學會地址：(33305) 桃園市龜山區復興街 5 號
學會電話：03-3281200 轉 3605
E-mail：TOPBS106@gmail.com
Website：www.topbs.org.tw
發行日期：2023 年 3 月 19 日

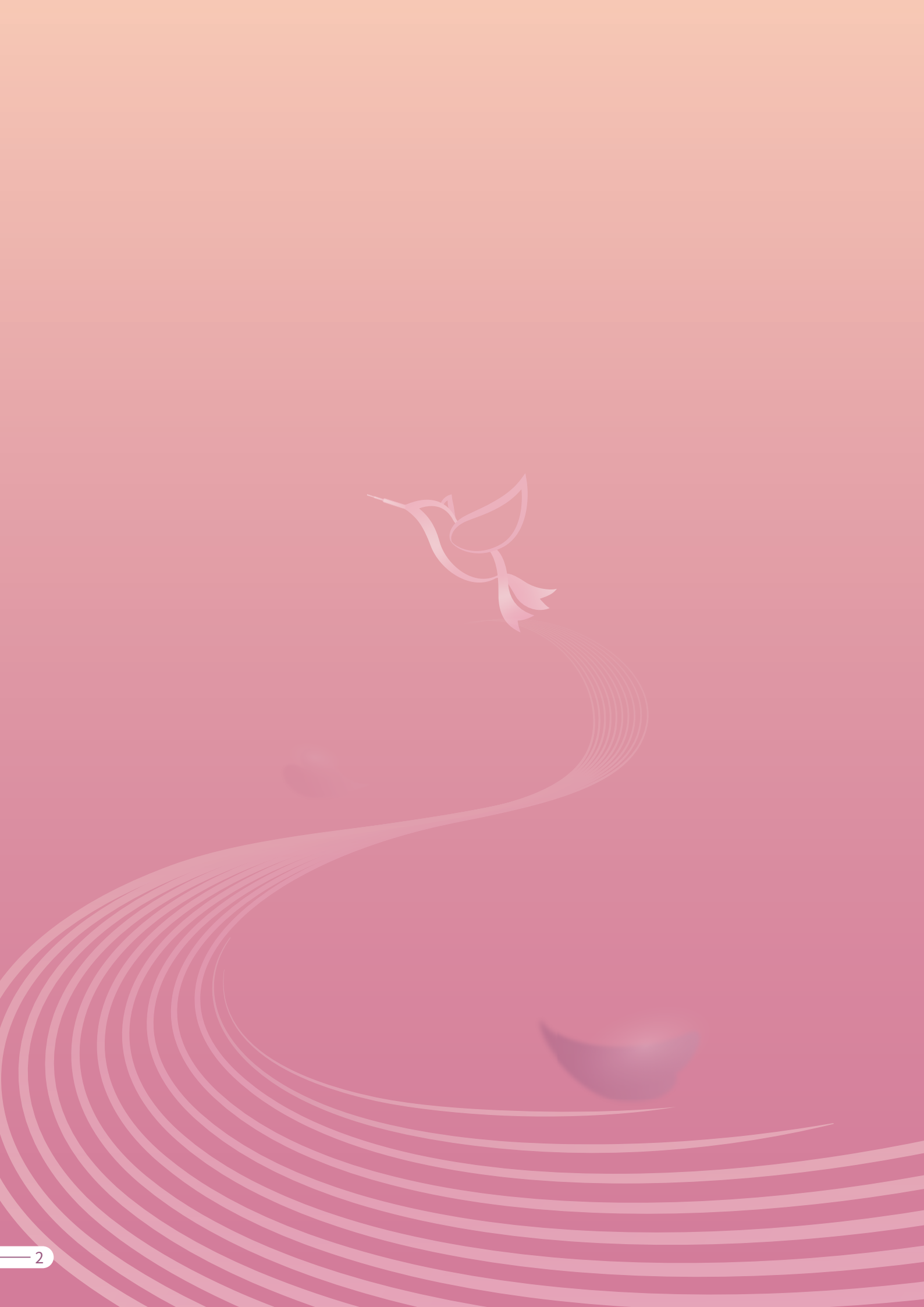
台灣乳房腫瘤手術暨重建醫學會
Taiwan Oncoplastic Breast Surgery Society

乳癌手術治療準則暨共識

2022年版

主編及發行：台灣乳房腫瘤手術暨重建醫學會

目 錄



前 言

乳癌發生率逐年上升，年輕女性乳癌比例居高不下，乳癌各種輔助性治療日新月異，且乳癌手術方法與時俱進，已非單純的全切除或部分切除而已。乳癌手術，因手術方式的改良(部分切除加入微整形概念，全切除加入乳頭乳暈保留，內視鏡或機器手臂輔助手術，前哨淋巴手術及非手術消融，及先期性治療)，而大大改變手術的適應症及方法。本學會也順應時勢在2017年結合乳房外科醫師、整形外科醫師及影像診斷、放射治療各專科而成立，專注於各種手術的精進、標準化及化學治療後外科手術的改變。

學會歷經5年的成長，專科醫師的雛型正建立中，因此各種手術的標準化、手術品質的提昇及認證工作，也刻不容緩。援此，學會也推動各種乳房手術的標準化並建立共識，期能提昇乳房手術的照護品質。

而現今乳房腫瘤的手術，雖然結合微整形、人工智慧及機器手臂而有更多的創新方法，但也應該在不傷害，減少低效益手術的原則下進行。有鑑於此，由創會陳訓徹理事長發思構想，第二任陳達人理事長的大力支持下，終在本屆的折衝努力並將整形外科醫師納入共識會議中，終於完成任務付梓。此一共識，先藉由各章節起稿人提出各項標準及意見整合後，由專家(召集人)審定投票，再由所有會員投票，而達成的各項標準及共識，不僅提昇全國乳房外科手術的品質，並可提供學會、醫院做為教材及學員參考，也可提供學會、醫策會制定認證標準之參考，更可凝聚會員向心力，共同為品質提昇、病人福祉無私奉獻。

此一手術標準及共識，已完成初稿，但假以時日，會有更新的術式及標準被提出，屆時再整合大家的意見做修改。另，此一共識僅提供乳房外科醫師參考，不可作為訴訟之用。

台灣乳房腫瘤手術暨重建醫學會
理事長 鄭翠芬謹識

共識組織成員

第三屆 台灣乳房腫瘤手術暨重建醫學會 理監事會

理　事　長	鄭翠芬
榮譽理事長	陳訓徹、陳達人
副理事長	郭耀隆、賴鴻文
常務理事	彭成康、歐陽賦
理　　事	王明暘、沈士哲、姚忠瑾、洪進昇、郭文宏、陳芳銘、陳錫根、曾信順、葉顯堂、廖國秀
常務監事	張耀仁
監　　事	于家珩、周旭桓、黃其晟、謝家明
正、副秘書長	巫承哲、陳柵君

共識委員會

主任委員	鄭翠芬
資深顧問	侯明鋒、陳訓徹、俞志誠、黃俊升、沈陳石銘、曾令民、陳守棟
各章節召集人	謝家明、廖國秀、郭耀隆、彭成康、賴鴻文、歐陽賦、王明暘、李國鼎、許桓銘 (依章節順序排序)
各章節起稿人	沈士哲、洪志杰、吳益嘉、陳柵君、馮晉榮、黃傑慧、黃嫆茹、李忠良、高捷妮 (依章節順序排序)
共識會執行秘書長	周旭桓

實證醫學等級，牛津實證醫學中心版本
(Oxford Levels of Evidence，LoE)

LOE	Therapy/prevention, aetiology/harm	Prognosis
1a	Systematic review (with homogeneity) of randomised controlled trials	Systematic review (with homogeneity) of inception cohort studies; clinical decision rule validated in different populations
1b	Individual randomised controlled trials (with narrow confidence interval)	Individual inception cohort study with ≥ 80% follow-up; clinical decision rule validated in a single population
1c	All or none	All or none case-series
2a	Systematic review (with homogeneity) of cohort studies	Systematic review (with homogeneity) of either retrospective cohort studies or untreated control groups in randomised controlled trials
2b	Individual cohort study (including low quality randomised controlled trials; e.g., < 80% follow-up)	Retrospective cohort study or follow-up of untreated control patients in a randomised controlled trial; derivation of clinical decision rule or validated on split-sample only
2c	“Outcomes” research; ecological studies	“Outcomes” research
3a	Systematic review (with homogeneity) of case-control studies	
3b	Individual case-control study	
4	Case series (and poor-quality cohort and case-control studies)	Case series (and poor-quality prognostic cohort studies)
5	Expert opinion without explicit critical appraisal, or based on physiology, bench research or “first principles”	Expert opinion without explicit critical appraisal, or based on physiology, bench research or “first principles”

建議等級，AGO版本
(Levels of Recommendation)

++	This examination or therapeutic intervention is of great benefit to the patient, can be unreservedly recommended and should be carried out.
+	This examination or therapeutic intervention is of limited benefit to the patient and may be carried out.
+/−	This examination or therapeutic intervention has not shown any benefits to date and may be carried out in individual cases. It is not possible to give a clear recommendation based on the current data.
−	This examination or therapeutic intervention may be detrimental to the patient and should rather not be carried out.
− −	This examination or therapeutic intervention is detrimental and should be avoided or omitted in all cases.

I.乳房保留手術
(Partial mastectomy)

2022 Consensus Statement	Oxford Level of Evidence	Level of Recommendation	Expert consensus	Member consensus	Ref.
I.1 Pre-operative					
I.1.1. Multidisciplinary team approach (including radiology, radiation oncology, pathology, medical and surgery) is mandatory.	2b	++	Agree: 96% Disagree: 0% No comment: 4% Abstain: 0%	Agree: 95% Disagree: 3% No comment: 2% Abstain: 0%	1
I.1.2. Breast MRI is not recommended for routine preoperative assessment.	2b	++	Agree: 79% Disagree: 17% No comment: 4% Abstain: 0%	Agree: 83% Disagree: 13% No comment: 3% Abstain: 0%	12,13
I.1.3. Breast conserving surgery is the preferred choice of breast cancer surgery, if not otherwise contraindicated.	2b	++	Agree: 81% Disagree: 4% No comment: 15% Abstain: 0%	Agree: 95% Disagree: 3% No comment: 2% Abstain: 0%	2
I.1.4. Tissue proof by core needle biopsy or other minimally invasive breast biopsy is required. Excisional biopsy is not suggested.	5	++	Agree: 93% Disagree: 0% No comment: 7% Abstain: 0%	Agree: 81% Disagree: 10% No comment: 8% Abstain: 0%	
I.1.5. Breast image study (mammography and ultrasound) is mandatory for preoperative evaluation, and sometimes for intraoperative localization.	2b	++	Agree: 100% Disagree: 0% No comment: 0% Abstain: 0%	Agree: 100% Disagree: 0% No comment: 0% Abstain: 0%	3
I.1.6. Preoperative localization with dye or other methods for non-palpable lesion by ultrasound or mammography is mandatory.	5	++	Agree: 96% Disagree: 0% No comment: 4% Abstain: 0%	Agree: 97% Disagree: 2% No comment: 2% Abstain: 0%	4
I.1.7. Indications for adjuvant radiotherapy should be evaluated and discuss with patient.	5	++	Agree: 100% Disagree: 0% No comment: 0% Abstain: 0%	Agree: 97% Disagree: 0% No comment: 3% Abstain: 0%	5

2022 Consensus Statement	Oxford Level of Evidence	Level of Recommendation	Expert consensus	Member consensus	Ref.
I.1.8. Volume measurement of breast and tumor will help in oncoplastic assessment.	5	+	Agree: 89% Disagree: 0% No comment: 7% Abstain: 4%	Agree: 85% Disagree: 3% No comment: 10% Abstain: 2%	6
I.2 Intraoperation					
I.2.1. For tumor close or adherent to skin, excision of overlying skin is appropriate and for deep-seat tumor, the fascia should be removed.	5	++	Agree: 100% Disagree: 0% No comment: 0% Abstain: 0%	Agree: 98% Disagree: 2% No comment: 0% Abstain: 0%	7
I.2.2. After appropriate preoperative evaluation, If excisions carried from the subdermal plane to the pectoral fascia, re-excision for a positive anterior (superficial) or posterior (deep) margin is not routinely required.	2b	++	Agree: 96% Disagree: 4% No comment: 0% Abstain: 0%	Agree: 78% Disagree:12% No comment: 9% Abstain: 1%	8
I.2.3. Clipped the resection cavity margin is recommended, especially for complex oncoplastic procedure.	3a	++	Agree: 92% Disagree: 0% No comment: 8% Abstain: 0%	Agree: 95% Disagree: 3% No comment: 2% Abstain: 0%	9
I.2.4. Intraoperative pathological assessment of margin may help to reduce re-excision rate.	3a	+	Agree: 86% Disagree: 4% No comment: 11% Abstain: 0%	Agree: 54% Disagree: 31% No comment: 14% Abstain: 2%	10
I.2.5. Specimen mammogram /ultrasound helps to reduce re-excision rate and specimen orientation should be standardized.	2b	++	Agree: 81% Disagree: 0% No comment: 15% Abstain: 4%	Agree: 89% Disagree: 3% No comment: 8% Abstain: 0%	11,14
I.2.6. Prophylactic antibiotics may be indicated before surgery.	1a	++	Agree: 72% Disagree: 20% No comment: 8% Abstain: 0%	Agree: 82% Disagree: 12% No comment: 4% Abstain: 1%	15,16

2022 Consensus Statement	Oxford Level of Evidence	Level of Recommendation	Expert consensus	Member consensus	Ref.
I.3 Postoperative surveillance					
I.3.1. Post-operative compression dressing should be properly performed to prevent seroma formation.	5	+	Agree: 83% Disagree: 0% No comment: 17% Abstain: 0%	Agree: 65% Disagree: 3% No comment: 32% Abstain: 0%	
I.3.2. Evaluation of cosmetic results and quality of life are recommended in postoperative surveillance.	5	+	Agree: 100% Disagree: 0% No comment: 0% Abstain: 0%	Agree: 90% Disagree: 0% No comment: 10% Abstain: 0%	

References

1. Churilla TM, Egleston BL, Murphy CT, Sigurdson ER, Hayes SB, Goldstein LJ, Bleicher RJ: Patterns of multidisciplinary care in the management of non-metastatic invasive breast cancer in the United States Medicare patient. Breast Cancer Res Treat 2016, 160(1):153-162.
2. de Boniface J, Szulkin R, Johansson ALV: Survival After Breast Conservation vs Mastectomy Adjusted for Comorbidity and Socioeconomic Status: A Swedish National 6-Year Follow-up of 48 986 Women. JAMA Surg 2021, 156(7):628-637.
3. Leddy R, Irshad A, Metcalfe A, Mabalam P, Abid A, Ackerman S, Lewis M: Comparative accuracy of preoperative tumor size assessment on mammography, sonography, and MRI: Is the accuracy affected by breast density or cancer subtype? J Clin Ultrasound 2016, 44(1):17-25.
4. Hayes MK: Update on Preoperative Breast Localization. Radiol Clin North Am 2017, 55(3):591-603.
5. The NCCN Breast Cancer Clinical Practice Guidelines in Oncology (version 4.2022 – June 21, 2022). © 2022 National Comprehensive Cancer Network. Available at: http://www.nccn.org. Accessed on August 2, 2022.
6. Weber WP, Soysal SD, El-Tamer M, Sacchini V, Knauer M, Tausch C, Hauser N, Günthert A, Harder Y, Kappos EA et al: First international consensus conference on standardization of oncoplastic breast conserving surgery. Breast Cancer Res Treat 2017, 165(1):139-149.
7. Performance and practice guidelines for breast-conserving Surgery/Partial mastectomy, 2015. Available: https:// www. breastsurgeons. org/ docs/ statements/Performance-and-Practice-Guidelines-for-Breast-Conserving-Surgery-Partial-Mastectomy. pdf
8. Mullen R, Macaskill EJ, Khalil A, Elseedawy E, Brown DC, Lee AC, Purdie CA, Jordan LB, Thompson AM: Involved anterior margins after breast conserving surgery: is re-excision required? Eur J Surg Oncol 2012, 38(4):302-306.
9. Acree P, Kapadia A, Mahatme R, Zhang L, Patel D, Almoney C, Park G, Kofsky M, Matin S, Habibi M: Review of Current Accepted Practices in Identification of the Breast Lumpectomy Tumor Bed. Advances in Radiation Oncology 2022, 7(5):100848.
10. Gray RJ, Pockaj BA, Garvey E, Blair S: Intraoperative Margin Management in Breast-Conserving Surgery: A Systematic Review of the Literature. Ann Surg Oncol 2018, 25(1):18-27.
11. Landercasper J, Bailey L, Buras R, Clifford E, Degnim AC, Thanasoulis L, Fayanju OM, Tjoe JA, Rao R: The American Society of Breast Surgeons and Quality Payment Programs: Ranking, Defining, and Benchmarking More Than 1 Million Patient Quality Measure Encounters. Ann Surg Oncol 2017, 24(10):3093-3106.
12. Choi WJ, Cha JH, Kim HH, Shin HJ, Chae EY, Jung KH, Ahn JH, Kim SB, Son BH, Ahn SH: Long-term Survival Outcomes of Primary Breast Cancer in Women With or Without Preoperative Magnetic Resonance Imaging: A Matched Cohort Study. Clin Oncol (R Coll Radiol) 2017, 29(10):653-661.
13. Arnaout A, Catley C, Booth CM, McInnes M, Graham I, Kumar V, Simos D, Van Walraven C, Clemons M: Use of Preoperative Magnetic Resonance Imaging for Breast Cancer: A Canadian Population-Based Study. JAMA Oncol 2015, 1(9):1238-1250.
14. Karanlik H, Ozgur I, Sahin D, Fayda M, Onder S, Yavuz E: Intraoperative ultrasound reduces the need for re-excision in breast-conserving surgery. World J Surg Oncol 2015, 13:321.
15. Gallagher M, Jones DJ, Bell-Syer SV: Prophylactic antibiotics to prevent surgical site infection after breast cancer surgery. Cochrane Database Syst Rev 2019, 9(9):Cd005360.
16. Consensus guideline on preoperative antibiotics and surgical site infection in breast surgery, 2017. Available: https:// www. breastsurgeons. org/ docs/ statements/Consensus-Guideline-on-Preoperative-Antibiotics-and Surgical-Site-Infection-in-Breast-Surgery.pdf

II.乳房保留合併整形手術
(Oncoplasty breast surgery)

2022 Consensus Statement	Oxford Level of Evidence	Level of Recommendation	Expert consensus	Member consensus	Ref.
II.1 Intraoperative oncoplasty (TOPBS section)					
II.1.1. Oncoplastic breast conserving surgery should be recommended versus standard breast conserving surgery for the treatment of operable breast cancer in adult women who are suitable candidates for breast conserving surgery.	2a	++	Agree: 92% Disagree: 0% No comment: 8% Abstain: 0%	Agree: 86% Disagree: 7% No comment: 7% Abstain: 0%	1,2,3,4
II.1.2. Re-shaping technique should be required for every breast surgeon.	1b	++	Agree: 75% Disagree: 7% No comment: 18% Abstain: 0%	Agree: 80% Disagree: 11% No comment: 8% Abstain: 0%	5,6,7
II.1.3. Considerations for OPBS should include excision volume, tumor location, breast size and breast density.	3a	++	Agree: 100% Disagree: 0% No comment: 0% Abstain: 0%	Agree: 98% Disagree: 0% No comment: 2% Abstain: 0%	6,8,9,10
II.1.4. Oncoplastic technique variation and basic requirement of oncoplastic techniques (including Donuts, crescent, batwing/hemi-bat wing, and tennis racket mammoplasty) are the basic requirement for oncoplastic breast surgeon.	3a	++	Agree: 96% Disagree: 0% No comment:4% Abstain: 0%	Agree: 79% Disagree: 2% No comment: 19% Abstain: 0%	11
II.1.5. When performing OPBS, clips should be used to mark the margin of tumor cavity for post-operative RT before re-shaping procedure.	2b	++	Agree: 89% Disagree: 0% No comment: 11% Abstain: 0%	Agree: 96% Disagree: 0% No comment: 4% Abstain: 0%	12,13

2022 Consensus Statement	Oxford Level of Evidence	Level of Recommendation	Expert consensus	Member consensus	Ref.
I.3 Postoperative surveillance					
II.1.6. Placing biomaterial or collagen fiber into post-surgical cavity or axillary fossa is not routinely recommended at present because of loss of strong evidence.	4	+/-	Agree: 57% Disagree: 21% No comment: 21% Abstain: 0%	Agree: 45% Disagree: 33% No comment: 21% Abstain: 2%	14,15, 16

References

1. Mohamedahmed AYY, Zaman S, Zafar S, Laroiya I, Iqbal J, Tan MLH, Shetty G: Comparison of surgical and oncological outcomes between oncoplastic breast-conserving surgery versus conventional breast-conserving surgery for treatment of breast cancer: A systematic review and meta-analysis of 31 studies. Surg Oncol 2022, 42:101779.
2. Nanda A, Hu J, Hodgkinson S, Ali S, Rainsbury R, Roy PG: Oncoplastic breast-conserving surgery for women with primary breast cancer. Cochrane Database Syst Rev 2021, 10(10):Cd013658.
3. Kimball CC, Nichols CI, Vose JG, Peled AW: Trends in Lumpectomy and Oncoplastic Breast-Conserving Surgery in the US, 2011-2016. Ann Surg Oncol 2018, 25(13):3867-3873.
4. Aristokleous I, Saddiq M: Quality of life after oncoplastic breast-conserving surgery: a systematic review. ANZ J Surg 2019, 89(6):639-646.
5. Clough KB, Kaufman GJ, Nos C, Buccimazza I, Sarfati IM: Improving breast cancer surgery: a classification and quadrant per quadrant atlas for oncoplastic surgery. Ann Surg Oncol 2010, 17(5):1375-1391.
6. Weber WP, Soysal SD, Fulco I, Barandun M, Babst D, Kalbermatten D, Schaefer DJ, Oertli D, Kappos EA, Haug M: Standardization of oncoplastic breast conserving surgery. Eur J Surg Oncol 2017, 43(7):1236-1243.
7. Hadjittofi C, Almalki H, Mirshekar-Syahkal B, Pain S, Zechmeister K, Hussien M: Simple oncoplastic breast defect closure improves long-term cosmetic outcome of breast conserving surgery for breast cancer: A randomised controlled trial. Breast 2022, 65:104-109.
8. Pukancsik D, Kelemen P, Újhelyi M, Kovács E, Udvarhelyi N, Mészáros N, Kenessey I, Kovács T, Kásler M, Mátrai Z: Objective decision making between conventional and oncoplastic breast-conserving surgery or mastectomy: An aesthetic and functional prospective cohort study. Eur J Surg Oncol 2017, 43(2):303-310.
9. Bulstrode NW, Shrotria S: Prediction of cosmetic outcome following conservative breast surgery using breast volume measurements. Breast 2001, 10(2):124-126.
10. Shiina N, Sakakibara M, Fujisaki K, Iwase T, Nagashima T, Sangai T, Kubota Y, Akita S, Takishima H, Miyazaki M: Volumetric breast density is essential for predicting cosmetic outcome at the late stage after breast-conserving surgery. Eur J Surg Oncol 2016, 42(4):481-488.
11. Zucca-Matthes G: Oncoplastic Breast Surgery Techniques for the General Surgeon. In: Oncoplastic Breast Surgery Techniques for the General Surgeon. edn. Edited by Klimberg VS, Kovacs T, Rubio IT. Cham: Springer International Publishing; 2020: 613-623.
12. Ebner F, de Gregorio N, Rempen A, Mohr P, de Gregorio A, Wöckel A, Janni W, Witucki G: To clip or not to clip the breast tumor bed? A retrospective look at the geographic miss index and normal tissue index of 110 patients with breast cancer. J Turk Ger Gynecol Assoc 2017, 18(2):67-71.
13. Coles CE, Wilson CB, Cumming J, Benson JR, Forouhi P, Wilkinson JS, Jena R, Wishart GC: Titanium clip placement to allow accurate tumour bed localisation following breast conserving surgery: audit on behalf of the IMPORT Trial Management Group. Eur J Surg Oncol 2009, 35(6):578-582.
14. Kim HO, Hwang SI, Yom CK, Park YL, Bae WG. The Use of Absorbable Surgical Mesh after Partial Mastectomy for Improving the Cosmetic Outcome. J Breast Cancer 2009, 12(3):151-155.
15. Puls TJ, Fisher CS, Cox A, Plantenga JM, McBride EL, Anderson JL, Goergen CJ, Bible M, Moller T, Voytik-Harbin SL: Regenerative tissue filler for breast conserving surgery and other soft tissue restoration and reconstruction needs. Sci Rep 2021, 11(1):2711.
16. Li JJ, Yang Y, Wan Q, Li H, Long QM, Zhang PR: Clinical observation of the regeneration process of defects after breast cancer resection. BMC Womens Health 2021, 21(1):99.

III.乳房全切除後重建手術
(Post-mastectomy reconstruction)

2022 Consensus Statement	Oxford Level of Evidence	Level of Recomm-endation	Expert consensus	Member consensus	Ref.
III.1 Consideration of immediate one or two stage implant-based breast reconstruction					
III.1.1. All women who have a mastectomy should be co-unseled on their options for breast reconstruction, inclu-ding implant-based or auto-logous breast reconstruction.	2b	++	Agree: 100% Disagree: 0% No comment: 0% Abstain: 0%	Agree: 88% Disagree: 4% No comment: 9% Abstain: 0%	1
III.1.2. Direct-to-implant rec-onstruction is indicated for patients with small-to-moderate–sized breasts, rel-atively symmetric breasts, who desire to stay approxim-ately the same breast size.	2b	++	Agree: 96% Disagree: 0% No comment: 4% Abstain: 0%	Agree: 89% Disagree: 5% No comment: 5% Abstain: 0%	1,2
III.1.3. Two stage (Tissue expander/implant, TE) reco-nstruction is indicated for patients with significant size changes, asymmetry, inade-quacy of skin envelope or vascularity of the skin is un-certain.	2b	++	Agree: 96% Disagree: 0% No comment: 4% Abstain: 0%	Agree: 96% Disagree: 0% No comment: 4% Abstain: 0%	1,2

References

1. Colwell AS, Taylor EM: Recent Advances in Implant-Based Breast Reconstruction. Plast Reconstr Surg 2020, 145(2):421e-432e.
2. Susarla SM, Ganske I, Helliwell L, Morris D, Eriksson E, Chun YS: Comparison of clinical outcomes and patient satisfaction in immediate single-stage versus two-stage implant-based breast reconstruction. Plast Reconstr Surg 2015, 135(1):1e-8e.

2022 Consensus Statement	Oxford Level of Evidence	Level of Recommendation	Expert consensus	Member consensus	Ref.
III.2 Consideration of radiotherapy in implant-based breast reconstruction					
III.2.1. Post mastectomy radaition (PMRT) is not contraindicated for implant reconstruction, but it introduce significant risk for implant failure and complications. Autologous reconstruction is recommended if PMRT indicated.	2a	++	Agree: 81% Disagree: 7% No comment: 11% Abstain: 0%	Agree: 73% Disagree: 10% No comment: 17% Abstain: 0%	1,3
III.2.2. If PMRT is required with two stage implant reconstruction, compared to permanent implant, radiation to TE may result in a favorable aesthetic result, lower rate of capsular contracture but higher implant loss. SDM is important.	2b	++	Agree: 100% Disagree: 0% No comment: 0% Abstain: 0%	Agree: 86% Disagree: 2% No comment: 12% Abstain: 0%	4,5,6,7
III.2.3. If PMRT is required for patients with direct-to-implant, higher risk of capsular contracture and other complications should be informed, although long-term follow up data of cosmetic outcomes is missing.	2b	+	Agree: 92% Disagree: 0% No comment: 4% Abstain: 4%	Agree: 89% Disagree: 0% No comment: 11% Abstain: 0%	8
III.2.4. Previous radiation introduces significant risks for implant failure and complications though incidence varies widely across institutions, autologous reconstruction is recommended.	2a	++	Agree: 92% Disagree: 4% No comment: 4% Abstain: 0%	Agree: 77% Disagree: 9% No comment: 14% Abstain: 0%	1,2,3

References

1. Nelson JA, Disa JJ: Breast Reconstruction and Radiation Therapy: An Update. Plast Reconstr Surg 2017, 140(5S Advances in Breast Reconstruction):60s-68s.
2. Lee KT, Mun GH: Prosthetic breast reconstruction in previously irradiated breasts: A meta-analysis. J Surg Oncol 2015, 112(5):468-475.
3. Chen TA, Momeni A, Lee GK: Clinical outcomes in breast cancer expander-implant reconstructive patients with radiation therapy. J Plast Reconstr Aesthet Surg 2016, 69(1):14-22.
4. Lee KT, Mun GH: Optimal Sequencing of Postmastectomy Radiotherapy and Two Stages of Prosthetic Reconstruction: A Meta-analysis. Ann Surg Oncol 2017, 24(5):1262-1268.
5. El-Sabawi B, Carey JN, Hagopian TM, Sbitany H, Patel KM: Radiation and breast reconstruction: Algorithmic approach and evidence-based outcomes. J Surg Oncol 2016, 113(8):906-912.
6. Santosa KB, Chen X, Qi J, Ballard TNS, Kim HM, Hamill JB, Bensenhaver JM, Pusic AL, Wilkins EG: Postmastectomy Radiation Therapy and Two-Stage Implant-Based Breast Reconstruction: Is There a Better Time to Irradiate? Plast Reconstr Surg 2016, 138(4):761-769.
7. Cordeiro PG, Albornoz CR, McCormick B, Hudis CA, Hu Q, Heerdt A, Matros E: What Is the Optimum Timing of Postmastectomy Radiotherapy in Two-Stage Prosthetic Reconstruction: Radiation to the Tissue Expander or Permanent Implant? Plast Reconstr Surg 2015, 135(6):1509-1517.
8. Du F, Liu R, Zhang H, Xiao Y, Long X: Post-mastectomy adjuvant radiotherapy for direct-to-implant and two-stage implant-based breast reconstruction: A meta-analysis. J Plast Reconstr Aesthet Surg 2022, 75(9):3030-3040.

2022 Consensus Statement	Oxford Level of Evidence	Level of Recommendation	Expert consensus	Member consensus	Ref.
III.3 Current consensus of surgical plane in implant-based breast reconstruction					
III.3.1. Prepectoral implant - based breast reconstruction is a good alternative to subpectoral implant- based, if patients do not have comorbidities, such as DM, smoker, and previous radiotherapy.	2a	++	Agree: 81% Disagree: 0% No comment: 15% Abstain: 4%	Agree: 74% Disagree: 2% No comment: 25% Abstain: 0%	1,2, 3,4, 5,6, 7

References

1. Sbitany H, Serletti JM: Acellular dermis-assisted prosthetic breast reconstruction: a systematic and critical review of efficacy and associated morbidity. Plast Reconstr Surg 2011, 128(6):1162-1169.
2. Sbitany H, Gomez-Sanchez C, Piper M, Lentz R: Prepectoral Breast Reconstruction in the Setting of Postmastectomy Radiation Therapy: An Assessment of Clinical Outcomes and Benefits. Plast Reconstr Surg 2019, 143(1):10-20.
3. Seth AK, Hirsch EM, Fine NA, Kim JYS: Utility of acellular dermis-assisted breast reconstruction in the setting of radiation: a comparative analysis. Plast Reconstr Surg 2012, 130(4):750-758.
4. Cheng A, Lakhiani C, Saint-Cyr M: Treatment of capsular contracture using complete implant coverage by acellular dermal matrix: a novel technique. Plast Reconstr Surg 2013, 132(3):519-529.
5. Vidya R, Berna G, Sbitany H, Nahabedian M, Becker H, Reitsamer R, Rancati A, Macmillan D, Cawthorn S: Prepectoral implant-based breast reconstruction: a joint consensus guide from UK, European and USA breast and plastic reconstructive surgeons. Ecancermedicalscience 2019, 13:927.
6. Li Y, Xu G, Yu N, Huang J, Long X: Prepectoral Versus Subpectoral Implant-Based Breast Reconstruction: A Meta-analysis. Ann Plast Surg 2020, 85(4):437-447.
7. Li L, Su Y, Xiu B, Huang X, Chi W, Hou J, Zhang Y, Tian J, Wang J, Wu J: Comparison of prepectoral and subpectoral breast reconstruction after mastectomies: A systematic review and meta analysis. Eur J Surg Oncol 2019, 45(9):1542-1550.

2022 Consensus Statement	Oxford Level of Evidence	Level of Recommendation	Expert consensus	Member consensus	Ref.
III.4 Considerations of different types of implant choices (surface, contents, shapes)					
III.4.1. Patients with texture implants tend to have lower rates of capsular contracture.	1a	++	Agree: 83% Disagree: 0% No comment: 8% Abstain: 8%	Agree: 78% Disagree: 0% No comment: 16% Abstain: 6%	1
III.4.2. There is no difference seen between round and shaped implants including rippling, overall satisfaction with breast and outcome.	2c	+	Agree: 71% Disagree: 0% No comment: 14% Abstain: 14%	Agree: 76% Disagree: 2% No comment: 14% Abstain: 8%	2

References

1. Vorstenbosch J, McCarthy CM, Shamsunder MG, Polanco TO, Dabic S, Wiser I, Matros E, Dayan J, Disa JJ, Pusic AL et al: Smooth versus Textured Implant Breast Reconstruction: Patient-Reported Outcomes and Complications. Plast Reconstr Surg 2021, 148(5):959-967.
2. Quinn TT, Miller GS, Rostek M, Cabalag MS, Rozen WM, Hunter-Smith DJ: Prosthetic breast reconstruction: indications and update. Gland Surg 2016, 5(2):174-186.

2022 Consensus Statement	Oxford Level of Evidence	Level of Recommendation	Expert consensus	Member consensus	Ref.
III.5 Considerations of breast implant safety					
III.5.1. Patients should be informed there exists an association between certain types of breast implants and breast implant-associated anaplastic large cell lymphoma (BIA-ALCL). The risk appears to vary based on the method of texturing.	3b	+	Agree: 100% Disagree: 0% No comment: 0% Abstain: 0%	Agree: 96% Disagree: 2% No comment: 2% Abstain: 0%	1
III.5.2. Patients with implant-based breast reconstruction should receive regular MRI or ultrasound follow up to rule out possible micro- leakage or implant rupture.	1a	++	Agree: 96% Disagree: 0% No comment: 4% Abstain: 0%	Agree: 94% Disagree: 4% No comment: 2% Abstain: 0%	2,3

References

1. Clemens MW, Horwitz SM: NCCN Consensus Guidelines for the Diagnosis and Management of Breast Implant-Associated Anaplastic Large Cell Lymphoma. Aesthet Surg J 2017, 37(3):285-289.
2. Barnsley GP, Sigurdson LJ, Barnsley SE: Textured surface breast implants in the prevention of capsular contracture among breast augmentation patients: a meta-analysis of randomized controlled trials. Plast Reconstr Surg 2006, 117(7):2182-2190.
3. Liu X, Zhou L, Pan F, Gao Y, Yuan X, Fan D: Comparison of the postoperative incidence rate of capsular contracture among different breast implants: a cumulative meta-analysis. PLoS One 2015, 10(2):e0116071.

2022 Consensus Statement	Oxford Level of Evidence	Level of Recommendation	Expert consensus	Member consensus	Ref.
III.6 Consideration of standard of procedures to decrease implant-associated infection					
III.6.1. Using intravenous antibiotic prophylaxis at the time of anesthetic induction could prevent implant-associated infection.	1a	++	Agree: 100% Disagree: 0% No comment: 0% Abstain: 0%	Agree: 100% Disagree: 0% No comment: 0% Abstain: 0%	1,2
III.6.2. Performing pocket irrigation with antibiotic solution or dilute betadine could reduce implant-associated infection.	2b	++	Agree: 64% Disagree: 0% No comment: 32% Abstain: 5%	Agree: 70% Disagree: 13% No comment: 16% Abstain: 2%	3,4
III.6.3. Using postoperative prophylactic antibiotic may also prevent infection. However, the duration of postoperative prophylactic antibiotics is controversial.	1b	++	Agree: 91% Disagree: 0% No comment: 9% Abstain: 0%	Agree: 83% Disagree: 6% No comment: 11% Abstain: 0%	5,6,7,8,9

References

1. Amland PF, Andenaes K, Samdal F, Lingaas E, Sandsmark M, Abyholm F, Giercksky KE: A prospective, double-blind, placebo-controlled trial of a single dose of azithromycin on postoperative wound infections in plastic surgery. Plast Reconstr Surg 1995, 96(6):1378-1383.
2. Gahm J, Ljung Konstantinidou A, Lagergren J, Sandelin K, Glimåker M, Johansson H, Wickman M, de Boniface J, Frisell J: Effectiveness of Single vs Multiple Doses of Prophylactic Intravenous Antibiotics in Implant-Based Breast Reconstruction: A Randomized Clinical Trial. JAMA Netw Open 2022, 5(9):e2231583.
3. Frois AO, Harbour PO, Azimi F, Young J, Chan B, Mak C, Warrier S: The Role of Antibiotics in Breast Pocket Irrigation and Implant Immersion: A Systematic Review. Plast Reconstr Surg Glob Open 2018, 6(9):e1868.
4. Lynch JM, Sebai ME, Rodriguez-Unda NA, Seal S, Rosson GD, Manahan MA: Breast Pocket Irrigation with Antibiotic Solution at Implant Insertion: A Systematic Review and Meta-Analysis. Aesthetic Plast Surg 2018, 42(5):1179-1186.
5. Phillips BT, Fourman MS, Bishawi M, Zegers M, O'Hea BJ, Ganz JC, Huston TL, Dagum AB, Khan SU, Bui DT: Are Prophylactic Postoperative Antibiotics Necessary for Immediate Breast Reconstruction? Results of a Prospective Randomized Clinical Trial. J Am Coll Surg 2016, 222(6):1116-1124.
6. Phillips BT, Bishawi M, Dagum AB, Khan SU, Bui DT: A systematic review of antibiotic use and infection in breast reconstruction: what is the evidence? Plast Reconstr Surg 2013, 131(1):1-13.
7. Phillips BT, Halvorson EG: Antibiotic Prophylaxis following Implant-Based Breast Reconstruction: What Is the Evidence? Plast Reconstr Surg 2016, 138(4):751-757.
8. Hu Y, Zhou X, Tong X, Chen X, Wang M, Wu X, Li P, Tang F, Zhou J, Li P: Postoperative antibiotics and infection rates after implant-based breast reconstruction: A systematic review and meta-analysis. Front Surg 2022, 9:926936.
9. Rothe K, Münster N, Hapfelmeier A, Ihbe-Heffinger A, Paepke S, Niemeyer M, Feihl S, Busch DH, Kiechle M, Brambs CE: Does the Duration of Perioperative Antibiotic Prophylaxis Influence the Incidence of Postoperative Surgical-Site Infections in Implant-Based Breast Reconstruction in Women with Breast Cancer? A Retrospective Study. Plast Reconstr Surg 2022, 149(4):617e-628e.

IV.超音波導引真空抽吸輔助乳房腫瘤切片及切除手術
(Vacuum-assisted breast biopsy excision, VAB)

2022 Consensus Statement	Oxford Level of Evidence	Level of Recommendation	Expert consensus	Member consensus	Ref.
IV.1 General and indication					
IV.1.1. Vacuum-assisted breast biopsy (VABB) improves the accuracy rate of tissue diagnosis improving diagnosis.	2a	++	Agree: 80% Disagree: 0% No comment: 20% Abstain: 0%	Agree: 88% Disagree: 2% No comment: 8% Abstain: 2%	
IV.1.2. Vacuum-assisted excision(VAE) is an alternative option for benign breast tumor surgery (if indicated)	2a	++	Agree: 84% Disagree: 0% No comment: 12% Abstain: 4%	Agree: 91% Disagree: 0% No comment: 6% Abstain: 2%	
IV.1.3. Vacuum-assisted breast biopsy is a suitable procedure for microcalcifications by stereotactic device and/or ultrasound.	2a	++	Agree: 96% Disagree: 0% No comment: 0% Abstain: 4%	Agree: 86% Disagree: 0% No comment: 12% Abstain:2%	
IV.2 Post-VAB					
IV.2.1. Open surgery is the recommended management for pathological proved atypical ductal hyperplasia after vacuumassisted breast biopsy , except special consideration.	2a	++	Agree: 89% Disagree: 0% No comment: 7% Abstain: 4%	Agree: 84% Disagree: 8% No comment: 6% Abstain:2%	
IV.2.2. Vacuum-assisted breast biopsy is oncological safety and less likely with tumor seeding.	3a	++	Agree: 72% Disagree: 4% No comment: 16% Abstain: 8%	Agree: 88% Disagree: 0% No comment: 10% Abstain:2%	

References

1. Bennett IC, Saboo A: The Evolving Role of Vacuum Assisted Biopsy of the Breast: A Progression from Fine-Needle Aspiration Biopsy. World J Surg 2019, 43(4):1054-1061.
2. Cassano E, Urban LA, Pizzamiglio M, Abbate F, Maisonneuve P, Renne G, Viale G, Bellomi M: Ultrasound-guided vacuum-assisted core breast biopsy: experience with 406 cases. Breast Cancer Res Treat 2007, 102(1):103-110.
3. Giannotti E, James JJ, Chen Y, Sun R, Karuppiah A, Yemm J, Lee AHS: Correction to: Effectiveness of percutaneous vacuum-assisted excision (VAE) of breast lesions of uncertain malignant potential (B3 lesions) as an alternative to open surgical biopsy. Eur Radiol 2022, 32(1):742.
4. Girardi V, Guaragni M, Ruzzenenti N, Palmieri F, Fogazzi G, Cozzi A, Lucchini D, Buffoli A, Schiaffino S, Sardanelli F: B3 Lesions at Vacuum-Assisted Breast Biopsy under Ultrasound or Mammography Guidance: A Single-Center Experience on 3634 Consecutive Biopsies. Cancers (Basel) 2021, 13(21).
5. Hahn M, Krainick-Strobel U, Toellner T, Gissler J, Kluge S, Krapfl E, Peisker U, Duda V, Degenhardt F, Sinn HP et al: Interdisciplinary consensus recommendations for the use of vacuum-assisted breast biopsy under sonographic guidance: first update 2012. Ultraschall Med 2012, 33(4):366-371.
6. Hoorntje LE, Peeters PH, Mali WP, Borel Rinkes IH: Vacuum-assisted breast biopsy: a critical review. Eur J Cancer 2003, 39(12):1676-1683.
7. Nakano S, Sakamoto H, Ohtsuka M, Mibu A, Sakata H, Yamamoto M: Evaluation and indications of ultrasound-guided vacuum-assisted core needle breast biopsy. Breast Cancer 2007, 14(3):292-296.
8. Park HL, Hong J: Vacuum-assisted breast biopsy for breast cancer. Gland Surg 2014, 3(2):120-127.
9. Sohn YM, Yoon JH, Kim EK, Moon HJ, Kim MJ: Percutaneous ultrasound-guided vacuum-assisted removal versus surgery for breast lesions showing imaging-histology discordance after ultrasound-guided core-needle biopsy. Korean J Radiol 2014, 15(6):697-703.
10. Yoo HS, Kang WS, Pyo JS, Yoon J: Efficacy and Safety of Vacuum-Assisted Excision for Benign Breast Mass Lesion: A Meta-Analysis. Medicina (Kaunas) 2021, 57(11).
11. Bianchi S, Caini S, Renne G, Cassano E, Ambrogetti D, Cattani MG, Saguatti G, Chiaramondia M, Bellotti E, Bottiglieri R et al: Positive predictive value for malignancy on surgical excision of breast lesions of uncertain malignant potential (B3) diagnosed by stereotactic vacuum-assisted needle core biopsy (VANCB): a large multi-institutional study in Italy. Breast 2011, 20(3):264-270.
12. Forester ND, Lowes S, Mitchell E, Twiddy M: High risk (B3) breast lesions: What is the incidence of malignancy for individual lesion subtypes? A systematic review and meta-analysis. Eur J Surg Oncol 2019, 45(4):519-527.
13. Huang YY, Park H, McLaren S, Thirunavukkarasu P, Lin JTW, Rajakaruna R, Dhillon R, Ponniah AK: B3 lesion upgrade rates in a tertiary Australian breast centre: a 8-year experience (2012-2019). ANZ J Surg 2020, 90(12):2521-2526.
14. Lee AH, Denley HE, Pinder SE, Ellis IO, Elston CW, Vujovic P, Macmillan RD, Evans AJ: Excision biopsy findings of patients with breast needle core biopsies reported as suspicious of malignancy (B4) or lesion of uncertain malignant potential (B3). Histopathology 2003, 42(4):331-336.
15. Lucioni M, Rossi C, Lomoro P, Ballati F, Fanizza M, Ferrari A, Garcia-Etienne CA, Boveri E, Meloni G, Sommaruga MG et al: Positive predictive value for malignancy of uncertain malignant potential (B3) breast lesions diagnosed on vacuum-assisted biopsy (VAB): is surgical excision still recommended? Eur Radiol 2021, 31(2):920-927.
16. Rageth CJ, O'Flynn EAM, Pinker K, Kubik-Huch RA, Mundinger A, Decker T, Tausch C, Dammann F, Baltzer PA, Fallenberg EM et al: Second International Consensus Conference on lesions of uncertain malignant potential in the breast (B3 lesions). Breast Cancer Res Treat 2019, 174(2):279-296.
17. Rakha EA, Ho BC, Naik V, Sen S, Hamilton LJ, Hodi Z, Ellis IO, Lee AH: Outcome of breast lesions diagnosed as lesion of uncertain malignant potential (B3) or suspicious of malignancy (B4) on needle core biopsy, including detailed review of epithelial atypia. Histopathology 2011, 58(4):626-632.
18. Yu YH, Liang C, Yuan XZ: Diagnostic value of vacuum-assisted breast biopsy for breast carcinoma: a meta-analysis and systematic review. Breast Cancer Res Treat 2010, 120(2):469-479.

19. Wu J, Kong R, Tian S, Li H, Liu JS, Xu Z, Zou BS, Wu KN, Kong LQ: Advances in Ultrasound-Guided Vacuum-Assisted Biopsy of Breast Microcalcifications. Ultrasound Med Biol 2021, 47(5):1172-1181.
20. Park HL, Kwak JY, Jung H, et al. Is mammotome excision feasible for benign breast mass bigger than 3 cm in greatest dimension? J Korean Surg Soc 2006, 70:25-9.
21. Fine RE, Israel PZ, Walker LC, Corgan KR, Greenwald LV, Berenson JE, Boyd BA, Oliver MK, McClure T, Elberfeld J: A prospective study of the removal rate of imaged breast lesions by an 11-gauge vacuum-assisted biopsy probe system. Am J Surg 2001, 182(4):335-340.
22. Uematsu T, Kasami M: The use of positive core wash cytology to estimate potential risk of needle tract seeding of breast cancer: directional vacuum-assisted biopsy versus automated core needle biopsy. Breast Cancer 2010, 17(1):61-67.
23. Loughran CF, Keeling CR: Seeding of tumour cells following breast biopsy: a literature review. Br J Radiol 2011, 84(1006):869-874.
24. Kim JH, Han K, Kim MJ, Moon HJ, Yoon JH, Park VY, Kim EK: Atypical Ductal Hyperplasia on Ultrasonography-Guided Vacuum-Assisted Biopsy of the Breast: Considerations for Further Surgical Excision. Ultrasound Q 2020, 36(2):192-198.
25. Dennis MA, Parker S, Kaske TI, Stavros AT, Camp J: Incidental treatment of nipple discharge caused by benign intraductal papilloma through diagnostic Mammotome biopsy. AJR Am J Roentgenol 2000, 174(5):1263-1268.