ISSN: 2754-4737

Journal of Neurology Research Reviews & Reports

SCIENTIFIC Research and Community

Case Report

Open Access

Covid-19 Potentially Caused By A Corticosteroid Injection: A Case Report

Akhil Chhatre MD, Yash Mehta DO

Interventional Spine and Musculoskeletal Medicine Fellowship at Johns Hopkins University

SUMMARY

This is a case regarding a 50-year-old female from Maryland, USA, with no pertinent past medical history, presenting with a 1 year history of low back pain, elicited by an exercise-related injury. During this time, she had low back and right buttock pain without radiation or neurological signs. The patient tried and failed conservative measures including OTC medications, oral steroids, and Physical Therapy. Based on the discussion between the physician and the patient, a decision was made to proceed with bilateral L3-S1 lumbar facet joint corticosteroid injections on September 21st, 2020, as she was very low risk for COVID-19. 6 days post-procedure, on September 27th, the patient began developing COVID-like symptoms, including fatigue, DOE and anosmia. She later had a positive COVID-19 test on October 1st, 2020. Contact tracing for the patient did not reveal any recent contacts who had COVID-19, and her contacts tested negative for the virus. An in-depth literature review was conducted regarding the nature of this case. While there were many articles with recommendations on steroid injections for pain interventions, there were no cases found directly linking COVID-19 as caused by such an intervention. It is proposed that, while this may not be the first case of its kind, this may certainly be the first case published in the literature, which can open the door for further investigation.

***Corresponding author**

Yash Mehta, Interventional Spine and Musculoskeletal Medicine Fellowship at Johns Hopkins University, 10000 Town Center Avenue. Apt. 207. Colulmbia, MD. 21044, Tel: (630) 532-9097, E-mail: ymehta90@gmail.com.

Received: November 06, 2020; **Accepted:** November 17, 2020; **Published:** November 20, 2020

Introduction

Coronavirus disease 2019 (COVID-19) is an acute respiratory syndrome caused by the SARS-CoV-2 virus, which originated in Wuhan, China in the winter of 2019 [1]. Over the past year, the virus has rapidly spread throughout the world, resulting in a worldwide pandemic, that has accounted for over 37 million cases, over 1 million deaths, in 188 countries [1]. The pandemic has not only caused a health crisis, but also a social, financial, and psychological crisis throughout the world.

In the realm of interventional pain medicine, corticosteroids are a vital part of the treatment plan for patients with various types of pain complaints. Corticosteroids are a type of anti-inflammatory drug, that resembles the hormone cortisol our bodies naturally make to fight inflammation [2]. As with any medication, corticosteroids also come with their own side effect profile; the largest of which is immunosuppression [3]. Local corticosteroids are better than systemic / oral medications, as to try and limit this risk of immunosuppression. Therefore, when treating patients with different pain complaints, the goal is to target the source of their pain with the corticosteroid, instead of a systemic approach, for more effective pain relief and to try and limit the systemic side effects.

There have been many articles published since the beginning of the COVID-19 pandemic regarding the use of corticosteroid injections use for interventional pain and the theoretical increased risk of infections, including but not limited to, COVID-19. Literature reviewed from all over the world, including China, the UK, and the US, has discussed in detail this increased risk of COVID-19 status post treatment with a corticosteroid injection. However, as no cases of the virus have directly been linked to intervention with corticosteroid, all of these publications have deemed the risk to be low. Miller et al. stated there is low quality evidence linking corticosteroids to COVID-19, and Little et al. concluded, therefore, that continued intervention with low dose corticosteroids are appropriate for treatment after informed discussion between a physician and the patient [4, 5].

The purpose of this report is to highlight the first potential case of a corticosteroid-induced COVID-19 viral infection.

Case Report

A 50-year-old Caucasian female living in Maryland, with PMHx of anxiety and depression, presented with a 1-year history of low back pain, elicited by an exercise injury. Her pain was located in the low back and right buttock pain without radiation or neurological signs. The pain was constant, dull, achy, with intermittent sharpness. Her pain level would range between 3-10/10, with an average level of 7/10. Her pain was worse with bending backwards, twisting, standing or sitting for more than 10 minutes, and running. The pain was only consistently relieved with rest. The patient tried and failed conservative measures including OTC medications, oral corticosteroids, and Physical Therapy. MRI of her L-spine from January 2020 revealed mild-moderate spinal canal stenosis from L1-S1, a left foraminal disc protrusion at L5-S1 causing moderate left neuroforaminal stenosis, a herniated disc at L5-S1 causing impingement upon the ventral thecal sac and the left L5 nerve root, mild-moderate bilateral neuroforaminal stenosis due to a broad based disc bulge at L4-L5, and moderate bilateral facet

hypertrophy at L4-L5. Based on evaluation of the patient, she was diagnosed with lumbar facet arthropathy. After an in-depth discussion with the patient regarding benefits and risks of an intervention, and determining her to be a relatively low risk for immunocompromise and COVID-19, she agreed to proceed with bilateral lumbar facet joint corticosteroid injections. On September 21st, 2020 she had bilateral L3-S1 facet joint corticosteroid injections with 0.2ml of 1% lidocaine and 0.8ml of Betamethasone at each site. On September 27th, the patient began developing COVID-like symptoms, including fatigue, DOE and anosmia. She later had a positive COVID-19 test on October 1st. Contact tracing did not reveal any recent contacts with COVID-19, and all of her contacts tested negative. Upon follow up with the patient on October 7th, she states she still has mild DOE, but overall, her symptoms are much improved and she is happy to have improved without needing medical interventions.

At the time this case report was written, October 9th, 2020, there were a total of 7,583,200 COVID-19 cases within the U.S. and 130,159 total cases within the state of Maryland [7]. Based on the John's Hopkins Coronavirus Resource Center, the 7-day average Percent Positive Rates for the U.S. during the time course of the injection and symptoms are listed below, in Table 1, along with the 7-day average Percent Positive Rates for the state of Maryland [8, 9]. As the Table shows, at all points of the timeline of the patient's injection and subsequent illness, the Maryland 7-day average Percent Positive Rates were well below the Rates for the U.S. as a whole. Therefore, based on the literature reviewed, and the evidence available at the time, it was reasonable for the physician and the patient to have discussed the risks vs. benefits of a CSI, and eventually have elected to proceed with the intervention. Unfortunately for the patient, despite the low rates and lack of correlation between a CSI and COVID-19, she contracted the illness soon after her bilateral facet joint CSI.

Table 1: A visual representation of the patient's timeline, along with the 7-day average Percent Positive Rages for both the U.S. and Maryland. It can be seen that at each date, the overall percent positive rate for Maryland was much less than the U.S. as a whole

Date	Event	7-day average Percent Positive Rates – U.S. [4]	7-day average Percent Positive Rates – Maryland [2]
9/21/2020	Date CSI was performed	4.8%	2.65%
9/27/2020	Date symptoms began	5.0%	2.58%
10/1/2020	Date of positive COVID test	4.6%	2.93%
10/9/2020	Date of case report	4.9%	2.79%

In conclusion, this may be the first such case report about a corticosteroid-related COVID-19 case. Our aim in writing this report is that, with time, there may be other cases similar to our case report, which we can then go back and review to come up with potential updated conclusions and recommendations regarding the use of corticosteroids as a treatment option for pain and injections while in the time of the COVID-19 pandemic. Until then, as with all treatment plans and interventions, "careful shared decision-making, recognizing potential but, in all probability, very low risks of CSI in the setting of COVID-19, and after appropriate patient selection and counselling," continued use of CSI for treatment "in low doses remains an appropriate treatment option" [5].

References

1. En.wikipedia.org. 2020. Coronavirus Disease 2019. [online] Available at: <https://en.wikipedia.org/wiki/Coronavirus_disease_2019> [Accessed 9 October 2020].
2. The American Academy of Allergy, Asthma & Immunology. 2020. Corticosteroids | AAAAI. [online] Available at: <https://www.aaaai.org/conditions-and-treatments/conditions-dictionary/inhaled-corticosteroids> [Accessed 9 October 2020].
3. Youssef J, Novosad SA, Winthrop KL (2016) Infection Risk and Safety of Corticosteroid Use. Rheum Dis Clin North Am 42: 157-76.
4. Miller D, Patel J, Gill J, Mattie R, Saffarian M, et al. (2020) Corticosteroid Injections and COVID-19 Infection Risk. Pain Medicine 21: 1703-1706.
5. Little C, Birks M, Horwitz M, Ng CY, Warwick D (2020) COVID-19: A rethink of corticosteroid injection?. Bone & Joint Open 1: 253-256.
6. McKean D, Chung S, Fairhead R, Bannister O, Magliano M et al. (2020) Corticosteroid injections during the COVID-19 pandemic. Bone & Joint Open 1: 605-611.
7. CDC COVID Data Tracker. Centers for Disease Control and Prevention. [online] Available at: <https://covid.cdc.gov/covid-data-tracker/#cases_casesinlast7days> [Accessed October 9 2020].
8. Johns Hopkins Coronavirus Resource Center. 2020. Daily Testing Trends In The US - Johns Hopkins. [online] Available at: <https://coronavirus.jhu.edu/testing/individual-states> [Accessed 9 October 2020].
9. Coronavirus.maryland.gov. 2020. Coronavirus - Maryland Department Of Health. [online] Available at: <https://coronavirus.maryland.gov/> [Accessed 9 October 2020].