Case Report

Bilateral axillary node calcifications: a case report and revisiting causes

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\textbf{ABSTRACT}

A 48-year woman was found to have bilateral axillary nodal microcalcifications on screening mammogram; a new finding compared to the prior mammogram done about 8 years ago. Combining the new finding with the amorphous and fine morphology of the microcalcifications, deemed it suspicious. In the absence of a definite benign cause, that could be attributed to this finding, biopsy was performed. Histology from the bilateral axillary node was reported to be benign with calcifications identified within granulomas. There are only a few cases with bilateral axillary nodal microcalcifications reported in the literature till date. Most of these are from ovarian cancer or related to chrysotherapy for rheumatoid arthritis. Our case is distinct from them as this rare finding was not due to any of the known etiologies and the morphology is quite different from the known granulomatous causes. As we report this rare case, we also revisit the causes of axillary nodal microcalcifications. Familiarity with this subject can help the reporting radiologists to avert an invasive procedure like biopsy in some cases, if the cause of benignity can be confidently identified.

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\textbf{Introduction}

A true unilateral axillary node calcification is a rare finding on mammography while bilateral axillary node calcification is even more uncommon. During the literature review, we found only a handful of cases with bilateral axillary node microcalcifications; and most of these were from ovarian cancer or related to chrysotherapy (gold therapy) for rheumatoid arthritis. With the increasing popularity of body tattoos, there are cases reported with axillary nodal densities from tattoos that mimic calcifications. Mammary and extra-mammary cancers need to be considered in the differentials for axillary node calcifications. For this reason, the reporting radiologist must be

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familiar with the possible causes and guide further steps, including biopsy when needed, to rule out an occult cancer. A proper understanding of this condition can help to avoid unnecessary biopsies in some cases. Here we report a rare case of bilateral axillary node microcalcifications without any known cause and revisit the etiologies and workflow to evaluate the rare finding.

Case report

A 48-year-old woman was found to have a new finding of bilateral axillary node microcalcifications on screening mammogram (Fig. 1). The microcalcifications were fine and amorphous and hence were deemed suspicious. Her breast findings were otherwise unremarkable on mammogram and ultrasound. The patient had no history of prior cancer, gold therapy, prior granulomatous disease, or trauma. On clinical examinations, no tattoos were noted in the upper part of her body. The possibility of occult breast primary was less likely due to bilateral involvement and hence an MRI scan was not offered as part of the investigation. As the cause of bilateral nodal microcalcifications was unknown, ultrasound guided core biopsy was performed to rule out the possibility of extramammary cancer. X-ray of the biopsy specimen confirmed the retrieval of adequate microcalcifications (Fig. 2). The histology was reported as scattered microscopic round calcifications surrounded by a granulomatous reaction within the nodal parenchyma.

The granulomatous reaction comprised of foreign body giant cells and aggregates of epithelioid histiocytes. The rest of the lymph nodes showed scattered reactive lymphoid follicles and paracortical hyperplasia (Fig. 3). Special stains performed for acid fast bacilli and fungal stains were negative. Generally, the microcalcifications related to granulomatous disease are large and coarse while the microcalcifications seen in our case were fine and punctate. But the pathology was still deemed concordant and hence she was discharged to normal screening program, being asymptomatic.

Discussion and literature review

The presence of microcalcifications in axillary lymph nodes warrants further investigation as the causes include a range of benign as well as malignant etiologies [1]. Benign conditions causing axillary node calcifications, that include granulomatous diseases like tuberculosis, sarcoidosis, histoplasmosis and prior Bacillus Calmette-Guerin (BCG) vaccine, are well reported [2]. The calcifications in these conditions are generally coarse and large, especially in sarcoidosis. Axillary nodal densities mimicking calcifications secondary to upper body tattoos have been well reported over last 2 decades. Deposition of the tattoo ink within the nodes mimics microcal-
cifications, as the color pigments are generally mixed with metals like titanium, aluminum, and iron during inking. Ipsilateral nodes are involved and hence it may be a unilateral or bilateral finding depending on the site of tattoo [3,4]. Long-term chrysotherapy, that is, oral or intramuscular gold injection therapy, has been used for decades in the treatment of rheumatoid arthritis. The gold may accumulate in lymph nodes and simulate microcalcifications. Gold deposits may persist within the nodes for as long as twenty years after the cessation of the chrysotherapy [5].

The most common malignant etiology includes metastatic breast cancer, and hence, a workup to look for an occult breast primary is of paramount importance. Metastatic axillary nodes with microcalcifications from breast cancer—either occult or diagnosed on mammogram—are well known [6]. In these cases, the microcalcifications are likely to be unilateral and may show pleomorphic or suspicious morphology on the mammogram. If conventional imaging is negative for primary breast cancer, then a breast MRI with IV contrast may be the next choice of investigation in these cases to look for an occult primary. The non-breast malignancies that may present with axillary node calcifications, generally bilateral, include mucin-producing malignancies like papillary serous adenocarcinoma of ovary, scirrhus colonic adenocarcinoma, and papillary thyroid cancer. Amorphous peripheral microcalcifications are generally reported in ovarian metastatic cause [7]. Treated lymphoma—post radiotherapy or chemotherapy can cause calcifications in lymph nodes which in turn represent good clinical response, though axillary nodal involvement is rarely reported. Another rare cause of axillary node calcifications is fat necrosis [8], hence a history of trauma to the breast or axilla needs to be examined.

To conclude, axillary nodal microcalcifications, though uncommon, is a finding that one may encounter in a busy clinical practice. The etiology may range from multiple benign to malignant causes. In some cases, differentiation between benign and malignant etiology may not be apparent and histology may be needed to rule out sinister etiology. However, careful history, clinical examination along with imaging, may help to narrow down the differentials and avoid some biopsies if benign etiology could be ascertained confidently in the finding.

Patient consent
A written, informed consent of the patient was obtained for publication of the case without any identifiable personal data of the patient.

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