Retrospective analysis of axillary recurrence in patients with breast cancer receiving radiotherapy to the axilla after positive sentinel lymph node biopsy

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Introduction

Breast cancer surgery currently focuses on de-escalating treatment without compromising oncological safety.
Axillary lymph node dissection (ALND) has been the standard of care for sentinel lymph node biopsy (SLNB) positive patients.
Although axillary lymph node dissection provides excellent regional control, there are significant side effects such as lymphoedema, shoulder stiffness, and weakness.
Studies show that axillary radiotherapy is an alternate and equally effective treatment for SLNB-positive patients with reduced morbidity. However, this is still not uniformly practiced in all breast centers in the UK.

Aim

To assess the efficacy of axillary radiotherapy to treat SLNB positive patients with recurrence rates at the end of 5 years.

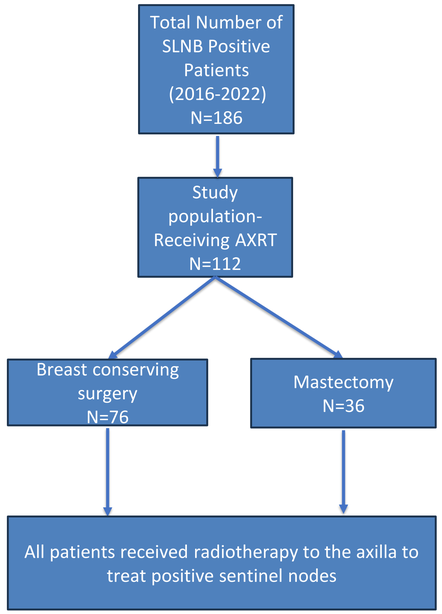
End Points

The primary end point was axillary recurrence at the end of 5 years (in line with the AMAROS trial i.e. not more than 4% in axillary radiotherapy group).
The secondary end point was lymphedema and overall survival.

Methods and Materials

A retrospective, single center study was conducted between November 2024 and August 2025 using a secure data base of patients.
The study period was from June 2016 to June 2022 following the results published from AMAROS trial in 2014.

All patients with breast cancer and clinically and radiologically negative axilla underwent SLNB along with either breast conserving surgery or mastectomy as a routine procedure.
Patients with positive SLNB were later offered further axillary management (ALND vs Axillary radiotherapy).
Patients who opted for axillary radiotherapy were then analyzed in a retrospective study. Patients' demographics, disease distribution, nodal positivity, adjuvant treatment were studied.



Characteristics	Our Study N-112	AMAROS Trial N-681
Age, Years	63	55
MENOPAUSAL		
Pre-Menopausal	37(33%)	289 (42%)
Post-Menopausal	75(67%)	384 (56%)
TUMOUR SIZE		
0-2cm	40(36%)	533 (78%)
2-5cm	57(51%)	143 (21%)
>5cms	15(13%)	1 (<1%)
TUMOUR FEATURES		
Invasive ductal	97(87%)	515 (76%)
Invasive lobular	11(10%)	99 (15%)
Other	4(3%)	66 (10%)
GRADE		
1	14(12%)	154 (23%)
2	60(54%)	311 (46%)
3	38(34%)	200 (29%)
TYPE OF SURGERY		
WLE	76(68%)	557 (82%)
Mastectomy	36(32%)	121 (18%)
ADJUVANT THERAPY		
Chemotherapy	51(46%)	418 (61%)
Hormonal therapy	100(89%)	525 (77%)
NO OF SENTINEL NODES REMOVED		
1	35(31%)	293 (43%)
2	41(37%)	217 (32%)
3	20(18%)	105 (15%)
>4	16(14%)	66 (10%)
NO OF POSITIVE SENTINEL NODES		
1	7769%)	512 (75%)
2	34(30%)	134 (20%)
3	0	27 (4%)
>4	1(<1%)	8 (1%)
SIZE OF THE LARGEST SENTINEL NODE METS		
Macrometastasis	111(99%)	419 (62%)
Micrometastasis	1(<1%)	195 (29%)
Isolated tumor cells	0	67 (10%)

Results

A total of 186 patients had positive sentinel lymph node biopsy during the study period and out of them 112 patients(60%), opted for axillary radiotherapy as their mainstay of axillary management.

40(35.7%) patients had T1 disease, 57(50.89%) patients had T2, and 15(13.39%) patients had T3 disease.The median number of positive sentinel nodes and total sentinel nodes removed were 1 and 2, respectively. The mean age was 63 years, and the mean tumor size of 14.33mm. Follow up range between 3 to 8 years with a mean of 5.58 years.
Axillary recurrence was seen in 3 patients (2.67%), and 1 patient (0.89%) developed lymphedema. 9 patients (8.03%) had distant metastasis.
Death due to breast cancer was slightly lower in our study as compared to the AMAROS trial, 7 patients vs 70 patients(7.84% vs 10.3%), and similar overall death rates, 10 patients vs 112 patients (19.04% vs 16.4%)

Conclusions

Our study shows that the 5-year axillary recurrence rate is comparable with the AMAROS trial (2.67% vs 1.19%) well under the criteria of 4% with similar follow up period (5.58years vs 6.1years).
The results are similar despite significantly higher proportion of study population being T2/T3 compared to AMAROS.
Our study has limitations of small numbers but aligns well with the AMAROS trial.
Hence, axillary radiotherapy is non-inferior to axillary lymph node dissection in patients with positive SLNB with significantly less morbidity.

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