AXILLARY LYMPHADENOPATHY IN WOMEN FOLLOWING COVID-19 VACCINATION
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We have no disclosures to report.
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BACKGROUND

The COVID-19 mRNA vaccines are correlated with axillary lymph node enlargement, causing anxiety and overuse of medical testing in women undergoing routine breast screening.

OBJECTIVE

Impact of vaccine-induced axillary lymphadenopathy on medical workup and anxiety levels in women undergoing breast screening.

DESIGN / METHODS

Single institution review, IRB

INCLUSION CRITERIA:

• New axillary lymphadenopathy (LAD) on screening mammogram or breast ultrasound (US)
• Recent COVID-19 vaccination
• No prior or current cancer history

DATA COLLECTION:

1. Medical record review
   • BIRADS
   • Imaging
   • Surgeon, Primary Care visit note
2. Anxiety Survey
   • Baseline and LAD-induced Anxiety

METRICS:

• LAD resolution time
• Anxiety provoked by LAD

RESULTS

Vaccine-induced LAD: n=19

- 16/19 (84.2%) = ipsilateral LAD
- 3/19 (15.8%) = bilateral LAD
- Median time vaccination to LAD = 42 days (35-107)
- Median time to LAD resolution = 105 days (85 – 121)
- All patients BIRADS 3 = required f/u US
- 73.7% (14/19) complete LAD resolution
- 4/19= BIRADS 3 with additional f/u US
- 2/19= PET-CT to assess LAD
- Anxiety provoked by vaccine-induced LAD is significantly higher than anxiety associated with normal living, p=0.010

CONCLUSIONS

• Postvaccination LAD, although typically self-limiting, is resolved in 3.5 months post-vaccination, but incurs prolonged radiologic workup with breast surgeon consultation and invokes anxiety and fear of breast cancer.
• Healthcare providers should recognize this vaccine side effect to prevent extensive workup and alleviate patient anxiety.
• Knowledge of COVID-19 vaccination status is critical for management strategies of LAD, breast health, and patient anxiety.
• Imaging guidelines are evolving to address vaccine-induced LAD in both the general population and high-risk oncology patients.
• Consideration should be given to scheduling screening breast exams 3.5 - 4 months post vaccination, or prior to vaccination.

Anxiety Associated with Lymph node vs. Normal life

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>Std. error</th>
<th>Std. dev.</th>
<th>CI lower</th>
<th>CI upper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal Life</td>
<td>19</td>
<td>2.36</td>
<td>0.3839</td>
<td>1.67</td>
<td>1.561738</td>
<td>3.175104</td>
</tr>
<tr>
<td>Lymph node</td>
<td>19</td>
<td>4.57</td>
<td>0.7186</td>
<td>3.13</td>
<td>3.069107</td>
<td>6.088788</td>
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<tr>
<td>Combined</td>
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P= 0.0102

BACKGROUND & OBJECTIVES

• In our patient population, we began seeing an increased number of women with enlarged axillary lymph nodes on routine screening mammography in the weeks following COVID-19 vaccination.

• Though it is well known that vaccines often cause lymphadenopathy, this finding caused anxiety and overuse of medical testing in our patients.

• Therefore, the purpose of this study is to assess the impact of vaccine-induced axillary lymphadenopathy on medical workup and anxiety levels in women undergoing breast screening.
DESIGN / METHODS

• Single institution review

• Inclusion criteria:
  • New axillary lymphadenopathy (LAD) on screening mammogram or breast ultrasound (US)
  • Recent COVID-19 vaccination
  • No prior or current cancer diagnosis

• New York Medical College IRB approval

• Data collection:
  • Medical record review
  • BIRADS
  • Imaging
  • Breast Surgeon, Primary Care visit note
  • Anxiety Survey
  • Baseline and LAD-induced anxiety

• Metrics:
  • LAD resolution time
  • Anxiety provoked by LAD
RESULTS

• 19 women experienced vaccine-induced LAD
  • 16/19 (84.2%) developed ipsilateral LAD
  • 3/19 (15.8%) developed bilateral LAD
• Median time from vaccination to LAD: 42 days (range 35-107)
  • 14/19 (73.7%) experienced complete LAD resolution
  • Median time to LAD resolution: 105 days (range 85-121)
• All patients with BIRADS 3 required f/u US
  • 4/19= BIRADS 3 with additional f/u US
  • 2/19= PET-CT to assess LAD
RESULTS

Anxiety provoked by vaccine-induced LAD is significantly higher than anxiety associated with normal living, $p=0.010$.

Figure 1. Anxiety associated with normal life vs. vaccine-induced LAD

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CONCLUSIONS

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• Healthcare providers should recognize this vaccine side effect to prevent extensive workup and alleviate patient anxiety.
CONCLUSIONS

• Knowledge of COVID-19 vaccination status is critical for management strategies of LAD, breast health, and patient anxiety.

• Imaging guidelines are evolving to address vaccine-induced LAD in both the general population and high-risk oncology patients.

• Consideration should be given to scheduling screening breast exams 3.5 - 4 months post vaccination, or prior to vaccination.
Current recommendations for handling LAD following COVID-19 vaccination from the Society of Breast Imaging (SBI) include obtaining more detailed information on patient intake forms such as COVID-19 vaccination status, timing of vaccination, and side (left vs. right arm) of injection.

To reduce patient anxiety, the SBI also endorses including an introductory statement explaining that vaccines may result in temporary swelling of lymph nodes, which is a sign that the body is responding properly.
DISCUSSION

• For those with a personal history of breast cancer, Lane et al. recommended COVID-19 vaccination in the arm contralateral to the prior malignancy so as to avoid unnecessary anxiety and lymph node biopsy in the setting of vaccine-associated LAD\(^2\).

• Lehman et al. stratified recommendations for management of axillary LAD following vaccination by patient risk. On the one hand, they endorse immediate follow up imaging in patients with a recent breast cancer diagnosis.

• Conversely, they felt that patients without a history of breast cancer and without imaging findings other than unilateral axillary LAD ipsilateral to the side of recent vaccination (within 6 weeks) do not need to undergo any further imaging so long as no nodes are palpable 6 weeks after the second dose\(^3\).
DISCUSSION

• As more individuals choose to become vaccinated against COVID-19, breast radiologists will encounter increasing rates of axillary LAD.

• Therefore, providers and patients alike would benefit from a more comprehensive guideline regarding the proper management of enlarged axillary lymph nodes in the setting of recent COVID-19 vaccination.

• Larger, more robust studies that are stratified by patient risk are imperative to better determine the most appropriate management going forward.
REFERENCES

