SBI Recommendations for the Management of Axillary Adenopathy in Patients with Recent COVID-19 Vaccination

Society of Breast Imaging Patient Care and Delivery Committee

Lars Grimm, Stamatia Destounis, Basak Dogan, Brandi Nicholson, Brian Dontchos, Emily Sonnenblick, Hannah Milch, JoAnn Pushkin, John Benson, Katia Dodelzon, Neha Modi, Roger Yang, Vandana Dialani, Vidushani Perera

The management approach to unilateral axillary adenopathy in patients who recently received a COVID-19 vaccine is based at this point on expert consensus opinion. The Society of Breast Imaging recognizes that there are a variety of valid approaches to this clinical situation. Our approach is by design a conservative one, which stresses an abundance of caution. Individual practices may wish to develop their own guidelines based on their expertise, local resources, and institutional support. Consider seeking agreement from all practice members so there are consistent recommendations to patients and referring providers. The SBI will continue to reassess our recommendations as new evidence becomes available.

Axillary adenopathy in women with an otherwise normal screening mammogram is a rare occurrence, reported in 0.02%-0.04% of screening mammograms.(1-4) Reported malignancy rates are highly variable (20%-56%) and the few published studies include women with unilateral and/or bilateral adenopathy and malignancy was often due to a non-breast primary (i.e., lymphoma).(1-5) Axillary adenopathy has been rarely reported following the administration of BCG, influenza, and human papilloma vaccinations.(6-8) However, higher rates of axillary adenopathy have been reported with administration of both COVID-19 vaccines currently authorized for emergency use by the US Food and Drug Administration: Moderna and Pfizer-BioNTech. As national vaccination efforts are underway, women with a recent COVID-19 vaccine may present for diagnostic workup for newly palpable axillary adenopathy or have new axillary adenopathy identified on routine screening mammography or ultrasound.

For patients receiving the Moderna COVID-19 vaccine, axillary swelling or tenderness (i.e., lymphadenopathy) was a solicited adverse event reported in 11.6% of patients (vs 5.0% for placebo) following dose 1 and 16.0% of patients (vs 4.3% for placebo) following dose 2.(9) Furthermore, lymphadenopathy was also reported as an unsolicited adverse event in 1.1% of persons in the vaccine group (vs 0.6% in the placebo group). Lymphadenopathy occurred in the arm and neck 2-4 days following vaccination with a median duration of 1-2 days.

For patients receiving the Pfizer-BioNTech COVID-19 vaccine, lymphadenopathy was only reported as an unsolicited adverse event with 58 more cases in the vaccine group than the

placebo group (64 vs 6 respectively).(10) Lymphadenopathy occurred in the arm and neck within 2-4 days of vaccination and lasted for a mean of 10 days. As lymphadenopathy was only reported as an unsolicited adverse event, the true incidence rate is likely higher. Reported rates and duration of adenopathy in both trials were based on clinical assessment (i.e., physical examination), and therefore rates and duration of subclinical adenopathy appreciable on mammography are likely greater. Anecdotally, mammographically detectable axillary adenopathy following COVID-19 vaccinations has been unilateral.

Current recommendations from the 5th Edition of the BI-RADS Atlas state that, "In the absence of a known infectious or inflammatory cause, isolated unilateral axillary adenopathy [on screening mammography] should receive a category 0."(11) Subsequently, "If a benign cause is elucidated, a benign (BI-RADS category 2) assessment would be appropriate. In the absence of a known infectious or inflammatory source, a suspicious (BI-RADS category 4) assessment would be appropriate." Breast radiologists will increasingly encounter axillary adenopathy as more patients become vaccinated, but the near to long term appearance of mammographic adenopathy following vaccination is currently unknown.

SBI considerations for the management of axillary adenopathy in patients with recent COVID-19 vaccination:

- Consider obtaining the following information on patient intake forms: COVID-19 vaccination status, timing and side (left vs. right arm) of vaccination. To minimize patient anxiety, consider including this introductory statement: Vaccines of all types can result in temporary swelling of the lymph nodes, which may be a sign that the body is making antibodies in response as intended.
- Unilateral axillary adenopathy on screening exams warrants a BI-RADS category 0 assessment to allow for further assessment of the ipsilateral breast and documentation of medical history, including COVID-19 vaccination.
- Following appropriate diagnostic work up for unilateral axillary adenopathy in women who received a COVID-19 vaccination in the ipsilateral upper extremity within the preceding 4 weeks, consider a short term follow up exam in 4-12 weeks (BI-RADS category 3) following the second vaccine dose.
- If axillary adenopathy persists after short term follow up, then consider lymph node sampling to exclude breast and non-breast malignancy.

SBI considerations for patients and providers scheduling screening exams:

- If possible, and when it does not unduly delay care, consider scheduling screening exams prior to the first dose of a COVID-19 vaccination or 4-6 weeks following the second dose of a COVID-19 vaccination.

As more information about the incidence and appearance of axillary lymphadenopathy following COVID-19 vaccination becomes available, it may be appropriate to change the duration of

follow up or final assessment recommendations. Furthermore, recommendations for additional COVID-19 vaccinations will be incorporated when they are approved for distribution.

To speak with an SBI spokesperson, please contact Kesha L. Willis at 571-342-0144 or kwillis@sbi-online.org.

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1. Murray ME, Given-Wilson RM. The clinical importance of axillary lymphadenopathy detected on screening mammography. Clin Radiol. 1997;52(6):458-61.

2. Patel T, Given-Wilson RM, Thomas V. The clinical importance of axillary lymphadenopathy detected on screening mammography: revisited. Clin Radiol. 2005;60(1):64-71.

3. Lim ET, O'Doherty A, Hill AD, Quinn CM. Pathological axillary lymph nodes detected at mammographic screening. Clin Radiol. 2004;59(1):86-91.

4. Chetlen A, Nicholson B, Patrie JT, Harvey JA. Is screening detected bilateral axillary adenopathy on mammography clinically significant? Breast J. 2012;18(6):582-7.

5. Bergkvist L, Frodis E, Hedborg-Mellander C, Hansen J. Management of accidentally found pathological lymph nodes on routine screening mammography. Eur J Surg Oncol. 1996;22(3):250-3.

6. Newfield L, Naschitz JE, Yeshurun D. [BCG-induced axillary lymph-adenitis in the adult]. Harefuah. 1990;119(7-8):199-200.

7. Studdiford J, Lamb K, Horvath K, Altshuler M, Stonehouse A. Development of unilateral cervical and supraclavicular lymphadenopathy after human papilloma virus vaccination. Pharmacotherapy. 2008;28(9):1194-7.

8. Shirone N, Shinkai T, Yamane T, et al. Axillary lymph node accumulation on FDG-PET/CT after influenza vaccination. Ann Nucl Med. 2012;26(3):248-52.

9. Local Reactions, Systemic Reactions, Adverse Events, and Serious Adverse Events: Moderna COVID-19 Vaccine. Centers for Disease Control and Prevention; [January 16, 2021]; Available from: https://www.cdc.gov/vaccines/covid-19/info-by-product/moderna/reactogenicity.html.

10. Local Reactions, Systemic Reactions, Adverse Events, and Serious Adverse Events: Pfizer-BioNTech COVID-19 Vaccine. Centers for Disease Control and Prevention; [January 16, 2021]; Available from: https://www.cdc.gov/vaccines/covid-19/info-by-product/pfizer/reactogenicity.html.

11. Sickles E, D'Orsi C, LW B, et al. BI-RADS: Mammography. Breast Imaging Reporting and Data System: ACR BI-RADS – Breast Imaging Atlas. 5th ed. Reston, VA: American College of Radiology, 2013.