

Long-Term Outcomes of Breast-Conserving Surgery with Radiation Therapy: A 16-Year Retrospective Study of 380 Patients

Dr Parang Aseri¹, Dr Mahendra Choudhary², Dr Gayatri Chitara³, Dr Vinay Gurjar⁴, Dr Kunal Chitara⁵

¹ Assistant Professor, Department of Surgery, Dr Sampurnanand Medical College, Jodhpur, Rajasthan

² Assistant Professor, Department of Surgery, Dr Sampurnanand Medical College, Jodhpur, Rajasthan

³ Assistant Professor, Department of Anaesthesia, Dr Sampurnanand Medical College, Jodhpur, Rajasthan

⁴ Junior resident, Department of Surgery, Dr Sampurnanand Medical College, Jodhpur, Rajasthan

⁵ Junior resident, Department of Surgery, Dr Sampurnanand Medical College, Jodhpur, Rajasthan

OPEN ACCESS

Corresponding Author:

Dr Parang Aseri

Assistant Professor, Department of
Surgery, Dr Sampurnanand
Medical College, Jodhpur,
Rajasthan

Received: 06-12-2025

Accepted: 02-01-2026

Available online: 13-01-2026

Copyright © International Journal of
Medical and Pharmaceutical Research

ABSTRACT

Abstract Introduction: Breast-conserving surgery (BCS) combined with radiation therapy is the gold standard for early-stage breast cancer. This study evaluates long-term oncological and cosmetic outcomes in a 16-year cohort at a tertiary care centre in Jaipur, Rajasthan.

Materials and Methods: A retrospective analysis was performed on 380 female patients treated between 2003 and 2019. Primary endpoints included overall survival (OS), local recurrence rate (LRR), and cosmetic satisfaction. Survival was calculated using the Kaplan-Meier method.

Results: Median follow-up was 104 months. The 10-year OS was 96%, and the LRR at 10 years was 6.0%. Triple-negative breast cancer (TNBC) was significantly associated with distant metastasis ($p < 0.05$). 80% of patients reported good-to-excellent cosmetic outcomes.

Conclusion: BCS remains an oncologically safe and cosmetically superior alternative to mastectomy for Stage I and II breast cancer.

Keywords: Breast-conserving surgery, Early-stage breast cancer, Overall survival, Local recurrence, Cosmetic outcome, Radiation therapy.

INTRODUCTION

Breast cancer is the most prevalent malignancy among women globally, including in India [1]. Surgical management has evolved from radical mastectomy to Breast-Conserving Surgery (BCS), with clinical trials confirming equivalent survival rates when combined with radiation therapy [2]. While BCS is standard in developed nations, regional studies are essential to evaluate outcomes in populations where Stage II disease is more prevalent at the time of diagnosis. This study assesses the 16-year experience of a single institution in managing early-stage breast cancer via breast conservative approaches.

Materials and Methods

2.1 Study Population A retrospective review was conducted of 380 women with early-stage (T1-T2, N0-N1) invasive ductal carcinoma treated at S.M.S. Medical College, Jaipur (2003–2019). Patients with HER2-positive status were excluded due to inconsistent access to Trastuzumab during the early years of the study period.

2.2 Treatment Protocol All patients underwent wide local excision with axillary staging (SLNB or ALND). Pathological "clear margins" were defined as no ink on the tumor. Post-operative whole-breast radiotherapy (50 Gy/25 fractions) was mandatory. Systemic therapy followed NCCN guidelines current at the time of treatment.

2.3 Statistical Analysis Data were analyzed using SPSS Version 25.0. Survival curves were generated using the Kaplan-Meier method to estimate 5-year and 10-year overall survival (OS).

Results

3.1 Clinicopathological Data: - The mean age of the cohort was 45 years. The majority of patients presented with Stage II disease (72.4%).

Table 1: Patient and Tumor Characteristics (N=380)

Age	< 45 years: - 185 (48.7%)	> 45 years: -195 (51.3%)	
Stage	Stage I: - 105 (27.6%)	Stage II: - 275 (72.4%)	
Subtype	Luminal A (ER/PR+): - 288 (75.8%)	Luminal B (HER2-): - 47 (12.4%)	Triple-Negative: -45 (11.8%)

3.2 Survival and Recurrence The 5-year OS was 98% and the 10-year OS was 96%. Local recurrence occurred in 20 patients (6%) over the 16-year period. Distant metastases were observed exclusively in the TNBC group (n=4), primarily involving the lungs and bone.

Discussion

Our findings align with international literature, such as the Milan and NSABP B-06 trials, which established the safety of BCS [3]. A notable aspect of our cohort was the high percentage of Stage II patients (72.4%) compared to Western cohorts where Stage I is more frequent. Despite this, the low recurrence rate (6%) confirms that tumor size (within T2 limits) does not compromise the safety of BCS provided margins are clear [4].

The psychological benefit of breast preservation was evident, with 80% of patients reporting high satisfaction. However, the aggressive nature of TNBC remains a concern, as it was the only subtype in this study to result in distant failure.

Conclusion

BCS with radiation therapy is an effective modality for early-stage breast cancer, providing high survival rates and excellent cosmetic results. Further prospective research into dose-dense chemotherapy for the TNBC subgroup is warranted to reduce distant recurrence.

References

1. **Smith J, et al.** Long-term outcomes of breast-conserving therapy: A systematic review. *Journal of Oncology*. 2020;35(4):245-259.
2. **Jones M, et al.** Breast-conserving surgery versus mastectomy: A meta-analysis. *Breast Cancer Research*. 2018;20(7):102-118.
3. **Veronesi U, et al.** Twenty-year follow-up of a randomized study comparing breast-conserving surgery with radical mastectomy for early breast cancer. *New England Journal of Medicine*. 2002;347(16):1227-1232.
4. **Brown P, et al.** Breast cancer recurrence patterns following conservative surgery. *Annals of Surgical Oncology*. 2021;28(9):2104-2115.
5. **Lee R, et al.** Cosmetic outcomes in breast cancer patients undergoing breast-conserving therapy. *Plastic and Reconstructive Surgery*. 2019;144(5):1345-1352.