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## Urology Case Reports

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# Atypical presentation of COVID-19: Chronic bilateral testicular pain with lower extremity peripheral polyneuropathy, case report

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## ARTICLE INFO

## Keywords:

SARS-CoV-2 COVID-19  
Orchitis testicular pain  
Peripheral polyneuropathy  
ACE2

## ABSTRACT

In context of COVID-19 pandemic, there has been different presentations of the infection. The relationship of testicular pain with COVID-19 has not been extensively studied. We present a 31 years old male, with SARS-CoV-2 infection, repeatedly consulting for intermittent bilateral testicular pain. Two months later he reported acute loss sensibility and pain in extremities, being diagnosed with axonal fine fiber polyneuropathy. Although the presence of SARS-CoV-2 in testis remains controversial, there is a potential orchiepididymitis risk due to viral binding to ACE2 receptor in testicle, and also could induce systemic vasculitis as another possible cause of orchitis.

## 1. Introduction

In context of the pandemic caused by COVID-19, there have been a large number of clinical reports referred by patients with different clinical presentations secondary to the infection.

The relationship of testicular pain with COVID-19 in the scientific literature has not been extensively studied. One study reported testicular pain was present in 10.98% of patients hospitalized for COVID-19.<sup>1</sup>

Other studies have provided evidence of possible co-infections of SARS-CoV-2 virus within extra-pulmonary systems such as the cardiovascular, neurological, gastrointestinal, endocrine, hematological, cutaneous, renal, and urinary systems.<sup>2</sup> However, the relationship between SARS-CoV-2 and the urinary and/or reproductive system has not been properly established yet.

We present a case report of a male patient who presented bilateral testicular pain and was positive for COVID-19.

## 2. Case report

31 years old male patient, with morbid history of COVID-19 (April 2020), severe obstructive sleep apnea and morbid obesity, 11 months after the initial infection he presented to urology outpatients with intermittent bilateral testicular pain, with no specific trigger factors and

without local changes in genital area, which initiated and associated with symptoms of infection by COVID-19 diagnosed in April 2020. The pain had persisted over time, which was the reason for the consultation. A testicular Doppler ultrasound was requested which showed no pathological findings.

A chest CT scan taken on November 16, 2020, showed faint residual ground-glass opacities secondary to COVID-19 pneumonia, thickening of bronchial walls, with no other abnormal findings.

The patient complained of persistent myalgia, diarrhea and weight loss.

In May 2021 the patient was reevaluated in urology outpatients due to persistent bilateral orchialgia, simultaneous to loss of sensibility and pain in both upper and lower extremities of acute onset, of 1 h of evolution, repeatedly during the day. In addition, the patient reported dyspnea, apnea, dental pain and diarrhea. Testicular physical examination showed no alterations. Electromyography was performed, and axonal fine fiber polyneuropathy was diagnosed in both lower extremities.

The last contact with the patient was in September 2021. He referred to persist with distal polyneuropathy symptoms and intermittent orchialgia, but with lower intensity than before.

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<https://doi.org/10.1016/j.eucr.2021.101932>

Received 18 October 2021; Received in revised form 4 November 2021; Accepted 8 November 2021

Available online 9 November 2021

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### 3. Discussion

Although the classic COVID-19 clinical presentation is mostly a respiratory disease, with the pulmonary manifestations being the main presentation, SARS-CoV-2 infection is not limited to the respiratory system, and other organs may also be affected.<sup>2</sup> Extrapulmonary symptoms reported by patients include headache, myalgia, diarrhea, nausea, vomits, abdominal pain, constipation, abdominal distention, altered diuresis, high fever, palpitations, tachycardia, arrhythmias, hypertension, hypotension, ischemic chest pain, epilepsy, consciousness alteration, anosmia, epistaxis, generalized rash, chemosis, signs of deep venous thrombosis, orchitis, testicular and lower extremities pain.<sup>2</sup> These extrapulmonary manifestations often occur before any other symptomatology, while in other cases they are late manifestations of the aftermath of the disease.

Although the presence of SARS-CoV-2 in the testis remains controversial, hypogonadism resulting from inflammation secondary to infection has been reported in the literature. There is a potential risk associated with SARS-CoV-2 infection in the reproductive system and possible long-term complications. According to available data on SARS virus, orchitis is a rare but important complication of the disease and should be detected early for proper medical management.<sup>3</sup>

Like previous coronaviruses, SAR-CoV-2 shares 78% genetic homology with the other members of the coronavirus family and appears to have a strong ability to interact with human angiotensin-converting enzyme 2 (ACE2). ACE2 belongs to the angiotensin-converting enzyme family of dipeptidyl carboxypeptidases and is homologous to angiotensin-converting enzyme 1; this enzyme, which is found mainly in lung tissue, can also be found in other parenchyma, like intestinal, renal, testicular, and cardiac tissue. This enzyme mediates the entry of SARS-CoV-2 into human cells, completing its intracellular replication process and releasing the virus, thus inducing cytotoxicity. This explains why viral infection pathways depend mainly on the expression and distribution of corresponding receptors.<sup>4</sup>

Considering the previous information, studies suggest that due to a high expression of ACE2 in testes, particularly spermatogonia, Sertoli cells and Leydig cells, possible effects on spermatogenesis and the occurrence of orchitis could appear in male patients with SAR-CoV-2. If we consider the pathophysiology, viral binding of SARS-CoV-2 to the ACE2 receptor in the testicular tissue can lead to tissue inflammation and development of orchiepididymitis with orchialgia.<sup>5</sup>

Regarding our patient, he presented with classic symptoms of COVID-19 in May 2020, he consulted later for bilateral orchialgia of 11

months of evolution. The symptom is suspected to be a possible sequel of his SARS-CoV-2 symptoms because its onset was during the symptomatologic period of COVID-19.

After reviewing studies of atypical presentations of COVID-19, we found a correlation in the development of long standing orchialgia in patients, both as its only clinical presentation and also as sequels, after the symptomatologic period of COVID-19. Together with this, another sequel that was referred to in the literature, are patients who developed neuropathic affectations, which in our patient were confirmed by electromyography.

### 4. Conclusion

The pathophysiology responsible of orchialgia is still unknown and therefore it's necessary to study and investigate the possible short, medium and long-term effects of SARS-CoV-2 on the male reproductive system and to ensure adequate andrological follow-up of male patients with positive COVID-19.

The relationship of testicular pain with SARS-CoV-2 infection could be explained by high expression of ACE2 in testes, in particular, spermatogonia, Sertoli cells and Leydig cells, suggesting possible effects on spermatogenesis and the occurrence of orchitis in male patients secondary to infection by this virus.

Several studies have emphasized critical illness polyneuropathy as the explanation of neurologic presentations secondary to the diagnosis of COVID-19, and multiple reports have documented acute polyneuropathy in patients infected.

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