

# **Effect of retrobulbar Deoxycholate Amphotericin – B in post covid Rhinoorbital mucormycosis**

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I have no financial benefit in this study



# Introduction

- Mucormycosis is caused by mucorales is life threatening fungal infection caused by inhalation of fungal spores .It commonly affects immunocompromised patients.
- In covid- 19, rhino orbito cerebral mucormycosis (ROCM) is usually seen in patients with uncontrolled diabetes mellitus, indiscriminate usage of steroids , neutropenia, patients on oxygen therapy and prolonged hospital stay during covid.
- The angio-invasive nature of this fungus causes thrombosis, tissue necrosis, and there by minimizing the local availability of systemic antifungals.
- To combat this and to save the eye , retrobulbar injection with Deoxycholate Amphotericin – B can be considered to avoid exenteration.



# AIM

- To consider retrobulbar injection with Deoxycholate Amphotericin – B in treatment of rhino orbital mucormycosis.



# MATERIALS AND METHODS

- This case series comprises of 5 Cases of post covid rhino orbital mucormycosis out of which 3 are males 2 are females.
- Endoscopic sinus surgery and orbital decompression had already been done in these cases in conjunction with systemic antifungals.
- But these presented with persisting ocular problems like proptosis, ptosis, conjunctival congestion, chemosis, decreased vision, restriction of ocular movements.
- To avoid further progression we tried retrobulbar injection of Deoxycholate Amphotericin – B to save eye.



# Procedure

- Informed consent was taken from all the patients.
- A detailed case history was recorded regarding the duration and progression of symptoms.
- A detailed history of covid- 19 infection was taken and a detailed ophthalmic examination was done
- Under aseptic conditions 5 doses of 1ml of Retrobulbar injection of Deoxycholate Amphotericin – B was given on alternative days ( 3.5mg/1ml of Deoxycholate Amphotericin – B ).





Case-no	Diabetes mellitus	H/O steroid usage	H/O oxygen therapy
Case 1	+ since 12years	yes	Yes
Case 2	+ Denovo	yes	Yes
Case 3	+ Denovo	Yes	Yes
Case 4	+ since 10years	Yes	Yes
Case 5	+ Denovo	yes	Yes





Case-no	Visual Acuity (Affected Eye)	EOM	Proptosis	Ptosis	Conjunctival Congestion	Chemosis	pupil	Fundus	Stage
Case 1	RE: PL+	RE: restriction of all movements	22mm	+	+	-	Mid dilated Fixed	Pale disc	Stage 3c
Case 2	LE: CF 2mt	LE: Restriction of all movements	24mm	+	+	+	Mid dilated Fixed	Hazy media due to exposure keratopathy	Stage 3c
Case 3	LE: CF CF	LE: Restriction of all movements	-	+	+	-	Normal size Sluggishly reacting	Hazy media due to cataract	Stage 3b
Case 4	LE: HM+	LE: Restriction of all movements	-	+	+	-	Normal size Sluggishly reacting	Hazy media due to cataract	Stage 3b
Case 5	LE: PL+	LE: Restriction of all movements	23mm	+	+	+	Mid dilated Fixed	Pale disc	Stage 3c



# Observations and Results

- Out of 5 cases , improvement of vision was seen in 1 case (CF 2mt to 6/60).
- Amount of proptosis , ptosis , conjunctival congestion ,Chemosis and extra ocular movements improved in 3 cases, in 1 case there was no improvement but no further progression of disease was found.



Case-no	Visual Acuity (Affected Eye)	EOM	Proptosis	Ptosis	Conjunctival Congestion	Chemosis	pupil
Case 1	RE: PL+	RE: mild Restriction of all movements	19mm	↓	↓	-	Mid dilated Fixed
Case 2	LE: 6/60	LE: mild Restriction of all movements	20mm	↓	↓	↓	Mid dilated Fixed
Case 3	LE: CF CF	LE: mild Restriction of all movements	-	↓	↓	-	Normal size Sluggishly reacting
Case 4	LE: HM+	LE: Restriction of all movements	-	+	+	-	Normal size Sluggishly reacting
Case 5	LE: PL+	LE: mild Restriction of all movements	18mm	↓	↓	↓	Mid dilated Fixed



# case 1



Before treatment



MRI showing proptosis in Right eye



MRI with PNS showing filling of right sinuses and right orbit with soft tissue



After treatment



## case 2

Before treatment



After treatment



# Discussion

- Mucormycosis is a potentially life-threatening condition and leads to many complications
- Challenges in treating ROCM is due to its underlying pathogenesis in which endothelial cell damage leads to vascular thrombosis decreasing the efficacy of systemic antifungals.
- In extensive orbital involvement of ROCM exenteration is done which leads to blindness, cosmetic disfigurement and psychosocial trauma.
- Other alternative treatment modalities like retrobulbar injection can be tried to avoid such complications in mild to moderate cases of ROCM
- Retrobulbar amphotericin B injection may cause complications like post-injection inflammation mediated by increased cytokine expression and increased edema with development of an orbital compartment syndrome.



In article published by Hirabayashi et al. in Ophthalmic Plast Reconstr Surg successful use of retrobulbar amphotericin B deoxycholate in ROCM was given

In article published by Mrityika Sen, Santosh G Honavar, Rolika Bansal et al. in Indian J Ophthalmol described about staging and management of ROCM.



# Conclusions

- ROCM is best managed by a multidisciplinary approach.
- Immediate initiation of intravenous anti-fungals, reversing the patient's immunocompromised state, and endoscopic surgical debridement are the basis of treatment.
- In stage 3 of ROCM, retrobulbar amphotericin B treatment should be considered as an option prior to exenteration.
- However retrobulbar injection carries its own risks, it can be considered as a therapeutic alternative to conventional therapy as it allows for orbit and globe preservation.





# Take home message

- We should improve awareness in patients regarding ROCM.
- Explain about symptoms of ROCM and ask them to seek medical attention immediately.
- We should have high suspicion of ROCM.
- Immediate initiation of treatment is necessary.
- Multidisciplinary approach is the key for successful outcome.
- However with all our efforts we can save only 50% of patients because of aggressive nature of disease.



# References

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- THANK YOU

