Case Series

Case Series of Post COVID-19 Vaccine Cervical Lymphadenopathy

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Abstract

Objective: The objective of this case series reporting is to add cervical lymphadenopathy as one of the side effects of the COVID-19 vaccine in the adult population presenting with neck swelling.

Materials and Methods: This case series of twenty patients were collected at our facility over a period of six months, from March 2021 to the end of August 2021, with an age interval from 17 years to 52 years. The Post COVID Vaccine window to develop cervical lymphadenopathy was from the 3rd day till the 16th. All patients received their first dose of the COVID vaccine.

Results: Out of all the patients, 16 were females and 4 were males. Six female and one male patient developed suppurative ipsilateral upper cervical lymphadenitis, which necessitated hospitalization and surgical intervention with incision and drainage, as well as IV medications.

Five patients were admitted by internal medicine for workup and supportive care as they were having generalized symptoms, such as fever, chills, headache, myalgia, and inadequate oral intake. The OMFS department was called for evaluation and to rule out any oral infection. Four patients were diabetics with a mean HbA1C of 6.7% to 7.5%. All of these patients did not have any active dental or salivary gland infections.

Eventually, all subjects fully recovered with no residual lymphadenopathy and were followed for a period of two weeks to two months, using ultrasound.

Conclusion: Cervical Lymphadenopathy and suppurative lymphadenitis have become increasingly common in patients who received the COVID-19 vaccine. Therefore, it must be referenced for the differential diagnosis of neck swelling, especially during this time.

Keywords: Covid-19 Vaccine, cervical lymphadenopathy, neck ultrasonography, upper deep cervical suppurative lymphadenitis.

Introduction

Vaccine-related Cervical Lymphadenopathy can present a diagnostic challenge. Proper medical history, workup, and documentation of vaccination status can alleviate patient anxiety and decrease unnecessary nodal biopsies. Post-COVID-19 vaccine acute cervical lymphadenitis and lymphadenopathy are two emerging side effects, along with other systemic side effects, such as myalgia, headache, fever, malaise, and loss of appetite. Other local side effects include swelling, pain, and decreased range of motion of the ipsilateral arm.[1]

Vaccine-related cervical lymphadenopathy has been reported in the literature since the beginning of the vaccination effort back in December 2020. Many of these cases were reported in the ipsilateral axillary lymph nodes and a few in the ipsilateral neck.[2] In middle-aged individuals, the presence of enlarged neck nodes can also be due to a metastatic malignant process in the neck, chest, or upper abdomen. For these patients, it is recommended to get a specialized evaluation promptly.[3]

Although acute cervical lymphadenopathy is commonly caused by infections, a neoplastic origin cannot be ruled out.[4] Cervical lymphadenopathy has several triggers. However, excluding serious conditions, such as chronic granulomatous diseases, local malignant processes, and other metastatic tumors, should take priority. Measures to exclude these diagnoses include taking a proper medical history, conducting a comprehensive clinical assessment, and ordering imaging tests of the nodes.[5]

Educating healthcare providers about the post-COVID vaccine cervical lymphadenopathies is indispensable for the management of patients. However, this can only be achieved by demonstrating the incidence of this side effect, hence the objectives of this study.

Materials and Methods

We conducted a cohort study of individuals referred to our facility from primary care facilities over a period of six months, from March 2021 to the end of August 2021, with an age interval from 17 years to 52 years.

In individuals over the age of 50, the presence of cervical adenopathy is mostly associated with malignancy, which may originate from a primary or secondary tumor.

All patients underwent ultrasound, CT scans with contrast, chest X-ray, and other routine blood investigations. Culture and sensitivity reports of pus swabs taken during incision and drainage of 7 operated cases were reported as **no growth after 48 hours** or **normal flora**.

Results

Out of all the patients, 16 were females and 4 were males. Six female and one male patient developed suppurative ipsilateral upper cervical lymphadenitis, which necessitated hospitalization and surgical intervention with incision and drainage, as well as IV medications.

Five patients were admitted by internal medicine for workup and supportive care as they were having generalized symptoms, such as fever, chills, headache, myalgia, and inadequate oral intake. The OMFS department was called for evaluation and to rule out any oral infection. Four patients were diabetics with a mean HbA1C of 6.7% to 7.5%. All of these patients did not have any active dental or salivary gland infections. No significant leukocytosis or Leukopenia was detected in these patients.

The mean hospital stay of operated patients was 8 days, with a range of 4 to 10 days.

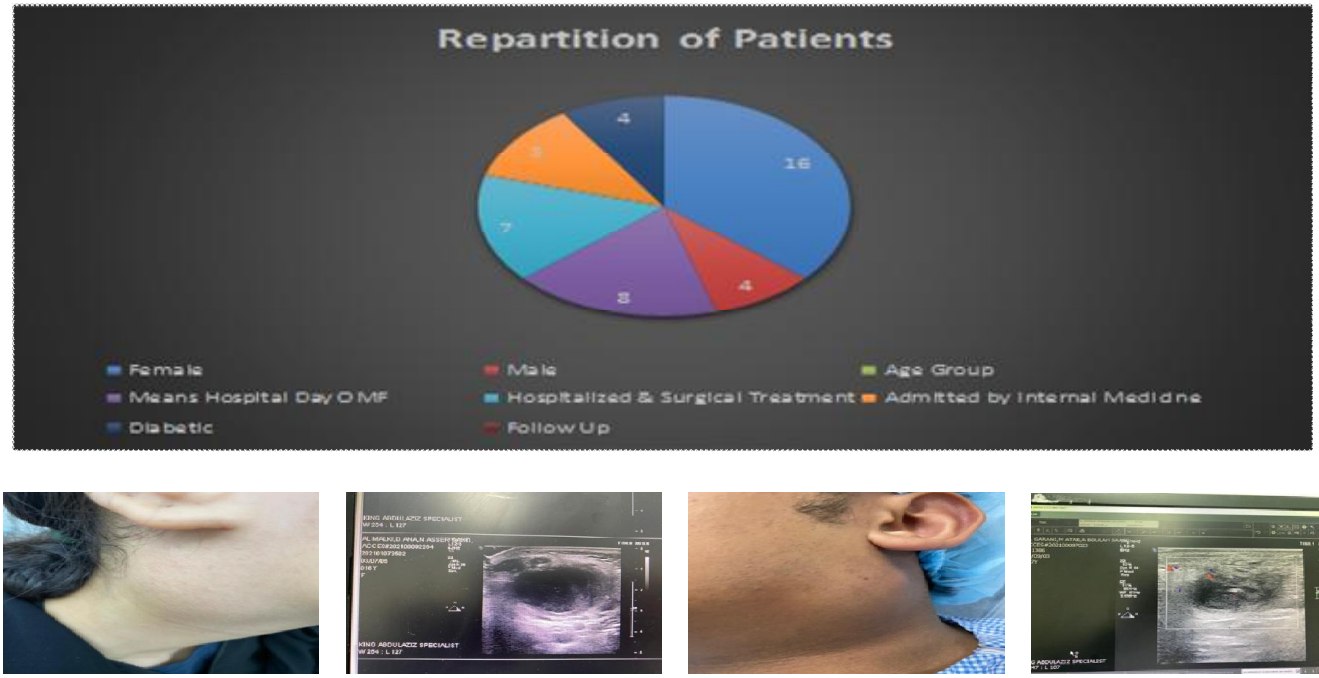

Figure 1: Pre-operative clinical presentation and ultrasound images of patients with Post COVID-19 vaccine suppurative lymphadenitis of the neck

Discussion

Post-vaccination lymphadenitis is a common complication, which starts after the intramuscular injection of the vaccine in the deltoid muscle. **(6)** Literature review suggests that it has also been reported with other vaccines, such as HPV and flu vaccines.[7]

With the start of the COVID-19 vaccination worldwide, there are a few reports of acute cervical lymphadenitis and lymphadenopathy in the western world.[8]

The current vaccines are mRNA-based and are more immunogenic. In clinical trials on the Pfizer/BioNTech vaccine, lymphadenopathy was reported in 0.3% of patients.[9] In Moderna trials, however, axillary lymphadenopathy has been reported in 10.2% of cases after the first dose and 14% after the second injection.[10] Finally, the trials of Oxford/Astra Zeneca reported lymphadenopathy in 0.3% of patients.[11]

Our results show that all patients referred to us with cervical lymphadenopathy had the Pfizer/BioNTech vaccine, the Oxford/AstraZeneca vaccine, or Moderna vaccine first dose. In another case series, Fernandez-Prada et al. reported that 75% of patients with COVID vaccine-related lymphadenopathy had full resolution within 16 days from symptoms onset.[12]

Other studies that reported a lower incidence of lymphadenopathy (3-16%) were mostly based on self-reported symptoms. In contrast, our study focused on physical examination and imaging techniques to objectify the swollen lymph nodes. While this practice may not be necessary for every patient, especially those with no risk factors of malignancy, comprehensive evaluation of cervical lymphadenopathies are still the gold standard approach regardless of the patient's vaccination status.

This study showed that full clinical resolution was achieved in 78% of patients within an average of 20 days. Partial improvement occurred in the remaining patients after an average of 35 days. Moreover, two-thirds of our patients were sent for consultation and management to OMFS within four to sixteen days of symptom onset.

Cancer patients often express concerns about enlarged lymph nodes after reading the imaging report. Physicians should inform patients that these nodes are benign and not chronic. When doctors fail to educate patients about benign lymphadenopathy, they may experience unnecessary stress and insist on getting a biopsy. Despite the concern over these enlarged lymph nodes, a recent study showed that post-vaccine enlarged nodes may indicate a robust immune system. This can be quite beneficial for the patient.

Moreover, there is a high correlation between post-vaccination enlarged lymph nodes and the presence of COVID antibodies shortly after getting the vaccine. Contrast that with the low rates of enlarged lymph nodes in individuals who received anti-CD20 antibody therapy. The latter suppresses humoral immunity, which is useful for hematologic malignancies.

The paper of Cohen et al suggests that post-COVID vaccine lymphadenopathies might actually be a sign of a robust immune system, rather than a defective one.[13]

Strengths and limitations of this study

We have adopted a definition for COVID-19 vaccine-related cervical Lymphadenopathy as an acute onset of swollen nodes with a recent history of vaccination. We also excluded cases of bilateral lymphadenopathy and prolonged cases (more than three months). These inclusion and exclusion criteria helped in increasing the specificity of our clinical study.

The results obtained from this study can aid specialized healthcare practitioners, radiologists, oncologists, hematologists, and primary care physicians, to take better care of patients.

The primary limitation of our study is the small sample size. It also covers a limited period of six months. More comprehensive clinical trials are needed to support our results. As more and more individuals are getting the COVID-19 vaccine globally, it is imperative to further expand this research area and document acute cervical lymphadenopathy as a post-vaccine side effect.

Conclusion

Suppurative lymphadenitis and acute cervical lymphadenopathy are becoming increasingly common after getting the COVID vaccine. They must be included in the differential diagnosis of patients presenting with acute neck swelling during the current pandemic. Proper medical history and clinical examination, along with complementary laboratory and radiological tests, are mandatory to rule out other causes of cervical lymphadenopathy.

As more people are getting the COVID-19 vaccines globally, healthcare providers must be aware of the potential side effects of this vaccine.

There is no data currently available in the pediatric age group as COVID-19 vaccination is still under trial. However, we believe that a higher number of cervical lymphadenitis cases will emerge in this age group due to the higher immunologic response once the COVID-19 vaccine kicks off. Consequently, it should be considered in the diagnostic flow chart in this age group as well.

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