


Pandemic effects on testicular torsion management and late referral of patients

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Testicular torsion is a frequent pediatric emergency that happens when the testicle twists around its axis, impairing blood flow and sometimes resulting in irreparable alterations or even the entire loss of the testis. In boys under the age of 25, there are 4.5 cases of testicular torsion per 100,000. Despite the fact that testicular torsion can happen at any age, it most frequently affects infants and young guys between the ages of 13 and 16 who are going through puberty or adolescence (1). The eventual effect of untreated testicular torsion is organ loss, making it a surgical emergency. Longer ischemia durations are associated with an increased risk of testicular loss, atrophy, and dysfunction (2). A diagnosis must be done quickly, ideally within 6 hours, to prevent negative results and to preserve the viability of the testis (3). Furthermore, the amount of time it takes from the patient's emergency

department (ED) visit to get to the operating room (OR) is a separate predictor of testicular survival (4). If the damaged testicle is determined to be viable, orchidectomy with a permanent suture should be done to fix the testicle within the scrotum permanently. However, the longer the hospital visit is postponed, the more probable it is that an orchiectomy will be carried out (5). Therefore, it's crucial to understand how testicular torsion often presents, which is with rapid onset unilateral testicular discomfort that may be followed by nausea and/or vomiting. When palpated, the afflicted testis feels hard and is typically positioned at an odd angle (3).

Atypical pneumonia brought on by a new human coronavirus (COVID-19) was initially identified towards the end of 2019 in Wuhan, China, and then spread to other parts of the world. The COVID-19

outbreak was deemed a Public Health Emergency of International Concern by the World Health Organization (WHO) on January 30, 2020, and the worldwide pandemic was notified on March 11, 2020(6). Since the World Health Organization pronounced COVID-19 a worldwide pandemic, the disease has become more than simply a threat to public health because of the sustained national lockdowns it has caused and the changes in people's lifestyles. all these are alterations to the accessibility and organization of how education is delivered to pupils, food insecurity due to scarcity and price fluctuations, the global economic downturn, and a rise in mental health issues, wellness, and quality of life, among other things (7). The lowest-income persons, who are already medically vulnerable and socioeconomically disadvantaged, avoided time-sensitive emergency treatment in a way that was substantially correlated with a lack of a personal doctor, lower subjective health conditions, and a large load of comorbidities (8). During the COVID-19 pandemic, stay-at-home directives and concern about coronavirus infection can potentially cause delays in the presentation of patients with testicular torsion to emergency rooms and dramatically increase the frequency of testicular losses (1). In addition, the medical literature has noted an increased avoidance of emergency rooms for non-COVID-19 infections during the coronavirus (COVID-19) pandemic (9, 10). however, a study with 82 torsions showed that in those with acute testicular torsion, there hasn't been a noticeable change in the time to the operating room or the rate of orchiectomy (11).

In a meta-analysis study in 2022, 6 papers were chosen to be included in the meta-analysis of the orchiectomy rate among testicular torsion cases, with the age range being confined to pediatric cases to reduce heterogeneity. This was showing an increase in orchiectomy rates among testicular torsion in COVID-19 cohorts compared to pre-COVID-19, which was statistically significant (12).

On the other hand, these rates depend on various factors, such as the country being studied, the time of the study, the laws used to control quarantine, the extent of their commitment to the laws, the cultural conditions of the people of each country, and the level of awareness of the people about Corona. Due to the passage of time and people getting used to the quarantine conditions, their fear of getting infected by the coronavirus can decrease. As a result, there might be differences in the findings of different studies. For example, there is a cohort study in northern Italy in the year 2022 with 188 patients that reported referral, intra-hospital protocols, and ischemic time in testicular torsion were not increased during the pandemic, as well as orchiectomy rate and atrophy (13). A meta-analysis study in 2022, including six comparative studies. Between the two patient groups, there were no significant changes in the average duration of symptoms, the percentage of kids who presented late, or the frequency of orchiectomies. Although the orchiectomy rate was 1.23 times (3). Zenon et al. found in 2021 that A considerably greater prevalence of orchiectomies and an increase in delayed presentations for testicular torsion were seen during the COVID-19 pandemic (1).

Since the coronavirus was declared a pandemic disease, it has caused many changes around the world. The treatment system has also undergone major changes, some of which were positive and some negative. Its negative changes can be said to have effects on the treatment process of other non-covid diseases, including emergency diseases. Testicular torsion is one of the most important emergency diseases that must be addressed in the golden hours to prevent permanent organ loss. In studies, it has been shown that the rate of delay in patients' visits or the rate of orchiectomy has increased compared to the era before Corona. Orchiectomy can be a preventable process if patients go to the hospital at the golden time. Educating patients, who are mostly children, or their

companions can have a significant impact on these delays. It is necessary to teach them the early symptoms of the disease so that they can make the right and necessary decisions in certain situations. Pre-hospital services and mass media can play this role. Achieving these results requires attention to health education in the structure of health departments of countries.

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