

# A Misleading Apical Periodontitis Like Symptoms Post COVID-19 Vaccine

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## Short report

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# Abstract

## Background

Adverse effects of vaccines are common, yet the reaction to vaccines widely varies between people. Companies provide an adverse effects list of their products. Adverse reactions might indicate the effectiveness of vaccines and that the immune system is responding.

## Case presentation

In this study, we present unusual side effects of the Pfizer/BioN-Tech vaccine. The patient had severe continuous pain related to the lower left first molar after the second dose of the Pfizer/BioN-Tech vaccine. The symptoms are typically resembling symptomatic apical periodontitis cases.

## Conclusion

Pfizer/BioN-Tech vaccine might lead to symptoms that mimic symptomatic apical periodontitis. The patient who develops such symptoms shortly after the covid -19 vaccine without an apparent cause should be assured and kept under observation for one to two weeks. A tentative diagnosis and treatment plan should be considered in the follow-up visit.

# Introduction

More than 4.8 million deaths of the pandemic and huge socioeconomic impact internationally caused by the coronavirus (SARS-CoV-2).[1] With the COVID-19 pandemic, the world is facing significant health care issues, lockdowns, anxiety, and stress, as there is no specific treatment to control this pandemic.[2] Due to the lack of specific therapy and the fast spread of this virus, vaccination would be of great significance in the fight against the SARS- CoV-2 pandemic.[3]

Furthermore, the US Food and Drug Administration (FDA) on December 11, 2020, granted emergency authorization to the Pfizer/BioN-Tech vaccines. The Pfizer/BioN-Tech vaccine uses modified RNA to encode the SARS-CoV-2 spike protein, eliciting virus-neutralizing antibodies in the vaccinated individual. [4]

There have been some concerns about the potential adverse effects of these vaccines. In some cases, Pfizer/BioN-Tech vaccine has produced some adverse effects, and in rare cases, severe allergic reactions, including anaphylaxis.[5]

Therefore, this study aims to report an unusual side effect of the Pfizer/BioNTech vaccine. The patient had severe dental pain that mimicked the symptoms of apical periodontitis.

# Case Summary

A thirty-six-year-old female patient presented to the endodontic clinic complaining of severe continuous pain related to the lower left first molar. The pain started two days after the patient received the 2<sup>nd</sup> poster dose of the COVID-19 vaccine (Pfizer). The patient reported major fatigue and increased body temperature (39°C) on the day of the visit. After the patient signed the treatment consent form further clinical and radiographic investigation was carried out.

Extraoral examination revealed enlarged and tender submandibular lymph nodes on both sides. The patient also reported the presence of bilateral tender and enlarged axillary lymph nodes.

Intraoral examination revealed extensive amalgam restoration on tooth #36. Tooth #36 was tender to percussion. Palpation over the buccal mucosa provokes a painful response. The cold test was not applicable since the tooth was endodontically treated about five years ago. Periodontal pocket depth examination was within the normal limit.

Orthopantomography (OPG) and intraoral periapical radiograph (PA) showed previous root canal treatment of tooth #36 with no detectable pathological changes, as shown in figure 1-2. Cone-beam computed tomography (CBCT) was then taken to confirm the OPG and PA findings. CBCT also revealed no obvious abnormality in the three plane views, as shown in slices of Figures 3-6.

The initial diagnosis of tooth #36 was prior root canal treatment with symptomatic apical periodontitis.

Due to the absence of any obvious clinical and radiographic signs of symptomatic apical periodontitis and the possible side effects of the COVID-19 vaccine, the treatment plan was to keep the patient under observation and prescribe analgesic, then to follow up the case after one week for further evaluation and management.

The patient was taking paracetamol 500mg three times a day as prescribed by the treating family physician. I prescribed 400mg ibuprofen to be taken alternatively with the paracetamol three times a day for three days.

On the next visit (after one week), the patient was asymptomatic. Clinical examination revealed a completely normal response with percussion and palpation tests. The patient was assured and referred to the prosthodontic clinic for the crowning of tooth #36.

## **Discussion**

SARS-CoV-2 infection is a global health concern and has infected a significant portion of the world's population.[1] During the COVID-19 pandemic, people worldwide faced major health care challenges, anxiety and stress, because of the lack of specific treatment, and until December 2020, lack of approved vaccination.[6]

RNA vaccines have a better safety profile than viral vaccines since they are not made with an actual pathogen and do not integrate into host DNA.[4] Pfizer vaccine is administered in two doses into the

deltoid muscle. A disadvantage of this class of vaccines is that they require extreme refrigeration for stability during distribution because RNA is unstable.

The oral side effects after covid 19 vaccines were inconsistently reported with a low confidence level; they have never been reported independently. [7]

Several studies of mRNA vaccines showed a higher frequency of adverse effects following the second dose. [5-8-9] Countries, despite the cost, are trying their best to vaccinate their citizens as early as possible, but further research is required to ensure that any COVID-19 vaccines do not trigger potential adverse effects.

## Conclusion

Pfizer/BioN-Tech vaccine might lead to symptoms that mimic symptomatic apical periodontitis. The patient who develops such symptoms shortly after the covid -19 vaccine without an apparent cause should be assured and kept under observation for one to two weeks. A tentative diagnosis and treatment plan should be considered in the follow-up visit.

## Declarations

- Ethical Approval and Consent to participate:

Written consent form was obtained from the patient to carry on the clinical and radiographic investigations and to provide the necessary treatment.

- Consent for publication:

Written informed consent was obtained from the patient for publication of this case report

- Availability of data and materials

The datasets of this case report are available from the corresponding author on reasonable request.

- Competing interests

The author have no financial and personal relationships with other people, or organisations, that could inappropriately influence (bias) his work.

- Funding

Personally, funded by the author himself

- Authors' contributions

The corresponding author prepared the case reports, drafted the manuscript then coordinated the case report preparation. He finally reviewed and approved the final manuscript.

- Acknowledgements

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- Authors' information

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## Figures



**Figure 1**

Orthopantomography (OPG)



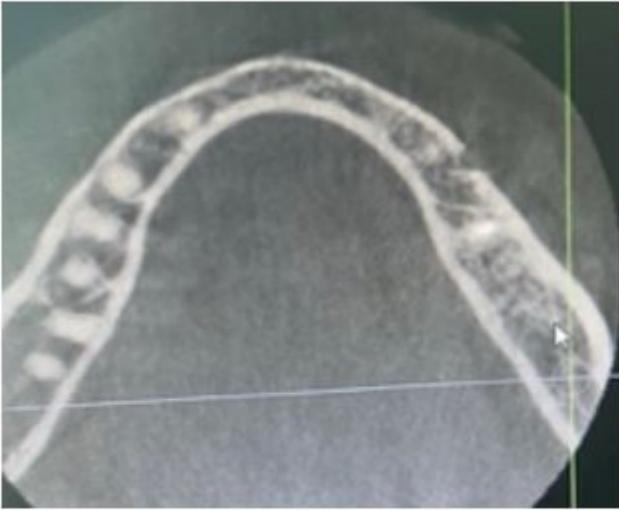
**Figure 2**

Intraoral periapical radiograph (PA) of tooth #36 showed previous root canal treatment of the tooth and no obvious pathological changes



**Figure 3**

Axial view CBCT slide of the coronal third of the root of tooth #36 showed two obturated root canals in the mesial root, and two obturated root canals in the distal root with no obvious pathological changes



**Figure 4**

Axial view CBCT slide of the apical third of the root of tooth #36 showed no obvious pathological changes



**Figure 5**

Coronal view CBCT slide of tooth #36 showed no obvious pathological changes



**Figure 6**

Sagittal view CBCT slide of tooth #36 showed no obvious pathological changes

## Supplementary Files

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