Introduction
Most cases of bacterial endophthalmitis are exogenous that is occurring after a trauma or surgery. Endogenous endophthalmitis which is resulting from hematogenous spread of an infection, is much less common. Examples of typical sources of infection include endocarditis, complicated urinary tract infections, line-related infections and liver abscesses. Numerous organisms have been implicated with S. aureus and Streptococcus spp. being among the most common. Klebsiella pneumoniae is gram-negative, encapsulated aerobic bacteria that have recently emerged as a leading cause of pyogenic liver abscesses in Asia. And Klebsiella pneumoniae liver abscesses are associated with a 3-11% incidence of endogenous endophthalmitis. Klebsiella endogenous endophthalmitis is associated with the poorest outcomes and high rates of evisceration or enucleation. Risk factors for endogenous endophthalmitis caused by Klebsiella pneumoniae include liver abscesses, systemic immunocompromised, and diabetes mellitus. Diabetes mellitus is also a poor visual prognostic factor in patients with ocular involvement. 1

Background
A branch retinal artery occlusion (BRAO) by a septic embolus in bacterial endogenous endophthalmitis has not been previously reported. The authors present the first case of a patient with bilateral simultaneous BRAO by evident septic emboli as a complication of nephrogenic Klebsiella endophthalmitis.

Case Presentation
A 50 year-old Asian female with a history of type 2 diabetes mellitus transferred to a tertiary care facility for managing Klebsiella bacteremia with multiple abscesses in her left eye (Figure 1).

As she complained of painless blurred vision, ophthalmologic service was consulted. Her visual acuity was 20/20 in the right eye and 20/100 in the left eye. Slit lamp examination revealed moderate inflammations in both anterior chambers, but hypopyon was absent. Obliterative peripheratitis surrounding with multiple retinal hemorrhages were appeared in the inferotemporal artery in her right eye (Figure 2A and 2C). And localized severe vitritis with hemorrhage was observed in superotemporal area and the posterior pole in her left eye (Figure 2B and 2D).

Fluorescence angiogram showed a sectoral pattern of nonperfused area due to inferotemporal BRAO in her right eye. And a round-shaped hyperfluorescent infiltration was also detected at the first bifurcation site of inferotemporal major vascular arcade, and presumed a septic embolus (Figure 3A). In her left eye, diffuse vascular staining and blocked fluorescence by vitritis were observed (Figure 3B).

Discussion and conclusion
While endogenous Klebsiella endophthalmitis with pyogenic liver abscess has mostly been reported, ocular metastasis from renal infection has rarely occurred.1 Furthermore, a branch retinal artery occlusion by septic emboli in bacterial endogenous endophthalmitis not previously reported. A single case of bilateral central retinal artery occlusion in hepatic Klebsiella endophthalmitis was reported, and the author presumed that the pathogenesis was a localized vasospasm in devastating BRAO.2 On the other hand, this case exhibited angiographically proven septic emboli in both eyes, and showed relatively favorable systemic and ophthalmic prognosis analogously to BRAO.

In conclusion, we have presented the first case of bilateral simultaneous BRAO with septic emboli as a complication of Klebsiella endophthalmitis. This report suggests that the occurrence of retinal arterial occlusion should be considered in endogenous Klebsiella endophthalmitis, since this complication would affect treating disease and predicting prognosis.

Outcome and follow-up
Her final visual acuity was 20/20 in the right eye and 20/160 in the left eye due to macular ischemia. Area of nonperfusion in both eyes were treated with scatter laser photoagulations.

References

Bilateral Branch Retinal Artery Occlusion in Klebsiella Endogenous Endophthalmitis
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