Bilateral Endogenous Candida Endophthalmitis after Induced Abortion

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Aim. Analysis of the development and treatment of bilateral Candida endophthalmitis after induced abortion in a healthy 31-year-old patient.

Method. A diagnosis of bilateral Candida endophthalmitis was established on the basis of positive vaginal culture, serological finding, and culture for Candida hyphae from the vitreous aspirate. The treatment of the disease consisted of prolonged systemic therapy with amphotericin B and fluconazole and pars plana vitrectomy with intravitreal amphotericin B injection.

Results. After the combined systemic therapy with antibiotics, fungistatics, and corticosteroids proved to be insufficient, pars plana vitrectomy with intravitreal instillation of amphotericin B was performed, which led to the improvement of visual function. After surgery, visual function was maintained with prolonged systemic therapy with fluconazole and methylprednisolone.

Conclusion. Complicated induced abortion may cause bilateral Candida endophthalmitis in a young healthy woman. Elimination of the cause of fungemia and adequate systemic treatment did not cure bilateral endophthalmitis. Pars plana vitrectomy with intravitreal instillation of 5-µg amphotericin B proved as a method of choice in treating this severe ophthalmic disease.

Key words: abortion, induced; amphotericin B; Candida albicans; endophthalmitis; vitrectomy; vitreous body; visual acuity

Infective endophthalmitis is a severe disease in which microorganisms infect all eyeball capsules and structures. The disease can result in inflammation of all eye tissues. Endogenous endophthalmitis is usually associated with a systemic disease, and develops either when the infective agent enters the eye by hematogenous spread or as a reaction to antigens (1). Candida albicans is the main cause of mycotic endophthalmitis in intravenous drug abusers, patients on intravenous therapy, immunosuppressed patients, and patients subjected to surgical treatment (2-5). Sometimes, although very rarely, endophthalmitis caused by Candida albicans appears after delivery or abortion. In the last decade, there were only few such cases described in the world (6,7). In this article, we present clinical development, diagnostic procedure, treatment, and complications related to this severe ophthalmic disease.

Case Report

A 31-year-old healthy woman with no drug abuse history underwent induced abortion because of the intrauterine death of the fetus in the 20th week of gestation. Induction was achieved by 7 ampules of carboprost administered during the abortion, which lasted 48 hours. After the abortion, curettage and the removal of the intrauterine contraceptive device were performed. The following day the patient developed fever and chills and was treated with cefuroxime (750 mg IV, 3 times daily), netilmycin (150 mg IM, twice a day), and metronidazole (400 mg orally, 3 times daily). The placenta and uterine aspirate were sent for a histopathologic and microbiological evaluation. Microbiological examinations of the extracted intrauterine contraceptive device were negative. A week after, the patient complained of poor vision and was diagnosed with bilateral uveitis at the Department of Ophthalmology. The antibiotic therapy was continued, with the additional introduction of methylprednisolone (80 mg once a day) and topical therapy consisting of cycloplegics (atropine, 1% sol., 3 times daily) and corticosteroids (neomycin-dexamethasone ophthalmic sol., 5 times daily). Amphotericin B (50 mg by IV infusion, once a day) and fluconazole (200 mg orally, twice daily) were introduced after the positive cultures for Candida albicans in uterus aspirate and Candida hyphae in the placenta were found, and high titers of antibodies to Candida albicans in serum detected (agglutination 1:2,560; indirect hemagglutination 1:5,120; ITFA 1:2,560). In spite of the therapy, the visual acuity in both eyes worsened and the patient was transferred to our Department.

On admission, the patient's visual acuity was 0.05 on the right and 0.1 on the left eye. Examination
revealed severe suppurative inflammation in the anterior chambers of both eyes (hypopyon) (Fig. 1). The vitreous body was marked by thick cellular infiltration and massive whitish conglomerates. In the hardly discernible retina, disseminated white spots with retinal hemorrhages were noticed (Fig. 2). The therapy was continued, with gradual reduction of steroids. We performed the vitreous biopsy and injected amphotericin B (5 µg per 0.1 mL) intravitreally. Fluorescence microscopy revealed numerous hyphae of Candida albicans in the sample. Microbiological culture of the sample was bacteriologically and mycologically sterile, as well as the hemoculture. The patient was also analyzed for other manifestations of fungemia, but all findings were normal. In the meantime, the patient underwent hysterectomy due to the presence of microabscess in the myometrium. There were no postoperative complications and the intraoperative finding of both adnexal regions was normal. Two weeks after hysterectomy, the patient was returned to our Department. Five weeks later, therapy with amphotericin B was terminated because of deterioration of renal and liver functions, which had been impaired by amphotericin B, normalized. Serological findings for Candida albicans also improved (agglutination 1:160, indirect hemagglutination 1:160, IF1A 1:80). Therefore, as agreed with the internist and gynecologist, the therapy was stopped. A month later, the patient presented with uveitis in the left eye, white blood cells in the aqueous humor and the vitreous, but without intraocular lesions typical for Candida albicans. We again introduced 200-mg fluconazole twice a day and 40-mg methylprednisolone orally once a day, with gradual tapering. As the visual acuity improved and inflammatory reaction disappeared, the therapy was gradually reduced and stopped 6 weeks after the relapse. Two months after surgery visual acuity was 0.3 on the right eye and 0.6 on the left. There were no inflammatory activities (Fig. 3), although posterior subcapsular cataract appeared in the left eye.

**Discussion**

Mutual endogenous endophthalmitis was recognized on time and adequate diagnostic procedures were performed. There was no response to the systemic therapy with antibiotics and corticosteroids. Positive cultures for Candida albicans led to the introduction of systemic therapy with amphotericin B and fluconazole. Although the optimal duration of the amphotericin B therapy is between 8 and 12 weeks, we had to stop the therapy after the 5th week because of the imminent renal insufficiency. Some authors reported on the efficiency of the combination of 400-mg fluconazole and intravitreal application of amphotericin B in the treatment of Candida endophthalmitis (8-10). However, in our case, this treatment proved insufficient, even when the main focus was eliminated. The most efficient treatment for endogenous Candida endophthalmitis proved to be a surgical technique – pars plana vitrectomy, which is also useful in diagnostics because it allows taking a

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**Figure 1.** Candida endophthalmitis – the appearance of the anterior segment of the eye.

**Figure 2.** Severe inflammatory reaction in the vitreous body with whitish conglomerates that obstruct the visualization of the retina.

**Figure 3.** The appearance of the eye after the operation; inflammatory exudation is not visible, and fundus is clearly visible. Posterior subcapsular cataract appeared in the left eye.
sample of the vitreous body. Vitrectomy physically eliminates the majority of causes and corrects the complications related to eye infection and inflammation. The success of the combination of vitrectomy and intravitreal application of 5-µg amphotericin B at the end of the procedure corresponds to the results of other authors (4,6,11-13).

Endogenous Candida endophthalmitis is often followed by severe complications, leaving minimal or no visual function. Visual function in our patient (the right eye: 0.3, the left eye: 0.6 vs 0.01 and 0.1, respectively) achieved after the operation reflects the efficacy of this treatment. Uveitis recidive in one eye emphasizes the importance of a prolonged therapy with fluconazole and corticosteroids. Even though corticosteroids are not advisable in treating mycotic endophthalmitis, they proved beneficial in our patient. Some other authors reported the same experience (2). We agree with Chen et al (6) that corticosteroids, especially in the early stages of the disease, can facilitate the propagation of infection. They had been introduced to the therapy when the real cause of endophthalmitis was unknown and were later gradually reduced. We believe that in the later stages of the disease they can contribute to the reduction of reactive inflammation. Experience of other authors confirms the efficacy and good intraocular penetration of fluconazole in systemic therapy of Candida endophthalmitis (9,10,14), which also proved to be the case in our patient.

References

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