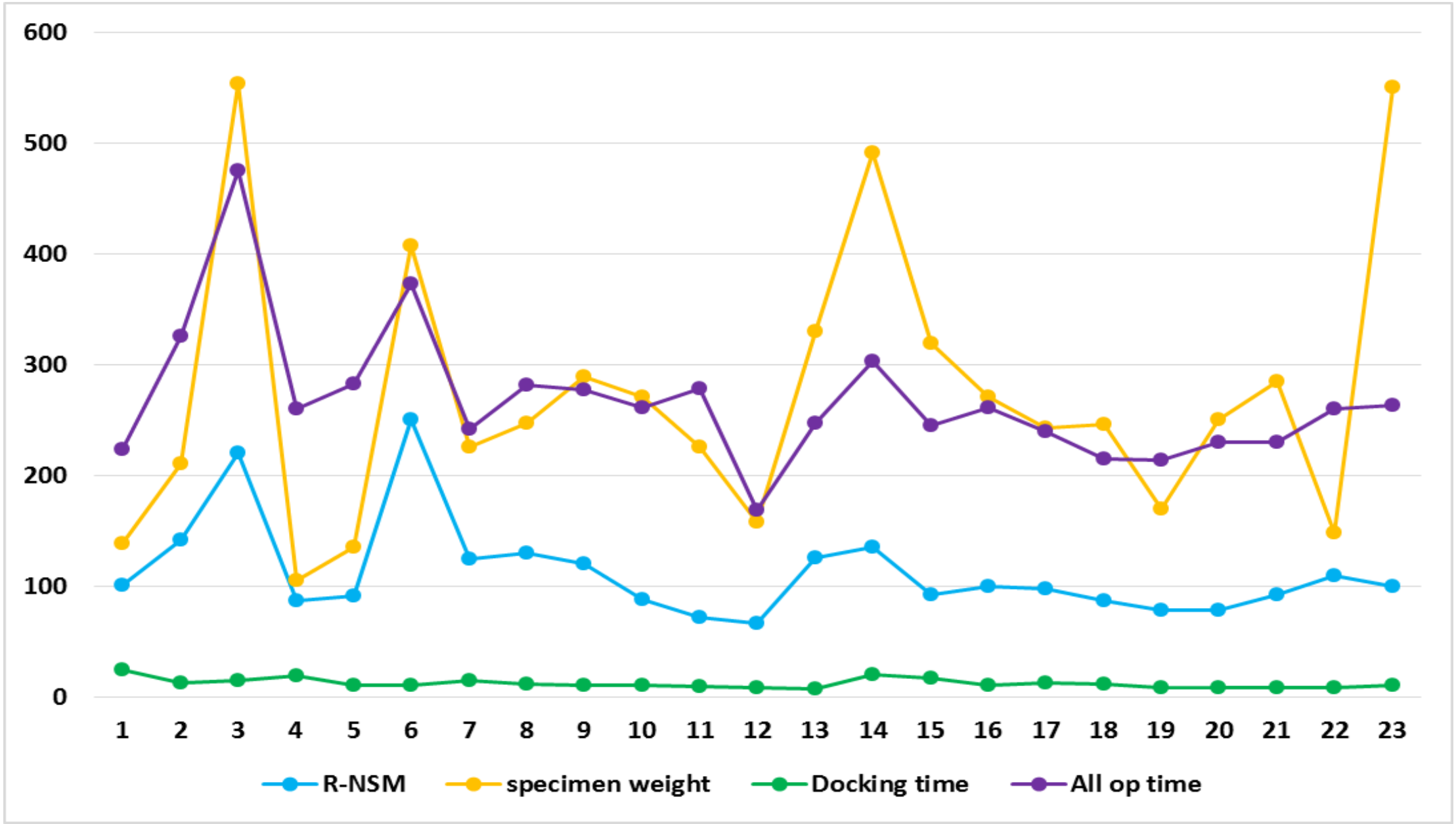
No local recurrence or mortality during post op follow up from March 2017–

Patient oriented cosmetic outcome report for R-NSM with breast reconstruction with Gel implant

	Unsatisfied	Fail	Satisfied	Very satisfied	
Q1. Preoperative breast appearance satisfaction	1 (3.6%)	0 (0.0%)	18 (64.3%)	9 (32.1%)	3.3 ± 0.8
Q2. Postoperative breast appearance satisfaction - with dressing	0 (0.0%)	1 (3.6%)	11 (39.3%)	16 (57.1%)	3.5 ± 0.6
Q3. Postoperative breast appearance satisfaction - no dressing	0 (0.0%)	4 (14.3%)	13 (46.4%)	11 (39.3%)	3.3 ± 0.7
Q4. Postoperative bilateral breast size satisfaction	0 (0.0%)	5 (17.8%)	12 (42.9%)	11 (39.3%)	3.2 ± 0.7
Q5. Postoperative bilateral breast symmetry satisfaction	0 (0.0%)	4 (14.3%)	15 (53.6%)	9 (32.1%)	3.2 ± 0.7
Q6. Postoperative nipple areola position satisfaction	0 (0.0%)	2 (7.1%)	15 (53.6%)	11 (39.3%)	3.3 ± 0.6
Q7. Scar appearance satisfaction	1 (3.6%)	2 (7.1%)	10 (35.7%)	15 (53.6%)	3.4 ± 0.8
Q8. Scar length satisfaction	0 (0.0%)	1 (3.6%)	11 (39.3%)	16 (57.1%)	3.5 ± 0.6
Q9. Surgical wound position satisfaction	0 (0.0%)	0 (0.0%)	12 (42.9%)	16 (57.1%)	3.6 ± 0.7
Q10. Are you willing to undergoronotic nipple sparing mastectomy if you cloud chose again?	Yes	27 (96.4%)			
	Not sure	1 (3.6%)			
All satisfaction	Poor	Fair	Good	Excellent	
Range	8-11	12-19	20-27	28-36	
	0 (0.0%)	0 (0.0%)	9 (32.1%)	21 (67.9%)	

Lai HW, in submission

R-NSM with Gel implant reconstruction



Future Perspective

- Cost-Effectiveness of R-NSM vs E-NSM vs conventional NSM
- Learning curve of R-VSM vs E-NSM
- Advantage of R-NSM vs E-NSM or conventional NSM


Thank U for listening & Questions ?
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