



Short report

Therapeutic attitude towards internal mammary chain drainage in patients with breast cancer



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ABSTRACT

Internal mammary chain (IMC) is one of the main local lymph drainages in breast cancer. However, internal mammary chain sentinel lymph node biopsy (IMC-SLNB) is not always performed.

The purpose of this research is to evaluate the outcomes of IMC-SLNB in our institution from 2008 to 2014. We analyzed 1346 women with breast cancer. Six-hundred twenty-two sentinel node biopsies were carried out, one out of ten in IMC territory. Adjuvant radiotherapy in this area was added when positive.

IMC-SLNB is feasible, it may change tumour stage, modify adjuvant therapy and change prognosis in selected patients.

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Introduction

Lymphatic node invasion is a key prognostic factor in breast cancer. Ten-year survival rate is inversely proportional to the number of lymph nodes involved [1]. Sentinel node biopsy (SNB) is recommended to evaluate tumoral lymph node invasion [2]. If confirmed, not only the prognosis but also adjuvant treatment may be modified. However, there is limited evidence linking invasion of internal mammary chain (IMC) lymph nodes with prognosis. Therefore, IMC sentinel node biopsy (IMC-SNB) remains controversial.

The primary objective of this study was to evaluate the incidence of IMC drainage in our population, factors associated to IMC drainage and the metastasis rate found after IMC-SNB. As secondary objectives, axillary invasion, surgery duration, intraoperative complications, adjuvant radiotherapy and recurrence rates were compared depending on whether the IMC sentinel node (IMC-SN) had been removed or not.

Material and methods

Observational, retrospective, cohort study of 1346 women with breast cancer diagnosed between January 2008 and December

2014, included in a prospective database of the Department of Obstetrics and Gynaecology of Gregorio Marañón University Hospital, Madrid, Spain.

Patients with early-stage breast cancer, indication to perform SNB and positive IMC migration in presurgical lymphoscintigraphy were eligible. Patients with bilateral breast cancer, negative IMC migration or without histological diagnosis were excluded.

Data regarding clinicopathological features were collected and multivariate analysis using logistic regression was conducted in order to identify factors related to IMC drainage.

Patients were divided into two groups depending on whether the IMC-SN had been removed (group A) or not (group B). Group B was subdivided depending on attempt to remove IMC-SN but unsuccessful (subgroup B1) or no attempt to remove IMC-SN (subgroup B2). Surgery duration, intraoperative complications, adjuvant radiotherapy, mean follow-up period, recurrence and overall survival rate in both groups were compared with non-parametric tests (U Mann Whitney, Fisher).

Results

Seven-hundred two lymphoscintigraphies were performed in patients with early-stage breast cancer during the study period. Table 1 represents the modality of radiotracer injection and drainage territories. Lymphatic drainage was located in 662/702 (94.3%) lymphoscintigraphies and in 120/702 (17.1%; 95%CI

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Table 1
Radiotracer injection technique and scintigraphic migration areas documented in presurgical lymphoscintigraphies (IMC: Internal Mammary Chain).

	Axillary	IMC	Intra-mammary	Axillary and IMC	Axillary and intra-mammary	Not located	Total 702 100%
Intratumoral	429	30	5	81	12	30	587
	73%	5,1%	0,8%	13,8%	2%	5,1%	83,5%
Periareolar	46	1	0	1	1	5	54
	85,2%	1,8%	0%	1,8%	1,8%	9,2%	7,6%
Subdermal	38	0	0	4	0	5	49
	77,5%	0%	0%	8,2%	0%	10,2%	6,9%
Peritumoural	2	0	0	0	0	0	2
	100%	0%	0%	0%	0%	0%	0,3%
Others	9	0	0	2	1	0	12
	75%	0%	0%	16,6%	8,3%	0%	1,7%

14,5–22,8%) the radioisotope migrated to IMC region, simultaneously to axillary chain in three out of four patients.

The main factors associated to IMC drainage were tumour location in the lower-inner quadrant (20%; 95%CI 17,1–25,8%) and intratumoral radiotracer injection (94%; 95%CI 91,2–97,6%), but statistical significance was not achieved in multivariate analysis.

Six-hundred twenty-two patients (622/702, 88,6%) underwent SNB during the study period. Axillary sentinel detection rate was 88,8% (95%CI 80,5–94,4%). IMC-SN was successfully detected in 73,3% (95%CI 69,2–79,4%) and remitted to pathological study.

Patients with IMC drainage were divided into two groups depending on whether the IMC-SN had been removed or not. Flow chart of patients is shown in Fig. 1. Clinicopathological features are compared in Table 2.

In group A, 42/63 (66,7%) women underwent breast-conserving surgery and an extra incision was required to remove IMC-SN in 50/63 (79,6%) patients. In five patients (5/63, 7,9%), IMC-SNB was performed before neoadjuvant chemotherapy.

An intention-to-treat analysis showed only one complication (bleeding) when IMC-SN was attempted (group A + B1), none in subgroup B2. When comparing group A and group B2, there were no significant differences in surgery duration (97,7 vs 101,6 min; $p = 0,478$), but when comparing group A with subgroup B1 we found significant differences (97,07 vs 108,92 min; $p < 0,026$).

Histological results are compiled in Table 3. Lymphatic metastasis in IMC was found in six cases (9,5%; 95%CI 2,3–25,7%), three out of them also showing axillary lymphatic metastasis. Axillary invasion was more frequent in group B ($p > 0,03$). Five out of six

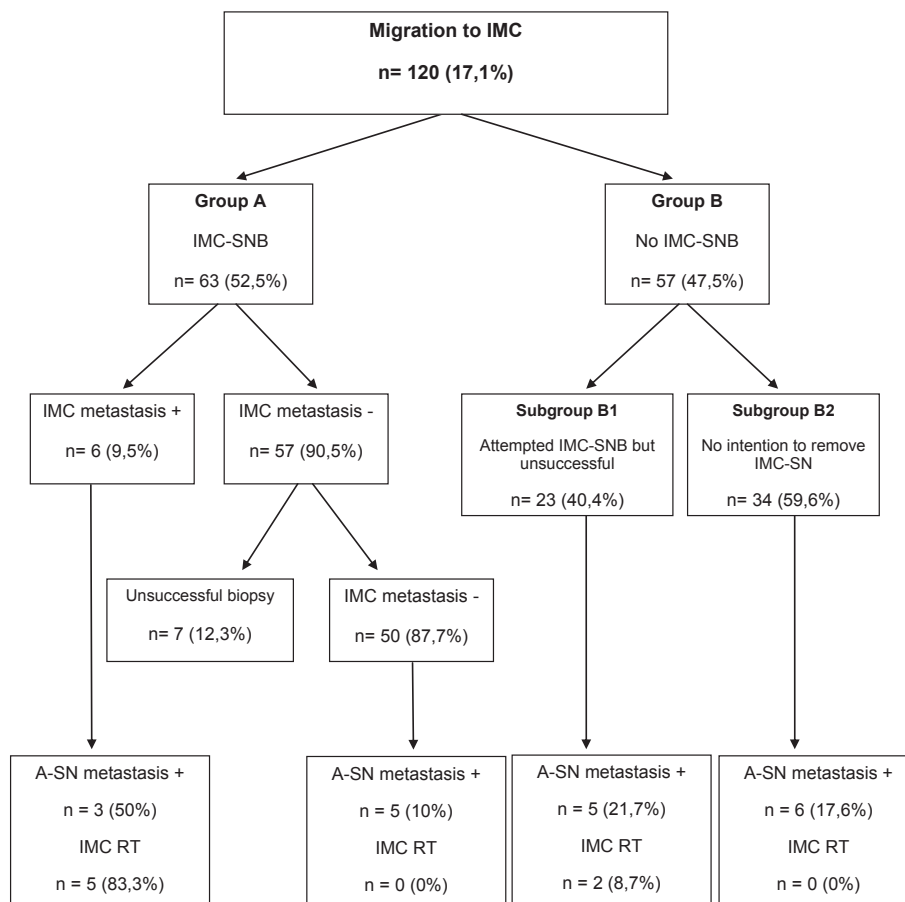


Fig. 1. Flow chart of patients with positive IMC drainage. IMC RT: Internal Mammary Chain Radiotherapy. A-SN: Axillary-Sentinel Node.

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