

Fungal Endophthalmitis: a real problem in Asia

R. Wahyuningsih

Department of Parasitology

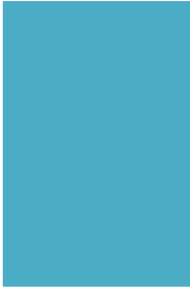
Universitas Indonesia

Universitas Kristen Indonesia,

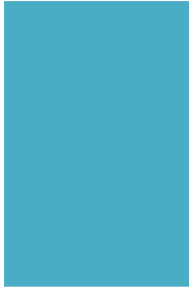
Jakarta, Indonesia

Introduction

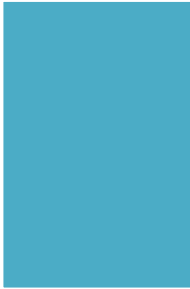
Rare, but sight threatening



Endophthalmitis: inflammation of intraocular cavities, mostly caused by micro-organisms



non-infectious may be associated with toxic agents



endogenous (hematology spread) & exogenous (trauma/surgery)

Table 1. Common microorganisms in postoperative endophthalmitis

Prevalence (%)*	Bacterial species
33 - 77%	CNS (coagulase-negative staphylococci)
10 - 21%	Staphylococcus aureus
9 - 19%	BHS (β -haemolytic streptococci), <i>S. pneumoniae</i> , α -haemolytic streptococci including <i>S. mitis</i> and <i>S. salivarius</i>
6 - 22%	Gram-negative bacteria including <i>Ps. aeruginosa</i>
up to 8%	Fungi (<i>Candida</i> sp., <i>Aspergillus</i> sp., <i>Fusarium</i> sp.)

* Commonly cited prevalence may vary with geographic regions

Endogenous *Candida* endophthalmitis (ECE)

- Severely ill patient with invasive *Candida* infection, which can spread to the retina (eye), ultimately causes endophthalmitis
- difficult to diagnoses/asses since most of the patient is severely ill or moribund
- Retinal symptoms, retinal detachment, scarring, loss of sight

Exogenous endophthalmitis

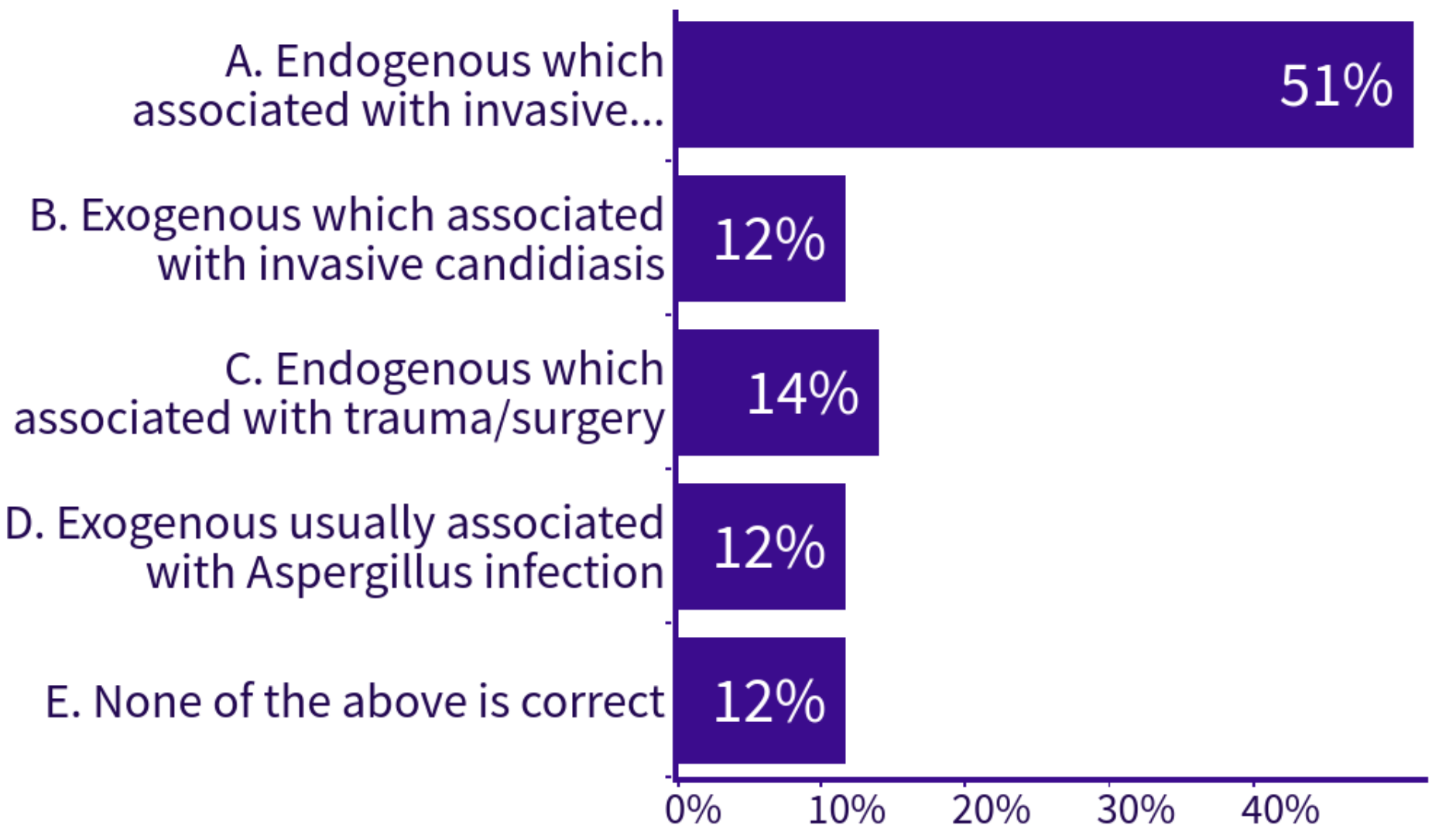
- Rarely immunocompromised
- Post trauma/surgery that introduce the fungus to the eye
- Post surgical: *Candida* spp.
- Post trauma/post keratitis: mold, e.g. *Fusarium*, *Aspergillus*, *Paecilomyces*, etc

Question: Endophthalmitis consists of: (select all that apply)

- A. Endogenous which associated with invasive candidiasis
- B. Exogenous which associated with invasive candidiasis
- C. Endogenous which associated with trauma/surgery
- D. Exogenous usually associated with *Aspergillus* infection
- E. None of the above is correct

Endophthalmitis is consisting of... (select all that apply)

i Poll is full and no longer accepting responses



Total Results: 43

Endophthalmitis in Asia

- **India reported cases related with:**
 - cataract surgery (Narang et al. Am J Ophthalmol 2001)
 - Intra venous administration of contaminated dextrose (Gupta et al. Retina 2000)
 - 2756 cases; 4.1%, causes consisting of various mould & yeast (Chakrabarti et al. Retina 2008)
 - *C. truncatum* as the cause of keratitis & endophthalmitis (Shivaprakash et al. , JCM 2011)
- **Thailand:**
 - 6.6% out of 420 cases - *C. albicans*, *F. solani*, *Aspergillus*, *Curvularia* (Bhoomibunchoo et al. Clin ophthalmol 2013)

Endophthalmitis in Asia

- **Japan:**

- 12 years; 46 patients, *C. albicans* (Tanaka et al Retina 2001)
- 34 patients - endogenous *C. albicans* endophthalmitis (Sato et al Jpn J Ophthalmol 2001)
- A case caused by *P. boydii* (Acta Ophthalmol 2009)

- **China:**

- A case caused by *P. verucosa* (Sun et al. Med Mycol '10)

- **Vietnam:**

- exogenous endophthalmitis 16% (Tran et al. Klin Monbl Augenheilkd '03)

Endophthalmitis in Asia

- **Singapore:**
 - Case of *C. parapsilosis* endophthalmitis after endothelial keratoplasty (Chew et al. Cornea 2010)
- **Malaysia:**
 - A case of fusariosis in a leukemia child after platelet transfusion (Kah et al. BMC Ophthalmol 2011)

Endophthalmitis in Asia

- **Indonesia:**

- A case of *Aspergillus* endophthalmitis in a women with SLE who uses steroid regularly (Setyohadi et al. 2010)
- A case of mucor- endophthalmitis in a girl with renal tubular acidosis (Irawan et al 2016)
- Cipto Mangunkusumo hospital: 121 cases & 6 cases are caused by fungi (Susiyanti M 2016)
 - 1 case is caused by *C. tropicalis*
 - 3 cases by *Aspergillus* spp.
 - 1 case by *Paecilomyces*
 - 1 case *Mycellia sterillia*
 - Associated with post cataract surgery

Endophthalmitis in Asia

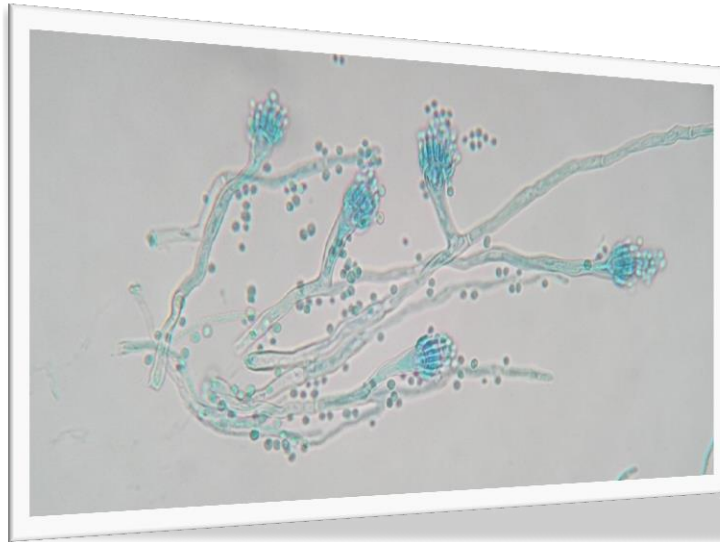
- Prevalence of endogenous candida endophthalmitis in patients with candidemia is 28 & 45%.
- In Asia, where the prevalence of candidemia is high the possibility of endogenous *Candida* endophthalmitis is also high
- Exogenous endophthalmitis, is associated with medical procedure such as surgery of the eye

Take-home question

The data on endophthalmitis in Asia is rare. To provide the data, what improvement would you like to implement in your hospital/laboratory?

Conclusion

- Endophthalmitis is a sight threatening disease, considered as rare
- Hidden problems associated with systemic fungal infection in Asia & the reality of the limited supply of health care
- Modern medical procedures (e.g. surgery) can be risk factors
- In area with high prevalence of candidemia, endophthalmitis must be considered



THANK YOU FOR LISTENING