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CAR/BRC Recommendations for Management of Axillary Lymphadenopathy Following COVID-19 Vaccination

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Abstract

Axillary lymphadenopathy following vaccination has long been recognized as a benign, self-limited immune response, but its increased frequency during the COVID 19 vaccination campaign created diagnostic uncertainty and contributed to delays in breast imaging and unnecessary follow-up. Early conservative guidance, issued in the context of limited evidence, led to postponed screening examinations and increased patient anxiety. Since then, robust prospective and longitudinal data have demonstrated an extremely low, near-zero risk of malignancy in asymptomatic patients with isolated ipsilateral axillary lymphadenopathy following recent COVID 19 vaccination and no suspicious breast imaging findings, even when lymphadenopathy persists for many months. In response to this evolving evidence base, the Canadian Association of Radiologists (CAR) and Breast Radiologists of Canada (BRC) have developed updated, evidence-based recommendations for the management of axillary lymphadenopathy following COVID 19 vaccination. These recommendations emphasize that breast imaging examinations should not be delayed because of vaccination, outline the importance of documenting vaccination history, and provide clear guidance for classifying and managing ipsilateral, contralateral, palpable, and persistent lymphadenopathy across breast imaging modalities. Special considerations for patients with a personal history of breast cancer or other malignancies are also addressed. Adoption of these recommendations is intended to promote consistent national practice, reduce unnecessary imaging and biopsy, support patient reassurance, and maintain the effectiveness of breast cancer screening programs.

Résumé

La lymphadénopathie axillaire consécutive à la vaccination est reconnue depuis longtemps comme une réponse immunitaire bénigne et spontanément résolutive, mais sa fréquence accrue durant la campagne de vaccination contre la COVID-19 a créé une incertitude diagnostique et contribuée à des retards dans l'imagerie mammaire ainsi qu'à un suivi inutile. Les premières directives conservatrices, émises dans un contexte de données probantes limitées, ont entraîné le report d'examens de dépistage et une anxiété accrue chez les patientes. Depuis, des données prospectives et longitudinales robustes ont démontré un risque extrêmement faible, quasi nul, de malignité chez les patientes asymptomatiques présentant une lymphadénopathie axillaire ipsilatérale isolée à la suite d'une vaccination récente contre la COVID-19 et l'absence d'anomalie suspecte à l'imagerie du sein, même lorsque la lymphadénopathie axillaire persiste durant plusieurs mois. En réponse à l'évolution de ces données probantes, l'Association canadienne des radiologistes (CAR) et Radiologistes du sein du Canada (BRC) ont élaboré des recommandations mises à jour et fondées sur des données probantes pour la prise en charge de l'adénopathie axillaire consécutive à la vaccination contre la COVID-19. Ces recommandations soulignent que les examens d'imagerie mammaire ne doivent pas être retardés en raison de la vaccination, précisent l'importance de documenter les antécédents de vaccination et fournissent des directives claires pour classifier et prendre en charge la lymphadénopathie axillaire ipsilatérale, controlatérale, palpable et persistante quelle que soit la modalité d'imagerie mammaire. Des considérations particulières pour les patientes ayant des antécédents personnels de cancer du sein ou d'autres cancers sont également abordées. L'adoption de ces recommandations vise à promouvoir une pratique nationale cohérente, à réduire les examens d'imagerie et les biopsies inutiles, à rassurer les patientes et à maintenir l'efficacité des programmes de dépistage du cancer du sein.

Keywords

breast, axillary lymphadenopathy, post-vaccine, recommendations

Introduction

Axillary lymphadenopathy following vaccination has been described after multiple immunizations, including bacille Calmette–Guérin (BCG), influenza, and human papillomavirus vaccines.[1-3] With widespread COVID-19 vaccination, unilateral axillary lymphadenopathy (UAL) has been frequently observed, particularly following mRNA vaccines.[4-6] This finding is commonly detected clinically and on breast imaging examinations, including mammography, ultrasound, and MRI.

Early in the COVID-19 vaccination campaign, uncertainty regarding the duration and imaging appearance of vaccine-related axillary lymphadenopathy led to conservative recommendations, including consideration of delayed screening examinations. Subsequent evidence has demonstrated a near-zero risk of malignancy in asymptomatic patients with isolated, ipsilateral lymphadenopathy following recent vaccination and no suspicious breast imaging findings.[7,8] Delays in screening and diagnostic breast imaging during the initial waves of the COVID-19 pandemic are recognized to have a measurable negative impact on breast cancer morbidity and mortality.[9-12] Moreover, vaccine-related axillary adenopathy can persist for as long as 43 weeks after vaccination,[7] underscoring that delaying screening or diagnostic evaluation is neither practical nor clinically justified.

These updated recommendations from the Canadian Association of Radiologists (CAR) and Breast Radiologists Canada (BRC) align with contemporary international guidance[13,14] and evolving evidence, emphasizing the avoidance of unnecessary imaging, biopsy, patient anxiety, and delays in care.

Key Points for Radiologists and Referring Physicians

- Vaccine–related axillary lymphadenopathy, particularly following a COVID-19 vaccination, is common and typically benign.
- Breast examinations should not be delayed because of vaccination.
- Isolated ipsilateral axillary lymphadenopathy within 3-6 months of vaccination and without suspicious breast findings should be classified as BI-RADS 2.
- Contralateral axillary lymphadenopathy warrants standard diagnostic evaluation.
- Clear documentation of vaccination history improves interpretation, reduces unnecessary work-up, and supports patient reassurance.

General Principles

1. Breast imaging examinations should not be delayed because of COVID-19 vaccination.
2. Information regarding all recent vaccinations should be systematically collected and made available to the interpreting radiologist.
3. Interpretation and management of axillary lymphadenopathy should consider:
   (a) Laterality relative to vaccination site
   (b) Time since vaccination
   (c) Presence or absence of suspicious breast findings
   (d) Personal history of breast cancer or other malignancy

Patient Information to Be Collected at Time of Examination

For all breast imaging examinations, patients should be asked to provide:

- COVID-19 vaccination status
- Date(s) of vaccination
- Vaccine type (if known)
- Injection site (left or right arm; thigh if applicable)
- Presence or absence of clinically palpable axillary adenopathy

To reduce patient anxiety, sites may consider including the following statement on intake forms or during patient interactions: *Vaccines of all types can result in temporary swelling of lymph nodes. This is a sign that the immune system is responding as intended*.

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Recommendations

Screening and Diagnostic Breast Examinations

Breast examinations, whether screening or diagnostic, should not be delayed or rescheduled because of COVID-19 vaccination, regardless of vaccination timing. Patients who are symptomatic, overdue for screening, or undergoing diagnostic evaluation should proceed without delay.

UAL Following Recent Vaccination

In patients without a personal history of breast cancer and without suspicious breast imaging findings:

- Imaging-detected unilateral axillary lymphadenopathy on the same side as recent COVID-19 vaccination (3-6 months)[8] should be considered a benign finding (BI-RADS 2).[15]
- No additional imaging, short-interval follow-up, or biopsy is recommended.[16]
- This recommendation applies across imaging modalities, including mammography, ultrasound, MRI, and incidental findings on non-breast imaging studies.

Palpable UAL. For patients with palpable UAL adenopathy within 12 weeks of vaccination:

- A clinical breast examination should be performed by the most responsible physician.
- If the breast examination is not suspicious, clinical follow-up alone is appropriate.
- If adenopathy persists beyond 12 weeks after the most recent vaccination, diagnostic breast imaging, including axillary ultrasound, should be performed.
- Diagnostic breast imaging should not be delayed in patients with a suspicious clinical breast examination, regardless of vaccination status.

Contralateral Axillary Lymphadenopathy. In patients with or without a history of breast cancer:

- Imaging-detected axillary lymphadenopathy contralateral to the vaccination site should be managed according to standard diagnostic work-up protocols, including additional imaging and biopsy when appropriate.[14]
- Vaccine history should not be used to downgrade or dismiss contralateral adenopathy.

Patients With Prior or Current Malignancy. For patients with a personal history of breast cancer or other malignancies known to metastasize to the axilla:

- Interpretation of axillary lymphadenopathy should incorporate:
  - Time since vaccination
  - Cancer type, location, and stage
  - Overall nodal metastatic risk
- Short-interval follow-up imaging (with a minimum interval of 12 weeks) may be appropriate in selected cases.
- Biopsy should be considered when nodal findings are suspicious or when immediate histopathologic confirmation would affect clinical management.

To minimize diagnostic ambiguity, vaccination on the contralateral arm or thigh may be considered in patients with prior lymph node dissection, lymphedema, or high risk for nodal metastases.[17]

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