ACUTE ENDOPHTHALMITIS FOLLOWING INTRAVITREAL INJECTION OF ANTI-VEGFS AT KBTH: A REPORT OF TWO CASES

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INTRODUCTION

- The use of anti-VEGFs for diabetic macular oedema and other posterior segment diseases has markedly increased the frequency of intravitreal (IVT) inj
- With this comes the rare but dreaded complication of endophthalmitis which can lead to profound visual loss

INTRODUCTION

- Patient A had IVT inj of bevacizumab (avastin) for vitreous haemorrhage
- Patient B received ZIV-Aflibercept inj for peripapillary choroidal neovasular membrane (PPCNVM)to R/O idiopathic polypoidal choroidal vasculopathy (IPCV)

CASE REPORT

- Hospital records of two cases were reviewed
- IVT inj are given under sterile/aseptic conditions
- However, apart from sterile gloves, drapes and trolley covers,eyelid speculum, no sterile gowns, or face masks are worn.
- Povidone-iodine is used; 10% to skin and 5% into conj sac.

PATIENT A

- A 78yo known glaucoma patient
- He presented on 14th of Oct. 2016 with dense cataract with vitreous haemorrhage in RE and ant. staphyloma in LE
- Had LE evisceration and later RE C/E plus PPV improving vision from HM to 6/36
- Later developed recurrent vit. Haemorrhage and hyphaema and vision reverted to HM
- Received IVT inj. Of bevacizumab 16 days later.

PATIENT A

- Five days later, had pain and redness.
- Eye was injected, cornea striae, hypopyon and fibrin over PCIOL, and poor view of the fundus, partly due to hyphaema and vit haemorrhage

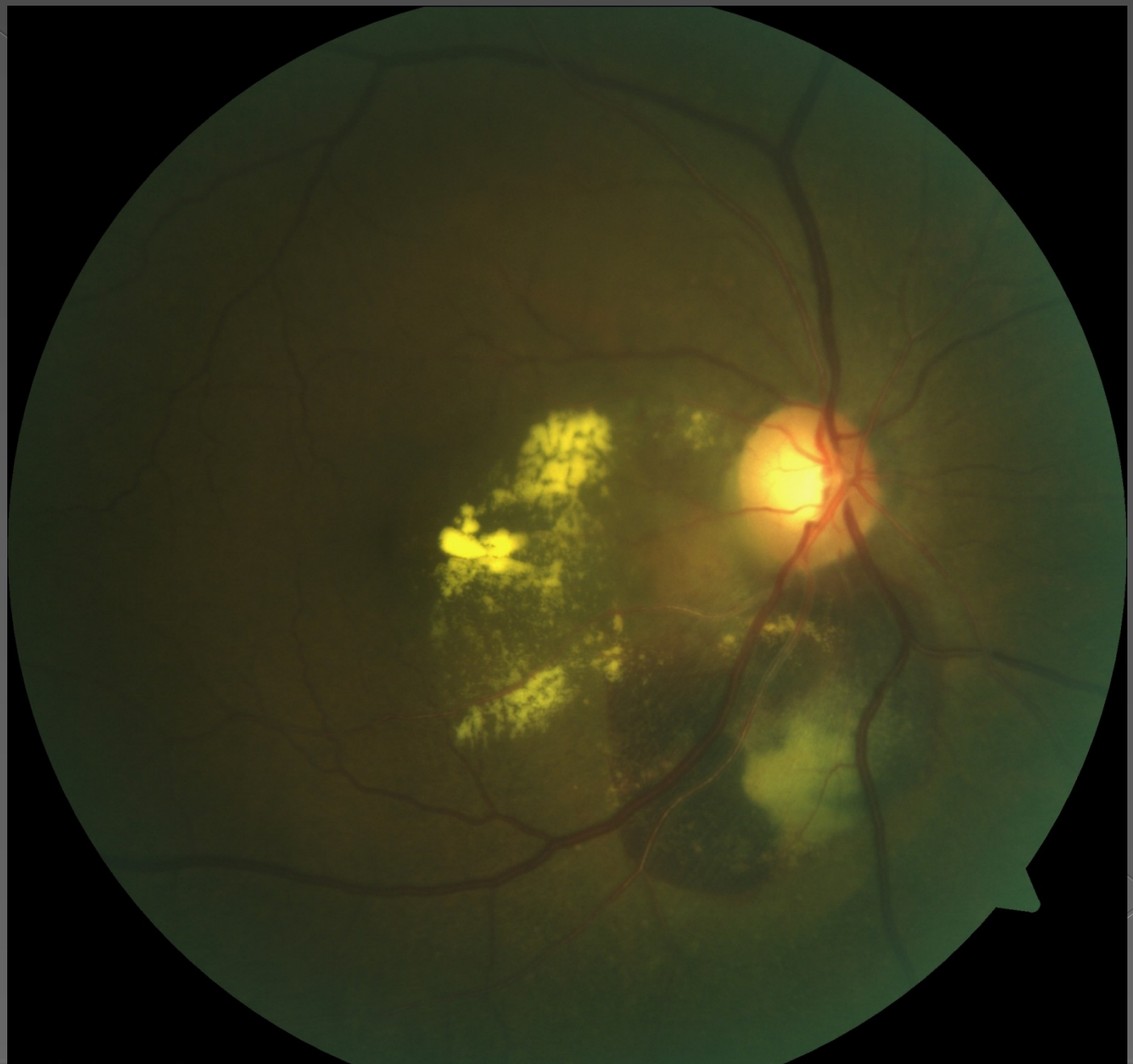
Patient B

- A 77yo man presenting on 22nd of February, 2017 with RE metamorphopsia
- Diagnosed as peripapillary choroidal neovascular membrane (PPCNVM)
- Received four consecutive monthly IVT inj. Of ZIV-Aflibercept (Zaltrap)in his RE
- Presented three days after the 4th inj, with severe pain and sudden loss of vision

PATIENT B

- Lids were swollen, conj. Injected, 0.5mm hypopyon and fibrinoid membrane over the iris and pupil

Fundus photo of patient B - PPCNVM

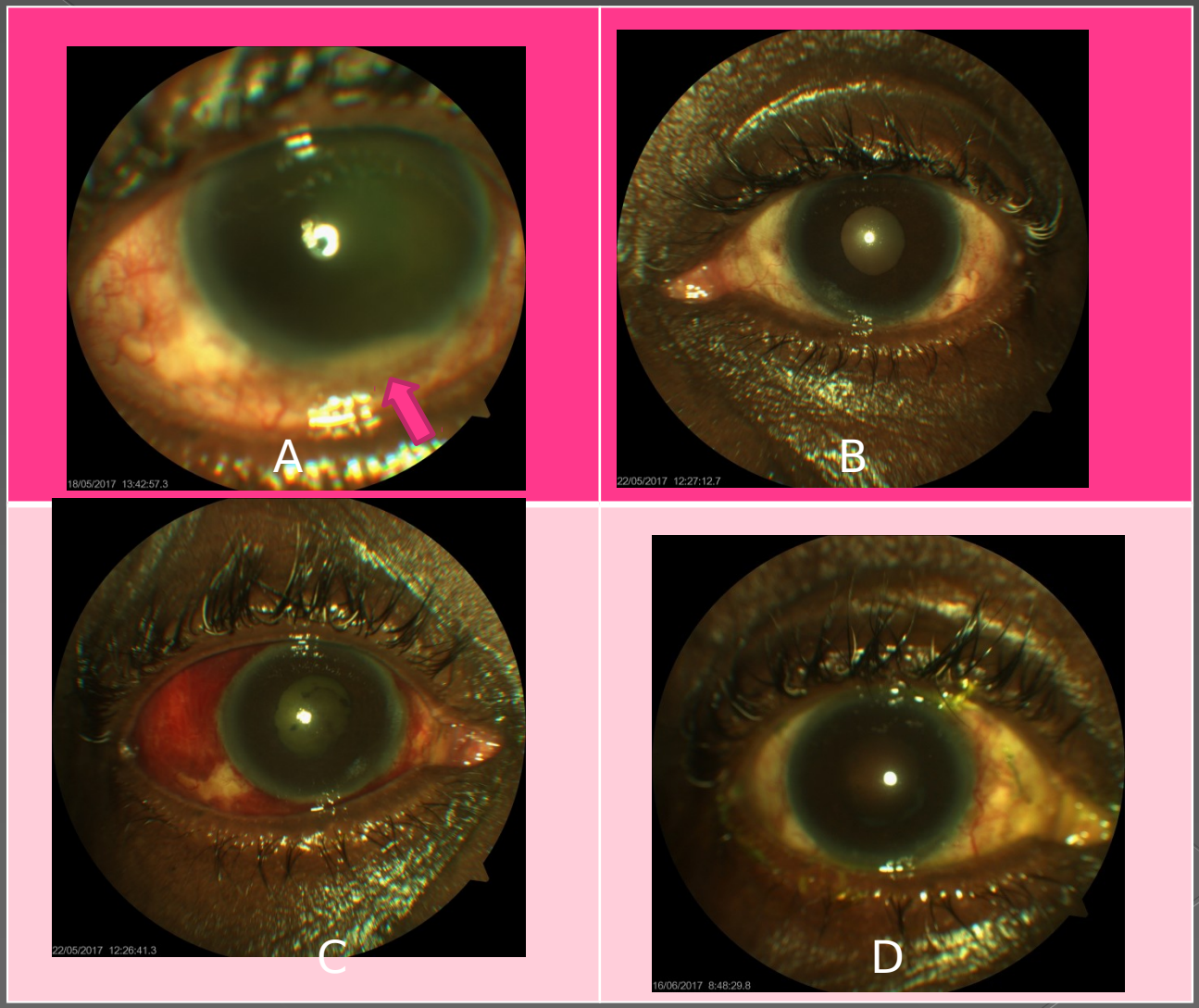


FFA for Patient B

CASE REPORT

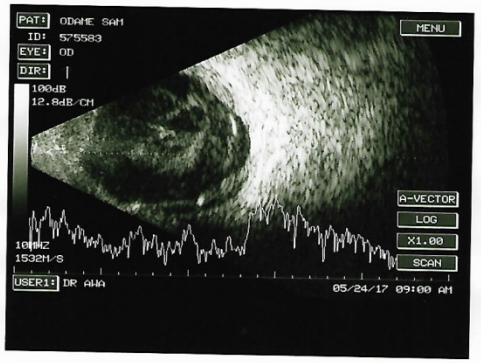
- Both patients had vitreous tap and IVT inj. Of vancomycin 1mg/0.1ml and ceftazidime 2.25mg/0.1ml.
- In addition, patient B had IVT inj of dexamethasone 0.4mg/0.1ml
- Topical medications were also given as per table 2.

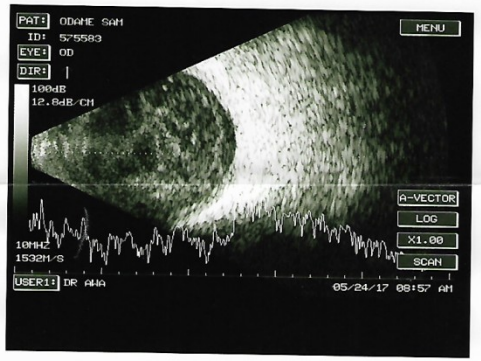
Progress of the eye of patient B

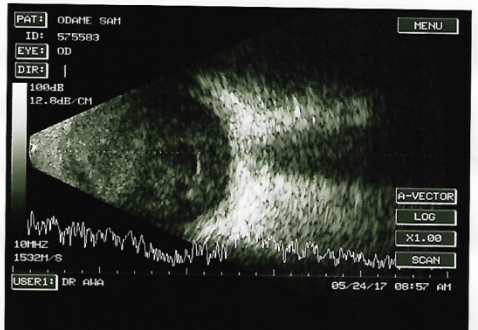


B-Scan of the eye of patient B showing severe vitritis

- B-Scan of the RE of patient B showed dense vitritis



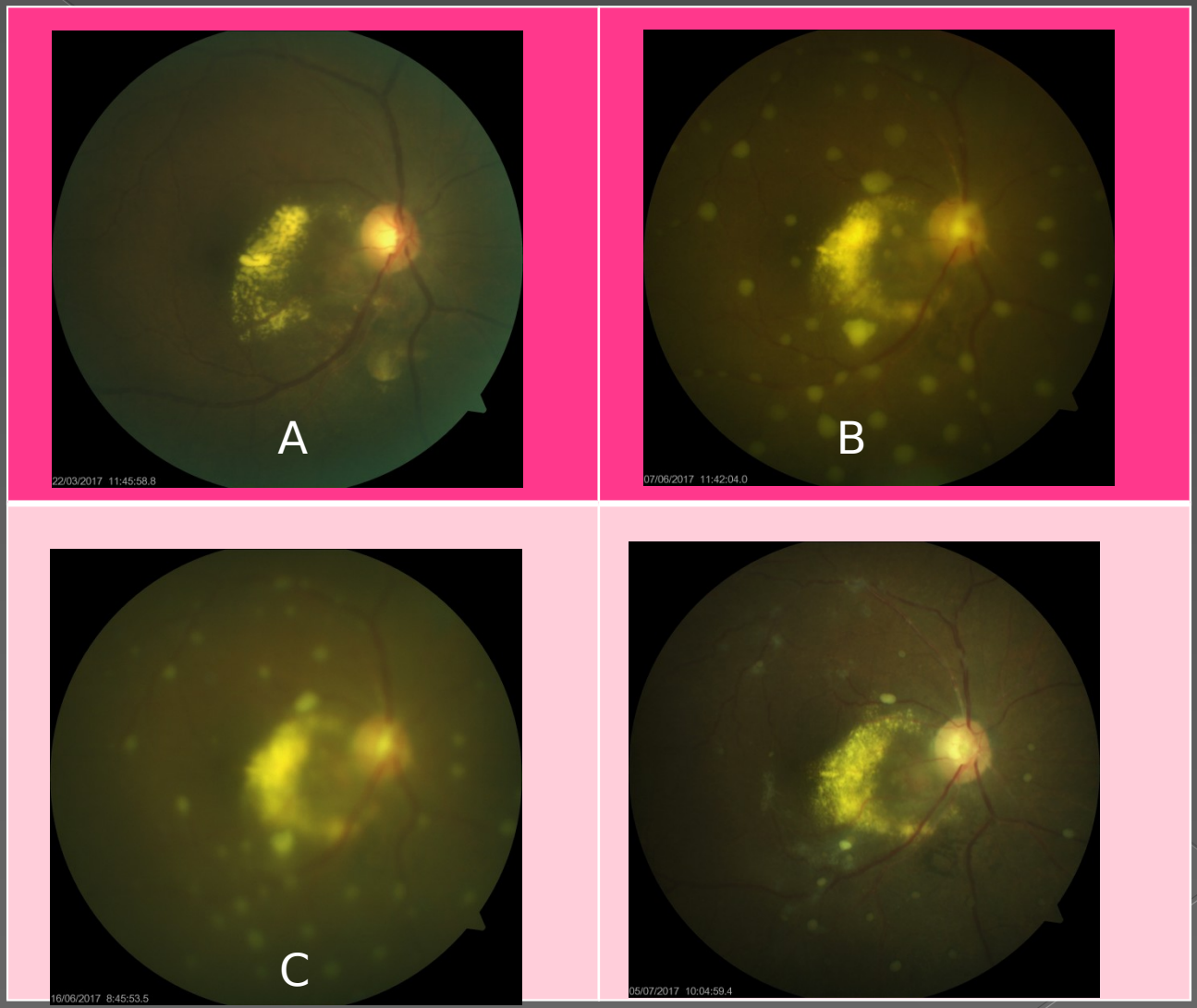




CASE REPORT

- Culture results were positive for K. pneumoniae and Staph epidermidis for patients A and B respectively.
- However, fundus photos for patient B showed round exudates suggestive of a fungal component
- Hence PPV and lensectomy was done for patient B followed by IVT inj of voriconazole 100mcg/ml plus oral fluconazole 200mg dly

Progress of the fundus of patient B



Post-treatment fundus photo for patient A

DISCUSSION

- Aflibercept is a recombinant fusion protein which acts as a decoy receptor for VEGF-A & B
- Bevacizumab is recombinant monoclonal antibody that binds to VEGF-A. It is used off-label for neovasular AMD and several other posterior segment conditions

DISCUSSION

- Rates of endophthalmitis ff IVT inj of anti-VEGFs ranges from 1/1,300-1/10,000 implying that this procedure is generally very safe
- However, there still remains the rare but dreaded risk of endophthalmitis. This risk increases with multiple inj (> 1% after 2 years of consecutive injs)
- Patient B got endopthalmitis after the 4th inj

DISCUSSION

- The most common source of infection is from the patient’s own flora; the isolation of Staph epidermidis is consistent with this.
- But oropharyngeal flora from the attending team has also been recognized. K. pneumoniae isolated in patient A can come from the respiratory tract.

DISCUSSION

- In one meta-analysis, streptococcal isolates were 3x more common ff IVT inj than after intraocular surgery

DISCUSSION

- Strategies to reduce the risk of endophthalmitis include
  - Use of a standardized protocol
  - Pre-procedural use of povidone-iodine
  - Use of face mask
  - Use of an operating theatre/dedicated setting
  - Use of lid speculum (debatable)
- Use of peri-operative antibiotics has not shown any benefit but rather encourages bacterial resistance

Table 1

Patient	Indications	IVT Inj. Of anti-VEGF	No. of IVT Inj	Days to present	Culture	PPV	Preinjection VA	VA after initial RX	VA at presentation of endoph	Final VA	Follow-Up period
A	Vitreous haemorrhage	Bevacizumab (Avastin)	1	5	K. peumoniae	PPV	HM	6/36	PL	CF@3M	7 months
B	Peripapillary choroidal neovascular membrane	ZIV-Aflibercept (Zaltrap) 0.07ml	4	3	Staph. epidermidis	PPV and lensectomy	6/12 (LogMAR 0.3)	6/9(LogMAR 0.18)	HM	6/60 +9DS	4 months

Table 2

Patient	1st IVT Injections	2nd IVT Injection	Topical Medications before endophthalmitis	Topical medications after endophthalmitis	Oral Medications
A	Vancomycin 1mg/0.1ml Ceftazidime 2.25mg/0.1ml Dexamethasone 0.4mg/0.1ml	None	Bimatoprost 0.3mg/ml (Lumigan) nocte OD Combigan (brimonidine + Timolol) BD OD Gtt Econopred plus BD OD Gtt Refresh liquidgel x6/day OD Gtt Pred forte QID OD Gtt Atropine 1% BD OD Gtt Ciloxan 0.3% QID OD	Gtt Pred forte 1hourly OD Gtt Cilaxan 1hourly OD Gtt Atropine bd OD Gtt Ceftazidime 2hourly Gtt Combigan bd OD Refresh Tears qid OD Gt Xalatan daily OD Gtt Azopt tid OD	
B	Vancomycin 1mg/0.1ml Ceftazidime 2.25mg/0.1ml Dexamethasone 0.4mg/0.1ml	Vancomycin 1mg/0.1ml Voriconazole 100mcg/0.1ml	Oc (Oxypol) x QID OD Gtt (Vigamox) x QID OD Gtt (Pred forte) x QID OD Gtt Cyclopentolate 1% bd OD Gtt (Alphagan) TID OU Gtt Refresh Tears Gtt (Duotrav)		Tabs fluconazole 200mg dly Tabs levofloxacin 500mg dly Tabs prednisolone 30mg BD

CONCLUSION

- The final visual outcome of these two patients was poor.
- Patient A had VA of CF3M while patient B had BCVA of 6/60 in the affected eye .
- Endophthalmitis following an IVT inj of anti-VEGFs though rare, is an ever dreadful risk as it can cause profound visual loss regardless of prompt and aggressive treatment

REFERENCES

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THANK YOU