Venous thrombosis of the pampiniform plexus after coronavirus infection (COVID-19): A case report

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ABSTRACT

Because of an increased hypercoagulable state, a significant proportion of COVID-19 patients develop various and extensive venous thromboembolic complications. We report the case of a young patient with a history of pneumonia related to COVID-19 disease, in whom the diagnosis of thrombosis of a pampiniform plexus vein was made on color doppler ultrasound data. We adopted a conservative treatment with good clinical and radiological evolution. To our knowledge, this is the second association of venous thrombosis of the pampiniform plexus with COVID-19 disease.

1. Introduction

Since December 2009, the SARS-CoV-2 virus has spread worldwide and in a few months the infection has affected more than 200 million people. Nearly 15% of patients with coronavirus 2019 (COVID-19) and more than 70% of those with severe disease have coagulation abnormalities. Due to an increased hypercoagulable state, a significant proportion of COVID-19 patients develop various and extensive venous thromboembolic complications. We report a rare association of spontaneous thrombosis of the pampiniform plexus in a young patient with COVID-19 in its minor form.

2. Case report

24-year-old man with a 2-month history of COVID-19-related pneumonitis presented to the consultation unit with right inguinal-scrotal pain that had been ongoing for 3 days, without fever or associated urinary signs. However, the patient reported that his pneumonitis was moderate and did not require oxygen therapy. His clinical examination revealed a palpable, grade 3, tender right varicocele. The right epididymis appeared slightly swollen (Fig. 1). The testicles were in place, of normal size, volume and consistency, not painful. The hernial orifices were free. However, the patient appeared to be in good general condition. He had a body mass index (BMI) of 26.5, was a nonsmoker, and had no history of venous thromboembolic disease. His complete blood count showed a mild leukocytosis, minimal inflammatory syndrome (CRP 18 mg/l) and a normal coagulation panel. The cytobacteriological analysis of the urine was normal as well as her renal function. In view of this clinical presentation of acute bursa and in order to support the diagnosis, a scrotal doppler ultrasonography was performed. It showed the presence of an echogenic endoluminal thrombus in a dilated vein of the right pampiniform plexus, non-compressible to the passage of the ultrasound probe (Fig. 2). Color Doppler ultrasound showed increased vascularity of the right epididymis. The radiological data were in favor with the diagnosis of a thrombosed right pampiniform plexus in a patient with recent experience of COVID-19. The patient received medical treatment with curative dose anticoagulants, analgesics and venotonics. After two weeks, the patient showed a marked clinical improvement with complete disappearance of the painful episode. A scrotal ultrasound was performed two months after the acute episode, showing complete resolution of the thrombus with persistent dilatation of the pampiniform plexus (Fig. 3). After 6 months, the patient

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still had a clinical grade 2 varicocele with moderate testicular pain of the heaviness type that resolved with analgesic treatment.

3. Discussion

Venous thrombosis of the pampiniform plexus is extremely rare, with only about twenty cases reported in the literature. The diagnosis is often difficult, most often mimicking a strangulated inguino-scrotal hernia, acute epididymo-orchitis or testicular torsion. In case of doubt and in order to establish a positive diagnosis, ultrasound can be of great help to avoid unnecessary surgical exploration. Thrombosis on the left side is more frequently reported than on the right side and this is partly explained by the large drainage angulation of the spermatic vein into the left renal vein. Thus, it has been proposed that these anatomical factors may lead to increased venous pressures and thereby induce venous thrombosis. In our case, this mechanism is not respected since on the right side the gonadal vein drains directly into the inferior vena cava. Most case reports show no obvious underlying cause. As established, the traditional triad of factors that predispose to thrombogenesis is: stasis, endothelial injury/factors and hypercoagulability. A few studies mentioned simple causes such as strenuous physical effort, strenuous exercise, or trauma to the bursa. In some patients, an underlying thrombogenic cause or intra-abdominal inflammatory disease was reported. An increased incidence of venous thromboembolism has been reported in patients infected with Covid-19. Alterations in hemostasis, hypercoagulable state and thrombo-inflammation may explain this phenomenon. In contrast to our patient treated with Covid-19 in the outpatient setting, those in intensive care had high rates of thrombo-embolic phenomena. The most common site of venous thrombosis in Covid-19 patients appears to be pulmonary thrombosis and deep vein thrombosis. Only three cases of ovarian venous thrombosis secondary to Covid-19 have been reported. After review of the literature, only one case of testicular venous thrombosis mimicking epididymo-orchitis after suspected Covid-19 infection has been reported to date. Our case is the second thromboembolic phenomenon associated with Covid-19 and involving the gonads. On the urological side, no other thromboembolic events related to Covid-19 disease have been reported to our knowledge.

Most authors agree on the management of this condition with conservative measures. This therapeutic attitude is varied and heterogeneous. For example, Gleeson et al. recommend the use of a non-steroidal anti-inflammatory drug as monotherapy. In another study, Nguyen et al. suggest the use of anticoagulants for three months as long as the etiology of the thrombosis is identified. or some authors, conservative treatment has no place, especially in the case of recurrence or if the cause of the thrombus is identified. In this case, they opt for surgical exploration with resection of the thrombosed vein.
Fig. 2. Color Doppler ultrasound: A. Increased vascularity of the right epididymis. Grade 2 varicocele with dilatation of the pampiniform plexus. B. Pampiniform plexus vein dilated, non-compressible and thrombosed. Lack of evidence of flow in the color Doppler study.
4. Conclusion

Coronavirus is a source of deep vein thrombosis. Its involvement in venous occlusion of the pampiniform plexus has not been reported in the literature. Doppler ultrasound is the initial investigation of choice in our case. The mainstay of treatment is the conservative approach. Recourse to surgery is indicated in case of recurrence or complications.

Authors contributions

R. Mejri: participated in the writing of the manuscript.
K. Mrad Dali: participated in the writing of the manuscript.
K. Chaker: participated in the writing of the manuscript.
M. Bibi: participated in the writing of the manuscript.
S. Ben Rhouma: participated in the writing of the manuscript and its correction.
Y. Nouira: participated in the writing of the manuscript and its correction.

Declaration of competing interest

The authors declare that there are no conflicts of interest regarding the publication of this article.

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