Commentary: Peripartum endogenous bacterial endophthalmitis: A conundrum

In the current issue of the journal, the authors have presented a very rare case titled "Endogenous Endophthalmitis Due to *Staphylococcus aureus* in a Lactating Woman."[1] The case is quite intriguing and a rare entity which needs urgent attention and management to save sight as well as the globe.

Endogenous endophthalmitis (EE) is a very challenging condition to manage as the systemic infection along with the ocular inflammation has to be addressed promptly and properly. The patient may need extensive systemic workup to zero down the source of septicemia and then manage the infection with appropriate antimicrobials for sufficient duration. In spite of this, visual outcome can be poor.[2] In a recently published report on EE from India, the authors could not find a systemic focus of infection in 67.6% cases. The infecting organisms isolated were gram-positive bacteria in 48%, gram-negative bacteria in 37%, and fungi in 15%.[2] The most common predisposing conditions for EE include diabetes mellitus, indwelling catheters, neutropenia, immunocompromised patients, and patients receiving chemotherapeutic agents.[3,4]

In the case presented in this article, the authors diagnosed endogenous bacterial endophthalmitis (EBE) in a young woman who presented with vision loss in left eye (OS) 20 days postpartum. Ocular examination showed hypopyon uveitis, vitritis, and subretinal exudates in OS and vitreous biopsy confirmed *Staphylococcus aureus* (*S. aureus*) in culture. The source of infection was mastitis of the left breast.

Puerperal infection leading to EBE is extremely rare with very few case reports in literature. Sahu *et al.* had described a series of four cases of EE in pregnancy and postpartum period and pathogenic agent could be identified as *Bacillus mycoides* and *Klebsiella pneumoniae* in two of the cases.[5] In another report by Rahman *et al.*, *Sphingomonas paucimobilis* was identified as a cause of EBE in a young lady due to ascending genital tract infection from preterm rupture of membranes.[6] Postpartum or puerperal mastitis is an uncommon infection caused by *S. aureus* and *Streptococcus*, which harbor in the upper respiratory tract of the newborn. Nipple cracks and stagnant milk can predispose to the infection. Disseminated infection caused by methicillin resistant *S. aureus* can be fatal.[7]

The systemic evaluation for a case of EE includes careful history taking to identify any infectious foci, blood culture, and urine culture. Ocular fluid analysis from aqueous and/or vitreous sample for culture and antimicrobial sensitivity or molecular detection techniques by polymerase chain reaction are cornerstone in managing EE. In a large series of 342 cases of EE, 32% cases were misdiagnosed as noninfectious uveitis, thus delaying specific therapy.[4] Pregnancy is a special immunological state with various physiological adaptations in the maternal immune mechanism. Kump *et al.* noted that pregnant women had a statistically significant lower relapse rate of noninfectious or autoimmune uveitis during pregnancy compared to the control group.[8] The most frequent noninfectious uveitic entities noted in pregnancy were Vogt–Koyanagi–Harada disease, Behcets' disease, and idiopathic uveitis.[9] The relative immune-suppressed state in pregnancy may be the reason for aggressive nature of infectious uveitis during pregnancy and immediate postpartum period.[8]

The next major concern is regarding the choice of antimicrobial agent to treat EE in pregnant or nursing mothers without causing damage to the fetus or newborn child.[5] Penicillins, cephalosporins, and erythromycin are the safest option in pregnancy and lactation. Tetracyclines, cotrimoxazole, and chloramphenicol should be absolutely avoided in pregnancy. Aminoglycosides, fluoroquinolones, newer macrolides, metronidazole, rifampicin, and vancomycin are best avoided, but in absence of safer alternative can be considered.[5] As rightly pointed out in the present article, fluoroquinolones can cause cartilage defects in the newborn. Amongst the antifungal agents, amphotericin B was found to be safe and voriconazole with the risk of fetal malformation should be completely avoided.[5] An interdisciplinary approach involving infectious disease specialist or an internist would be the best strategy in managing such patients with an identifiable systemic infection as the cause of EE.

To conclude, this case carries a significant message for ophthalmic practitioners to consider the possibility of endogenous infection causing endophthalmitis during peripartum period. The authors have also considered the risk-benefit concerns of appropriate antimicrobial therapy in management, where safety of both the mother and the neonate has to be ensured.

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References

1. Singh SR, Bhattacharyya A, Dogra MR, Singh R, Dogra M. Endogenous endophthalmitis due to Staphylococcus aureus in a lactating woman. Indian J Ophthalmol 2020;68:2595-7.
2. Okada AA, Johnson RP, Liles WC, D'Amico DJ, Baker AS. Endogenous bacterial endophthalmitis. Report of a ten-year retrospective study. Ophthalmology 1994;101:832-8.
3. Dave VP, Pathengay A, Panchal B, Jindal A, Datta A, Sharma S, *et al.* Clinical presentations, microbiology and management outcomes of culture-proven endogenous endophthalmitis in India. Indian J Ophthalmol 2020;68:834-9.
4. Jackson TL, Paraskevopoulos T, Georgalas I. Systematic review of 342 cases of endogenous bacterial endophthalmitis. Surv Ophthalmol 2014;59:627-35.
5. Sahu C, Kumar K, Sinha MK, Venkata A, Majji AB, Jalali S. Review of endogenous endophthalmitis during pregnancy including case series. Int Ophthalmol 2013;33:611-8.
6. Rahman W, Hanson R, Westcott M. A rare case of peripartum endogenous bacterial endophthalmitis. Int Ophthalmol 2011;31:113-5.
7. Yu JH, Kim MJ, Cho H, Liu HJ, Han SJ, Ahn TG. Breast diseases during pregnancy and lactation. Obstet Gynecol Sci 2013;56:143-59.
8. Kump LI, Cervantes-Castañeda RA, Androudi SN, Foster CS, Christen WG. Patterns of exacerbations of chronic non-infectious uveitis in pregnancy and puerperium. Ocul Immunol Inflamm 2006;14:99-104.
9. Rabiah PK, Vitale AT. Noninfectious uveitis and pregnancy. Am J Ophthalmol 2003;136:91-8.

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