

Intramammary lymph nodes, clinical characteristics and prevalence

Ganglios linfáticos intramamarios, características clínicas y prevalencia

Laleh Ebrahimpour¹ , Masoumeh Gity² 

1. MD, Radiologist, Department of Radiology, Atie General Hospital, Tehran, Iran

2. Department of Radiology, Advanced Diagnostic and Interventional Radiology Research Center (ADIR), Breast Disease Research Center (BDRC), Imam Khomeini Complex Hospital, Tehran, Iran.

Corresponding author

Masoumeh Gity

Imam Khomeini Complex Hospital, Tehran, Iran

E-mail:

Received: 2 - XII - 2021

Accepted: 28 - I - 2022

doi: 10.3306/AJHS.2022.37.02.92

Abstract

Introduction: Intramammary lymph nodes are mostly benign findings; however the value of these nodes is still controversial. Here we aimed to study the prevalence and clinical significance of intramammary lymph nodes in 1000 patients undergoing routine screening mammography.

Methods: We performed a cross sectional study on 1000 patients attending a radiology clinic for screening mammography. The intramammary lymph node was diagnosed using mammography and confirmed by ultrasound exam.

Results: Of 1000 participants, 69 had intramammary lymph node, with the mean age of 50.3 ± 1.29 . In those with intramammary lymph node, 32 (46.4%) had the first time screening, 3 (4.3%) had discharge, 20 (29%) had pain, 8 (11.6%) had palpable mass, 45 (65.2%) had axillary lymph node, 11 (15.9%) had histological distortion, 16 (23.2%) had micro-calcification and 9 (13%) had mass in mammography. The prevalence of intramammary lymph nodes was highest in the 2nd breast quadrants, both in right and left breast.

Discussion: This is an observation of the prevalence and clinical characteristics on intramammary lymph nodes in an unselected patients attending for routine follow up. Future prospective studies may elucidate more findings of the value of these nodes.

Keywords: Intramammary lymph nodes, breast cancer, mammography.

Resumen

Introducción: Los ganglios linfáticos intramamarios son, en su mayoría, hallazgos benignos; sin embargo, el valor de estos ganglios sigue siendo controvertido. El objetivo de este trabajo es estudiar la prevalencia y la importancia clínica de los ganglios linfáticos intramamarios en 1.000 pacientes sometidas a una mamografía de cribado rutinaria.

Métodos: Realizamos un estudio transversal en 1000 pacientes que acudieron a una clínica de radiología para realizar una mamografía de cribado. El ganglio linfático intramamario se diagnosticó mediante mamografía y se confirmó mediante ecografía.

Resultados: De 1000 participantes, 69 tenían ganglio linfático intramamario, con una edad media de $50,3 \pm 1,29$ años. De las que tenían ganglio linfático intramamario, 32 (46,4%) tenían la primera exploración, 3 (4,3%) tenían secreción, 20 (29%) tenían dolor, 8 (11,6%) tenían masa palpable, 45 (65,2%) tenían ganglio linfático axilar, 11 (15,9%) tenían distorsión histológica, 16 (23,2%) tenían microcalcificación y 9 (13%) tenían masa en la mamografía. La prevalencia de los ganglios linfáticos intramamarios fue mayor en los segundos cuadrantes mamarios, tanto en la mama derecha como en la izquierda.

Discusión: Se trata de una observación de la prevalencia y las características clínicas de los ganglios linfáticos intramamarios en una paciente no seleccionada que acude a un seguimiento rutinario. Futuros estudios prospectivos podrán dilucidar más hallazgos sobre el valor de estos ganglios.

Palabras clave: Ganglios linfáticos intramamarios, cáncer de mama, mamografía.

Introduction

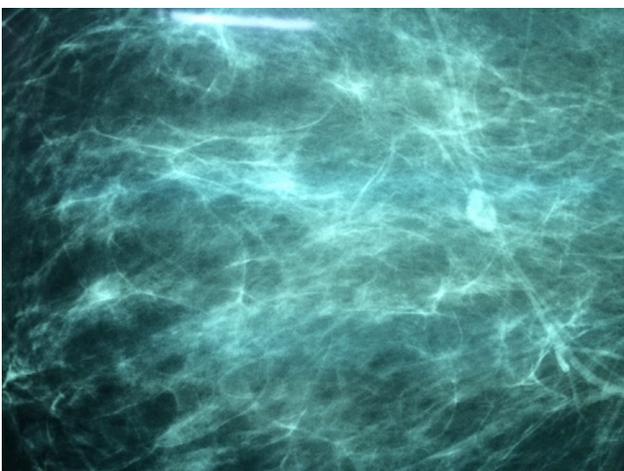
Breast cancer is one of the prevalent cancers among women. It has a high mortality rate especially in developing countries¹. Hence early diagnosis and management is of great clinical importance. Intramammary lymph nodes are mostly incidentally discovered during routine screening². While studies have shown the significance and value of axillary lymph nodes in the staging and outcome of breast cancer³⁻⁵, the value of intramammary lymph nodes is not known yet^{6,7}. Metastatic disease to the intramammary lymph nodes may be the first clinical and/or mammographic sign of breast cancer and may significantly affect prognosis^{8,9}. While some studies have shown the coincidence of intramammary lymph nodes with metastatic breast cancer^{10,11}, there are reports of the intramammary lymph node associated with, lymphoma, ovarian cancer, HIV infection and toxoplasmosis and non malignant lymphadenopathy¹²⁻¹⁷.

Here we aimed to study the prevalence and clinical significance of intramammary lymph nodes in 1000 patients undergoing routine mammography.

Materials and methods

We performed a cross-sectional study on 1000 healthy women age between 32 to 88 coming for routine screening. Patient's recruitment was from March 2017 to May 2019, in the radiology clinic of the imam hospital affiliated with Tehran University of medical science. Exclusion criteria were previous history of mastectomy or breast reconstruction surgery or any other breast surgery, breast cancer, or any other malignancy. Demographic and anthropometric data including age, history of screening, history of infection, breast feeding were recorded. The local ethics review committee of Tehran University of Medical Science approved the study

Figure 1: Intramammary Lymph node, MLO view.



protocol. Written informed consent was obtained. The mammographs were studied by one radiologist and one radiology registrar and the intramammary lymph nodes were reported by them. Then participants had been recalled and the intramammary lymph nodes nature were confirmed by ultrasound exam.

Mammography

Bilateral mammography was performed by digital mammography (Hologic, Lorad selenia, kv=24-34, mas=80) in mediolateral and craniocaudal views for all cases. Diagnostic criteria for intramammary lymph node are a well-defined iso to hyperdense mass with minimum diameter less than 1 cm and central radiolucent cleft (**Figure 1**). All intramammary lymph nodes were confirmed by ultrasound. (GE Logic 500, linear probe 13 Mhz) (**Figure 2**).

Data analysis

The statistical package SPSS 17 for windows (Chicago, Illinois, USA), was used for analysis. Kolmogorov-Smirnov test was employed to test the normality of the variables in each group. Variables distributed normally are presented as mean \pm standard error of mean (SEM).

Results

Of 1000 participants, 69 had intramammary lymph node, with the mean age of 50.3 ± 1.29 . The clinical

Figure 2: Intramammary lymph node, Ultrasound scan.



Table I: Presenting the characteristics of the intramammary lymph nodes in patients with positive intramammary lymph node.

	N. lymph nodes	Frequency(percent)
Number lymph node right	0	15(21.7%)
	1	45(65.2%)
	2	6(8.7%)
	3	2(2.9%)
	4	1(1.4%)
Number lymph node left	0	37(53.6%)
	1	18(26.1%)
	2	12(17.4%)
	3	1(1.4%)
	4	1(1.4%)
Central lymph node	yes	2(2.9%)
Right Breast (Number of nodes in each quadrant)	Left upper q (Q1)	1 (1.4%)
	Left lower q (Q2)	49 (71.0%)
	Right lower q (Q3)	1 (1.4%)
	Right upper (Q4)	0 (0%)
Left Breast (Number of nodes in each quadrant)	Right upper q (Q1)	0 (0%)
	Right lower q (Q2)	37 (53.6%)
	Left lower q (Q3)	2 (2.9%)
	Left upper q (Q4)	0(0%)

characteristics of patients with intramammary lymph nodes are demonstrated in the **table I**. In those with intramammary lymph node, 32 (46.4%) had the first time screening, 3 (4.3%) had discharge, 20 (29%) had pain, 8 (11.6%) had palpable mass, 45 (65.2%) had axillary lymph node, 11 (15.9%) had histological distortion, 16 (23.2%) had micro-calcification and 9 (13%) had mass in mammography. The prevalence of intramammary lymph nodes were highest in the 2nd breast quadrants, both in right and left breast.

Discussion

Intramammary lymph nodes are mostly benign findings, however they are important as they could be the site of primary tumor or metastasis. Here we showed that the prevalence and clinical characteristics of the intramammary lymph nodes in an unselected patients attending a radiology clinic for routine follow up, was 6.9%. We also showed that the second quadrant is the most common site of these nodes. Importantly none of these patients had retraction or other clinical signs of malignancy. On the other hand all of the 69 cases had typical benign reactive axillary lymph nodes on the same site.

This is the first report of the prevalence of intramammary lymph nodes in Iran. The prevalence of these nodes has been reported to be between 1-20 percent^{5,18}. However the value of these nodes is still controversial¹⁹. While some studies suggest a poor survival in those with intramammary nodes, others suggest the contrary²⁰.

We showed that the nearly 50% of those with intramammary lymph node, has concomitant axillary nodes. The appearance of intramammary and axillary lymph nodes was exactly the same in ultrasound exam. In consistent with our findings, in a meta analysis of 18 papers on these nodes, metastatic intramammary nodes were strongly correlated with axillary lymph nodes involvement²¹. Others also suggested axillary node dissection in the presence of intramammary lymph nodes^{12,22-23}. This shows the value of early biopsy and diagnosis in those with concomitant involvement. The second breast quadrant had the most number of lymph nodes. We could not find any study defining the value of breast quadrant in the predictive value of intramammary lymph nodes.

In conclusion, this is an observation of the prevalence and clinical characteristics on intramammary lymph nodes in an unselected patients attending for routine follow up. Future prospective studies may elucidate more findings of the value of these nodes. The principal limitation of the present study is its cross sectional nature which preclude the determination of the direction of causality. We also did not follow the patients to discover the nature of the nodes. However we took advantage of a relatively large sample size and close similarity between groups in most of the potentially confounding variables.

Interests conflict

The researchers declare that they have no conflict of interest.

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