A case of endophthalmitis associated with gonococcal sepsis

T. A. Krasnovid 1, I. V. Svystunov 2, O. S. Sidak-Petretskaia 1, N. I. Bondar 1

1 SI "The Filatov Institute of Eye Diseases and Tissue Therapy of the National Academy of Medical Sciences of Ukraine"; Odesa (Ukraine)

2 Shupyk National Medical Academy of Postgraduate Education; Kyiv (Ukraine)

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Disseminated gonococcal infection (DGI) is very rare, affecting 0.1-0.3% of patients with gonorrhea, and can occur as a result of metastasis from the site of primary infection. DGI has been reported to have a female predominance, with a female to male ratio of 4:1, and is especially frequent in pregnancy. It is manifested clinically by fever, tenosynovitis (asymmetric, involving hands and feet), arthritis, hepatitis, mild myopericarditis, and rash, most commonly, on the distal extensor surfaces of the limbs [2, 4].

Disseminated gonococcal infection may be complicated by the development of gonococcal sepsis, which is sometimes accompanied by endo-, myo-, and pericarditis, meningitis, brain abscess, peritonitis, osteomyelitis, synovitis, with lesions of the liver and kidneys, and these disorders have no pathognomonic symptoms. Most commonly, general condition is moderately severe, with intermittent fever (38-40.5°C), chill, joint pain, and skin lesions. A diagnosis of DGI is confirmed by blood cultures [2].
The purpose of this work is to present a rare case of endophthalmitis secondary to gonococcal sepsis, and to highlight its clinical features.

A male patient born in 1975 was under supervision at the Department of Ocular Trauma of the Filatov institute.

On January 18, 2020, he was taken by the emergency team to the Department of Urology of the city hospital, where he was diagnosed with acute suppurative gonococcal prostatitis (and retention of urine, severe sepsis with liver abscess, suppurative blepharitis of the left eye, and suppurative tonsillitis) and stayed until February 4, 2020. On admission to the hospital, he complained of urinary retention, purulent urethral discharge, general weakness, heavy breathing and shortness of breath. He reported that he had been ill over two months, but his condition worsened and body temperature rose to 39 °C 5 days before admission.

On examination performed on admission to the hospital, his general condition was satisfactory. The skin surface and the visible mucous membranes were of normal color and clear and respiration was vesicular. In addition, blood pressure was 140/80 mmHg, heart rate 78 bpm and body temperature 36.6°C. Heart tones were muffled, with a regular rhythm. The tongue was wet and clear. Abdomen was tender and there was painful suprapubic palpation. The liver and kidneys were not palpable. No signs of peritoneal irritation were observed. No costovertebral angle tenderness at both sides.

On January 18, 2020, at the admission room, he received a catheter due to acute retention of urine, and 500 ml of urine was drawn off by the catheter. On the same day, the patent had a cancer examination. The skin surface was worsened and body temperature rose to 39 °C 5 days before admission.

On January 18, 2020, he was taken by the emergency team to the Department of Ocular Trauma of the Filatov institute.

On January 24, 2020, another abdominal urinary tract ultrasound was performed. The bladder volume was 180 mL, and prostate dimensions and volume, 3.4×5.8×4.8 cm and 49 cm³, respectively. The patient was diagnosed with exacerbation of chronic pyelonephritis, dysmetabolic nephropathy, urolithiasis, and acute prostatitis.

On January 20, 2020, abdominal ultrasound was performed, showed a multilocular cyst in the right lobe of the liver, and the patient was diagnosed with hepatomegaly and chronic pancreatitis. In addition, a chest X-ray was unremarkable. Moreover, the patient underwent a trocar cystostomy.

On January 21, 2020, he was consulted by a therapist and an infectious disease doctor and was diagnosed with active hepatitis of unknown etiology.

On January 24, 2020, another abdominal urinary tract ultrasound was performed. The bladder volume was 270 mL, and prostate dimensions and volume, 3.4×5.3×4.8 cm and 49.9 cm³, respectively. The patient was diagnosed with diffuse focal changes in the prostate and acute prostatitis.
On January 24 and 25, 2020, chest X-ray and pleural ultrasound were performed, and bilateral hydrothorax was found.

On January 28, 2020, the patient was consulted by a surgeon and was diagnosed with severe sepsis with involvement of the liver (abscess) and left eye (suppurative blepharitis), and suppurative tonsillitis.

On January 31 and February 4, 2020, he was consulted by a skin and sexually transmitted disease (STD) specialist, and was diagnosed with chronic gonorrhea and gonococcal prostatitis (A54.2).

On February 1, 2020, the patient underwent liver abscess drainage.

On February 3, 2020, he underwent a suprapubic cystostomy.

Table 1 shows changes in laboratory results over time.

The patient received conservative treatment, including Ceftriaxone, Gepacef combi, Ringer’s saline, Izosal (infusion solution), Medrolgin (injection solution), Hepametion (injection solution), Omnic, Canephron N, Cycloferon, Omezz, Pancreatein, Enterol, Enterosgel, Enterogermina, Fluconazol, Nystatin, tiovintiv aspartate, maxibalance, Didocberl suppositories, levofloxacin 0.5% ophthalmic solution (Oftaquix), and 30% ophthalmic solution (albucid).

This treatment produced positive changes across a number of markers, and voluntary and painless urination with adequate urine output was restored. The skin surface and the visible mucous membranes were of normal color. There was no discharge through the drainage tube from the liver abscess. There was no pus discharge from the urethra. The patient could breathe freely through his nose and had no shortness of breath. There was, however, no vision in his left eye.

On February 3, 2020 (at day 17 after admission), he was discharged from the hospital to be treated as an outpatient by a local surgeon and a local skin and STD specialist, and referred to an ophthalmologist for making a decision on his eye treatment.

On February 10, 2020, the patient presented to the Filatov institute and complained of no vision, redness and photophobia in his left eye for the last 4 days. At the same day, he was admitted as an in-patient to the Department of Ocular Trauma and diagnosed with endophthalmitis in the left eye (Fig. 1).

The left eye looked inflamed with mixed conjunctival injection. Other objective examination findings in the left eye included a clear cornea; moderately shallow and clear anterior chamber; abnormal iris color; circular posterior synechia; rigid pupil; lens haze; anterior lens capsule vascularity; and dim reflex.

The right eye was quiescent. Other objective examination findings in the right eye included a clear and bright cornea; moderately shallow and clear anterior chamber; clear lens; pink reflex; pale pink optic disc with clear margins; and attached retina.

Patient’s visual acuity was 0.0 OS and 1.0 OD. In addition, intraocular pressure (IOP) measured by pneumotometry was 14.0 mmHg (with treatment by dorzotymol plus Brimonol 0.2% twice daily) OS, and IOP measured by palpation was normal OD.

On February 10, 2020, important ocular ultrasound findings included severe preretinal vitreous fibrosis, chorioretinal edema (suspected ciliary body and choroidal detachment), optic disc cupping and attached retina in the left eye.

On February 12, 2020, the patient underwent evisceration of the left eye. The patient’s postoperative period was unremarkable.

On February 13, 2020, there was microbiologic evidence of Escherichia coli in the anterior chamber samples.

The patient received conservative treatment, including Azithromycin, 500 mg daily; Levofloxacin, 500 mg daily; Omnic, 400 mg daily; Melbek, 15 mg i/m; Doralgit, 25 mg i/m; Dorzotymol ophthalmic solution; Brimonol ophthalmic solution 0.2%; Vigamox ophthalmic solution 0.5%; Okomystin ophthalmic solution 0.01%; Oftaquix ophthalmic solution 0.5%; Uniclophen ophthalmic solution 0.1%; and Floxal ophthalmic ointment.

A week after surgery, in the left eye, the conjunctival cavity was clear, and conjunctival sutures were clear, there was no edema, and the stump was movable in all directions. An ocular prosthesis was fitted in the orbit (Fig. 2). There was no bacterial growth in conjunctival samples.

Conclusion

We presented a rare case of disseminated gonococcal infection complicated by severe sepsis with liver abscess, suppurative tonsillitis, and suppurative blepharitis of the left eye leading to endophthalmitis, with subsequent evisceration. Gonococcal ocular lesions are associated with late presentation to the ophthalmologist, fast endophthalmitis development, and asymmetric involvement, but no corneal involvement. Consultations of allied health professionals and multiprofessional management of gonorrhea patients are required to prevent complications in various organs and systems should gonococcal sepsis develop.

References


**Table 1.** Laboratory results at various time points

<table>
<thead>
<tr>
<th>Date</th>
<th>Complete blood count</th>
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**Note:** AST, aspartate aminotransferase; ALT, alanine aminotransferase; CES, squamous epithelial cells; HPF, high power field; TES, transitional epithelial (urothelial) cells

Enterococcus, streptococcus and C. albicans were found in urethral cultures.

The authors declare no conflict of interest which could influence their opinions on the subject or the materials presented in the manuscript.

Fig. 1. Endophthalmitis in the left eye

Fig. 2. An ocular prosthesis was fitted in the left orbit