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Ophthalmology and Allied Sciences

Volume 7 Number 2
May– September 2021

Contents

Original Article

Ophthalmology and Allied Sciences
Volume 7 Number 2 / May–September 2021
DOI: http://dx.doi.org/10.21088/oas.2454.7816.7221.1

Ocular Surface Tear Film Abnormalitie Following Small Incision Cataract Surgery

Anupama Raju Taklikar[1], Megha R Triwadi[2], Prasanth R Kamatham[3]

Abstract

Aim: To know the influence of small incision cataract surgery on tearfilm by measuring dryness symptoms using ocular surface disease index (OSDI) score and quantify changes in tear film using tear meniscus height,schirmers test 1, TBUT, Fluorescein staining , impression cytology.

Material and method: A prospective descriptive study was conducted among 180 patient undergoing small incision cataract surgery in department of ophthalmology, NMCH Raichur.

Results : Out of 180 patient, The mean age group was 56.87±9.50 years.Mean value of pre- operative vspost operative 1st,3rd,6th week for OSDI was11.274,21.932, 18.880,15.376 respectively. schirmers 1 test showed mean21.755,12.322, 15.738,17.016. TBUT values were 12.689,7.922,8.400,9.961 respectively . Tear meniscus height mean score were 0.301, 0.215, 0.161,0.212 respectively.mean value of impression cytology showed 732.05±232.46 and 356.36±107.16 cells / mm2.. . Oxford scheme grading showed grade 1 in pre operative period and grade 1 ,2 ,1 in post operative followup for 1st, 3rd, 6th week respectively.

Conclusion : A significant number of patient with no dryness symptom before cataract surgery developed tear film abnormalities in immediatepost operative periodstudies with longer time period are recommended to assess time taken for tear film to recover to pre operative state. In addition to this patient also needed to be started on lubricating drops intensively prior to surgery for patient comfort post operatively.

Keywords: Small incision cataract surgery; Tear film; OSDI score; Schirmers test; TBUT.

How to cite this article:
Anupama Raju Taklikar, Megha Ramesh Triwadi, Prashanth .R. Kamatham/Ocular Surface Tear Film Abnormalitie Following Small Incision Cataract Surgery;2021;7(2):11-15.

Introduction

Cataract is leading cause of blindness in world at same time cataract surgery is most successful surgery in field of ophthalmology however after cataract surgery many patient complaints of foreign body sensation, irritation, redness, blurring of vision which is considered as unwanted effect of surgery.[1]

An ocular surface tearfilm abnormality is frequently encountered ocular problem in tropical climate which mainly occurs when there is inadequate tear volume or function[2]

A dry eye produces discomfort and reduces vision when tear film becomes chronically unstable and repeatedly breaks up into dry eye spot between the blink exposing corneal and epithelial pre film to evaporate. Affected patient may experience red and watery eye along with constant foreign body sensation some studies have reported aggravation in dry eye symptom and signs after cataract surgery.[4]

Dry eye can develop or deteriorate after cataract surgery if not treated on time misuse of eye drops is one of the major pathognomonic factor. Indiscriminate use of topical antibiotic causes histological and ultrastructural changes in conjunctiva leading to decreased TBUT time and and dry eye state.[5] Small incision and other limbal

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relaxing incision causes local damage by dissection of circumcorneal network of nerve fibers which results in corneal hyposensitivity which results in reduced reflex secretion and epithelial wound healing , this along with prolong exposure of intraoperative microscopic light can worsen the symptom.

Method

A study was conducted on 180 patient who were to undergo cataract surgery in NavodayaMedical College, Raichur. The study included cases who came to ophthalmology outpatient department of ophthalmology with complaints of diminished vision due to cataract from January 2017 to June 2018. Patients who have signed on written and informed consent in their understandable language, patient receiving same brand of ofloxacin and dexamethasone eye drop after surgery were included in study. Patient were informed about the purpose of study they are undergoing. Patients with ocular disease like dry eye, complicated cataract, glaucoma, uveitis disorder of eyelid or nasolacrimal duct pathway, pterygium were excluded. Patients with previous ocular surgery, smoking history, any intra operative complication during surgery, insertion of anterior chamber IOL were excluded from the study.

All the patient who walked in OPD and were advised cataract surgery underwent detailed ocular examination which included Visual acuity with pinhole and refractive error correction using snellens chart, Slit lamp examination and applanation tonometry, Lacrimal syringing, Fundus evaluation, Keratometry, scan biometry with IOL calculation, General physical and systemic examination and Investigation like RBS , blood routine, ECG. Special test for dry eye included OSDI Score, TBUT, schirmers 1 test without anesthesia including oxford scheme, tear meniscus height, impression cytology, corneal sensation were evaluated

Pre operative preparation of eyes included dilation of pupil with topicamide 0.8% plus phenylephrine 5% eye drop every 10 min for 2 hours before surgery. Peribulbar block was given with 0.5% bupivacaine and 2% lignocaine. Manual small incision cataract surgery was performed with superior self sealing scleral corneal tunnel incision of 6.5 mm size. A side port of size 1 mm was performed at 3 or 9 'o clock. All patient underwent PCIOL implantation the range of each surgery was 10-20 minutes. After surgery all patients used topical moxifloxacin 0.5% and dexamethasone 0.1%. 6 times a day tapering over period of 6 weeks.

Presence of tear film abnormalities on day before surgery was assessed using OSDI questionnaire. A 12 item questionnaire was used world wide to assess symptom of dry eye. We modified the questionnaire 4 and 5 which assess the presence of blurred and poor vision.

Total OSDI score was calculated using the formula:

$$\text{OSDI Score} = \frac{\text{Sum of all answered questions}}{\text{Total no. of answered question}}$$

OSDI ranges from 0 to 100. Score above 25 indicated dry eye symptoms. After completion of questionnaire tear film stability n functional test were performed which included:

TBUT:

- After staining the ocular surface with fluorescein sodium 1 % impregnate strips moistened with saline.
- Time between last blink and appearance of first dry spot was calculated.
- Three TBUT score were analyzed to determine presence of dry eye.
- An average score of 10 sec was considered as normal.TBUT shorter than 10 sec was considered as dry eye.

Conjunctival and corneal staining:

- Conjunctival and corneal staining was graded using oxford scheme.
- 0 to 1 grade indicated normal eye.
- 2 to 5 grade indicated dry eye.

Tear meniscus height:

- The Tear lake that accumulates at junction of bulbar conjunctiva and lower lid margin was measured using measuring scale in the reticule or an adjustable slit beam height.
- Less than 0.4 mm was considered as dry eye.

Conjunctival cytology:

- It was done pre operatively and post operatively on 6 th week by transfer method after anesthetizing cornea with 0.5 % proparacaine.
- A 0.22micron filter paper of 13mm diameter was grasped in blunt forceps and placed over bulbar conjunctiva.
- It was obtained from non exposed conjunctiva to eliminate environment related factor on ocular surface.
- Filterpaper was removed in pealing fashion after 4-10 sec and was transferred to lab for

fixation (ethyl alchol, formaldehyde, glacial acetic acid) in 20:1:1 ratio and was stained.

- Due to relative ease of handling the filterpaper was first placed on glass slide with albumin paste then transferred to slide .however loss of adhered material to fiter paper was disadvantage.
- Filter paper was then removed from slide and slide was stained with PAS (Periodic Acid Schiff) while counterstained with H & E (Hematoxylin and eosin).
- localization of cell was with 100x , low power 10 x after localizing analysis for goblet cell per high power field HPF was marked and counted. minimum 10 HPF were examined fpr goblet and epithelial cell.
- The goblet cell density was estimated by formula.
- No. of goblet cell per HPF ÷Sampling area in mm2
- Grading was carried according to Nelson Criteria. where in grade 0 to 1 were regarded as normal, grade 2 and were considered as dry eye.

Incidence of dry eye was calculated from OSDI on postoperative day 7. The severity pattern of dry eye was assessed from OSDI, TBUT, tear meniscus height, schirmers 1 test and oxford scheme.

Result

This was a prospective descriptive study of 180 patient who underwent small incision cataract surgery at Navodaya Medical College from January 2017 to June 2018. Majority of patient in this study were between age group 51-60 consisting 74 patients. There were 53 patient aged between 61-70 and 4 patient above 70 years. Mean age of patient in our study was 56.87±9.50 (SD) years.

Out of 180 patient under study group 103 were female (57%) AND 77 were male (57%).

Table 1: OSDI distribution.

OSDI	N	Mean	Std. Deviation
Pre operative	180	11.274	3.877
Post operative 1 week	180	21.932	9.319
Post operative 3 week	180	18.880	6.849
Post operative 6 week	180	15.376	5.282

OSDI questionnaries which weights symptoms of ocular discomfort showed mean score of 11.274 in pre operative stage and mean score of 21.932, 18.880, 15.376 on post operative 1st, 3rd and 6th week. Significant change in standard deviation was seen which improved over the weeks postopertively.

Table 2: Schirmer's test distribution.

Schirmer's Test	N	Mean	Std. Deviation
Pre–operative	180	21.7556	4.41382
Post operative 1 week	180	12.3222	4.02458
Post operative 3 week	180	15.7389	3.83655
Post operative 6 wek	180	17.0167	3.00739

Schirmers test was conducted with whatman 41 filter paper pre operatively as well as post operatively the mean score in pre operative period was 21.7556 while post operatively in 1st, 3rd and 6th week was 12.3222, 15.7389, 17.0167 respectively.

Table 3: TBUT distribution.

Tbut	N	Mean	Std. Deviation
Pre-operative	180	12.689	1.709
Post-operative 1 week	180	7.922	2.425
Post-operative 3 week	180	8.400	1.814
Post-operative 6 week	180	9.961	1.428

Tearfilm breakup time assessment pre operatively showed mean score of 12.689 and significant reduction was seen on post operative 1st, 3rd, 6th week as 7.922, 8.400, 9.961 respectively.

Table 4: Oxford scheme score distribution.

Oxford scheme	Grade 0	Grade 1	Grade 2	Grade 3	Grade 4
Pre operative	47 .2 %	52.78 %	0	0	0
Post operative 1 week	0	33.89%	40%	23.9%	2.2%
Post operative 3 week	0	41.67 %	47.8%	10.6%	0
Post operative 6 week	27.8 %	50.00%	21%	1.1%	0

Oxford scheme grading of most patient pre operatively wad grade 1 and post operatively week 1, 3 and 6 were grade 1, grade 2 and grade 1 respectively.

Table 5: Tear meniscus distribution.

Tear Meniscus	N	Mean	Std. Deviation
Pre operative	180	0.301	0.027
Post operative 1 week	180	0.215	0.050
Post operative 3 week	180	0.161	0.040
Post operative 6 week	180	0.212	0.013

Tear meniscus height showed mean 0.3 mm height pre operatively while 0.215, 0.161, 0.212 on 1st, 3rd, 6th week respectively post operatively.

Table 6: impression cytology distribution.

Impression cytology	N	Mean	Deviation	Error
		std.	std.	mean
Pre operative	180	732.056	232.465	17.33
Post operative 6 week	180	356.389	107.161	7.99

Impression cytology showed significant variation in pre operative and post operative score varying from 732.056 to 356.389 respectively.

Discussion

This was a prospective descriptive study of 180 patient who underwent small incision cataract surgery at Navodaya Medical College, Raichur from January 2017 to June 2018. Majority of patient in this study were between age group 51-60 consisting 74 patients. There were 53 patient aged between 61-70 and 4 patient above 70 years. Mean age of patient in our study was 56.87±9.50 (SD) years.in our study out of 180 patient , 103 patients were female and 77 were male similar result were seen in Framingham eye study also senile lens changes were more common in women . in our study OSDI score and four clinical test for tearfilm abnormalities were available from 180 patients. Our study showed significant abnormalities in oxford scheme and TBUT in immediate post operative period compared shirmers test. This is because oxford and TBUT evaluates quality of tearfilm and shirmers evaluates quantity of tearfilm. Since SICS is an ocular surface damaging procedure it produces damage to conjunctival goblet cell resulting in mucin deficiency and thus deteriorates quality of tear film. Sitompul R et al in his study found the group of patient undergoing SICS had poor tearfilm quality as compared to phacoemulsification. He described that initial procedure in SICS lilke conjunctival incision, cauterization of episcleral vessels damages conjunctival goblet cells resulting decreased mucin production.

On postoperative day 7 the mean scores of OSDI questionnaire (Preoperatively vs Postoperatively) was 11.27±3.87 vs 21.93±9.31. Similarlycomparision in pre perative and post operative values showed significant difference. TBUT showed 12.688±1.708 vs 7.922±2.425 seconds, oxford scheme showed grade 1 vs grade 2 and schirmers 1 test showed 21.755 vs 12.322mm. Tear meniscus height showed 0.3007±0.026 vs 0.2149 ±0.049.

Our results were compared situmpul R 8 et al in their study it was found that OSDI comparison results were 28.37 vs 29.01, TBUT was 16.11 vs 10.59 sec and schirmers test was 14.07 vs 17.13 mm.cho Y K et al 6 in his study to investigate dry eye changes following cataract surgery found that in the group with no dry eye preoperatively, all clinical tests showed significant worsening of dry eye immediately following surgery this findings are similar to our study. The deteriorating dry eye parameter were attributed to:

1. Use of topical steroid which causes toxicity to cornea and conjunctiva. the preservatives acts like detergents that causes breakdown of lipid layer. Supporting evidence was provided by pisella 9 and collaegues as they compared prevalence of dry eye on glaucoma patient using preservative free and preservative added anti glaucoma drugs.
2. Corneal incision causes certain corneal irregularities that produce tear film disruption. Subbasal nerve plexus encounters cornea mainly at nasal and basal quadarant and then divide into central cornea hence corneal incision on temporal side cuts basal nerves and extension of incision reduces corneal sensitivity on and around area of incision.

   The reduced frequency of steroid antibiotic drops which was started post operatively and usage of preservative free tear substitute drops showed improvement in TBUT and reduced conjunctival epithelial expression of inflammatory markers one month postoperatively thus reducing signs and symptom post operatively similar results are proved by sanchez and associates71the suggested usage of hydroxypropyl (HP) – a preservative free artificial tear preparation to be used on regular basis for post operative patients.

Conclusion

In our study mean age of patient undergoing small incision cataract surgery was 58.86 year. 57 % patient were female and 43% patient were males.Cataract being most gratifying surgery in field of ophthalmology however patients were found to have deterioration in tear film. Our study showed significant deterioration in tear film quality and quantity in immediate post operative period and showedgradual improvement over 6 weeks. Hence we conclude from our study that significant number of patients with no dry eye disease before cataract surgery developed tear film abnormality in immediate post – operative period and needed to be started on preservative free eye drops pre operatively for better visual outcome and patient satisfaction. Although we noticed improvement in OSDI score and clinical test fortear film in the 6 week followup period, studies with longer time period are recommended to assess the time taken for tear film to recover to its pre operative status.

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Original Article

Ophthalmology and Allied Sciences
Volume 7 Number 2 / May–September 2021
DOI: http://dx.doi.org/10.21088/oas.2454.7816.7221.2

Study of Fungal Corneal Ulcer in Patients Visiting Tertiary Hospital

Anupama Raju Taklikar[1], Sneha G Vasanth[2], Pooja Rathod[3]

Abstract

Background and Aim: Corneal ulcer is a major public health problem in the developing world causing prolonged ocular morbidity and visual impairment. In a vast agricultural country like India, minor eye injuries sustained in agricultural farms often lead to corneal ulceration of fungal etiology and loss of vision. Hence, this study was undertaken to study the risk factors, clinical presentation and to know the statistical significance regarding the common type of fungi and prognosis with regard to the available mode of therapy.

Materials and Methods: All patients with suspected corneal ulcer presenting to NMCH&RC, Raichur, Department of ophthalmology from September 2017 to March 2019 were evaluated. Detailed history was taken and thorough ocular and systemic examination with Microbiological work up was done in all patients. They were given necessary medications. Outcome was recorded in terms of regression of symptoms and development of complications.

Results and Conclusion: Out of 120 patients with suppurative keratitis, 75 (62.50%) were clinically suspected of mycotic keratitis and positive for fungal elements. 89.3% were in the working population. 50.67% were farmers. Trauma with vegetative matter was a predisposing factor in 40% of the cases. All patients were KOH positive and among them 70.66% were culture positive. In our study Aspergillus(46.7%) was the most commonly isolated fungus.In all 75 patients ulcer debridement was done.

Keywords: Fungal corneal ulcer; KOH sensitivity; Aspergillus. Sp; Antifungal treatment; Surgical debridement.

How to cite this article:
Anupama Raju Taklikar, Sneha G Vasanth, Pooja Rathod/Study of Fungal Corneal Ulcer in Patients Visiting Tertiary Hospital;2021;7(2):17-21.

Introduction

Corneal ulcer is a major public health problem in the developing world causing prolonged ocular morbidity and visual impairment.[1]

Corneal blindness is responsible for 1.5 to 2 million new cases of monocular blindness every year in which ocular trauma and corneal ulceration are major contributors.[2]

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The reported incidence of corneal ulceration in India is 1130 per million Population.[3]

Suppurative keratitis is the leading cause with mycotic keratitis constituting half of the cases in south India. Difficulties encountered in establishing clinical diagnosisare, in isolating the etiologic fungal organism and in treating keratitis with antimycoticagents. Morbidity in mycotic infection tends to be higher compared to bacterial keratitis because diagnosis is often delayed due to negligence towards ocular trauma,inappropriate treatment and wide spread use of topical antibiotics and steroids for anycase of corneal ulcer.Corneal infections of fungal etiology are common in India (19-45%).

Aspergillus (16–53%) and Fusarium (10–45%) are the common incriminating pathogen.[1] Due to present increase in awareness of the fungal lesions, improved

clinical facilities in examining microbiological techniques of growing organisms and proper identification, more and more cases are becoming positive.

In a vast agricultural country like India, particularly where primary health careand referral systems are weak, minor eye injuries sustained in agricultural farms oftenlead to corneal ulceration of fungal etiology and loss of vision.[4]

Factors like malnutrition, anaemia, alcoholism, and illiteracy, lack of knowledge, lack of facilities, unawareness of facilities, malpractice and ignorance predispose the person to fungal infection. Hence fungal infection of the cornea poses a big problem and therefore there is special need for study.

NMCH & RC Raichur, being major referral center, we get more than two—three cases of mycotic keratitis per OPD. Considering its prevalence it is thought worthwhile to take up clinical study of mycotic keratitis to diagnose the case on suspicion with laboratory investigation and to start antimycotic treatment early for better results.

Materials and Methods

The study was conducted in Dept of ophthalmology, NMC from Sept 2017-Mar 2019.

Inclusion criteria

75 Patients coming to ophthalmology OPD with clinical features suggestive of fungal keratitis such as long duration, elevated, plaque like feathery margins of the ulcer, raised slough, dry surface, satellite lesions, Weiss ring, endothelial plaque, coloration of the ulcer other than yellow (suggestive of diamatatious fungi) and thick hypopyon were noted and categorized as patients with fungal keratitis.

Exclusion criteria

Non suppurative keratitis including viral keratitis, neurotrophic ulcers, degenerative causes, moorens ulcer, interstitial keratitis, sterile neurotrophic ulcers and any ulcer associated with systemic autoimmune conditions.

Cases of corneal ulcer who presented with excessive corneal thinning and impending perforation, as well as perforated corneal ulcers were excluded, as taking a corneal scraping and subsequently establishing a microbiological etiological diagnosis was not feasible in such patients.

Non compliant patients as regards proper treatment schedule and regular follow up.

After selection of patients, standardized proforma was filled for each patient documenting, Age, Sex, Domicile, Occupation and Predisposing factors including history of Trauma. Detailed clinical history was taken and any previous usage of medications recorded.

Clinical procedure

Visual acuity was recorded in standard manner. All patients were subjected to a detailed slit lamp biomicroscopic examination. Size of ulcer was roughly recorded with fluorescent stain under local anesthesia. Depth of the lesion, stromal infiltrate,ulcer margin, thinning, floor, satellite lesions, vascularity, pigmentation, any impacted foreign body and hypopyon were noted.

Associated ocular conditions like Blepharitis, Conjunctivitis, Dacryocystitis,

Spheroidal degenerations, Bullous keratopathy, Dry eyes, Pre-existing viral keratitis, Lid abnormalities, Bells palsy, Lagophthalmos, Trichiasis, Suture infiltrates, adherent Leucoma were noted. Usage of contact lenses, topical corticosteroids or any other topical or systemic medications were noted.

Material was collected from conjunctiva, sac area and corneal ulcer scrapings. Materials used by patients (eye drop bottles), were collected. The collected material was submitted for Gram staining, Giemsa staining and KOH wet mount preparation and PAS staining. Fungal elements are observed under microscope. Rest of the material was sent for culture.

Remaining scrapings were utilized for his to pathology By convention to indicate the site of inoculums on a solid medium, harvested material is inoculated in the form of a 'C' streak on each medium from separate scrapings. Almost all fungal isolates grow & become evident in 48-72 hrs. Cultures were examined daily up to one week before declaring a culture, negative for fungi.

Anyone of the following criteria if fulfilled suggest a significant growth

1. If smear results are consistent with culture
2. The organism is grown on more than one media
3. Growth of the same fungus in decreasing gradation at multiple sizes of inoculationon the solid medium.

Observation and Results

The clinical study of mycotic keratitis, conducted in the department of ophthalmology, Navodaya Medical College Hospital and Research Centre from September 2017 to March 2019.

During this period, the following observations were made.

Table 1: Distribution of mycotic keratitis.

Total Number of Patients with Suppurative Keratitis	Clinically Suspected mycotic keratitis	Percentage
120	75	62.50%

Out of 120 patients with suppurative keratitis, 75 (62.50%) were clinically suspected of mycotic keratitis and positive for fungal elements. Thus the total number of cases included in the present study was 75(62.50%) patients.

Table 2: Age distribution.

Age	No. of cases	Percentage
= 20	7	9.3
21 – 40	34	45.3
41 – 60	33	44
> 60	1	1.3
Total	75	100

In the present study of mycotic keratitis, Out of 75 cases majority of these cases belong to 20 to 40 years of age group (45.3%), followed by 40-60 years of age group (44%), No cases were, however, recorded below 10 yrs of age; in this series, the youngest patient was 13 years old and the oldest patient was 65 years old.

Table 3: Occupational preponderance.

Occupation	No. of cases	Percentage
Agriculture labour	38	50.67
Industrial labour	13	17.33
Home maker	8	10.67
Others	16	21.33
Total	75	100

In present study of mycotic keratitis, Majority were agricultural workers 38(50.67%) , followed by industrial workers 13(17.33%), Housewife 8 (10.67%). And others (like sudents, teacher, Clerk) accounted for 16 (21.33%).

Table 4: Predisposing factors for mycotic keratitis.

Predisposing factors	No. of cases	Percentage
Finger nail	4	5.3
Vegetative matter	30	40
H/O FB fall	26	34.7
Subcutaneous/Nil	15	20
Total	75	100

In the present study of mycotic keratitis, prior injury with Vegetative matter accounted for 30 cases (40%). Other modes of injury were Foreign body fall accounted for 26 cases (34.7%), trauma with finger nail in 04 cases (5.33%), and spontaneousi njury in 15 cases (20%)

Table 5: Fungal culture results.

Fungal culture	No. of cases	Percentage
Arthroconidia	1	1.3
Aspergillus	35	46.7
Fusarium	17	22.7
No growth	22	29.3
Total	75	100

X2= 31.613 P = 0.000< 0.01 HIGHLY SIGNIFICANT

Fungal culture was positive in 53 (70.66%) patients. After 15 days of inoculation on the SDA medium in 35 (46.7%) patients Aspergillus was isolated.

In 17 (22.7%) fusarium was the species to be isolated on SDA medium. 1(1.3%) patient had arthroconidia growth on SDA medium. In 22(29.3%) patients no growth occurred.

Table 6: Medical management.

Medical Mx Topical	No of cases	Percentage
Natamycin	50	66.7
Natamycin + Moxifloxacin	21	28
Natamycin + Moxifloxacin + Voriconazole	4	5.3
Total	75	100

All patients were put on topical natamycin 5% eye suspension. Among them 66.7% were on natamycin only; 28% were on natamycin 5% and moxifloxacin 0.5%eye drops. 5.3% patients were treated with natamycin 5%, voriconazole 1% and moxifloxacin 0.5% eye drops.

Table 7: Outcome of mycotic keratitis.

Outcome	No. of cases	Percentage
Healing	64	85.33
Perforation	3	4
Secondary glaucoma	6	8
Non healing	2	2.67
Total	75	100

Among 75 patients, 64(85.33%) healed with corneal opacity, 3 (4%) had perforation of the cornea and 6(8%) developed secondary glaucoma and 2(2.67%) were non healing and underwent therapeutic penetrating keratoplasty.

Discussion

The World Health Organization has recognized that corneal blindness resulting from microbial keratitis is emerging as an important cause of visual disability.[5]

Corneal ulceration has been recognized as a "silent epidemic" in developing countries, especially the South East Asia Region.[6] Extrapolating the Indian estimates further to the rest of Africa and Asia, the number of corneal ulcers occurring annually in the developing world quickly approaches 1.5-2 million, and the actual number is probablygreater.

The various demographic factors were studied and it was found that most of the corneal ulcers are seen in farmers (50.67%) and from rural areas (88%). Especially who have trauma to the eye with vegetative matter (40%).

Mycotic keratitis has tendency to progress slowly with minimal symptoms hence the patients are provoked to apply local native medicines and approach the doctor very late.

Lack of laboratory identification especially in peripheral hospital adds to the problem.

In this study Aspergillus was the most common species among the culture positive cases followed by Fusarium species. Natamycin is the chief topical antifungal agent in the limited armamentarium of the clinician to fight the menace of fungal corneal ulcer.

Fortunately, majority of them (85.33%) healed with intensive therapy and sustained follow up.

Gonzales et al. found that the annual incidence of corneal ulceration in Madurai District in South India was 11.3 per 100000 people[7]-10 times the annual incidence of 11 per 100000 reported from Olmsted County, Minnesota, in the United States of America.[8] By applying the 1993 corneal ulcer incidence rate in Madurai District to all of India, there are an estimated 840000 people a year in the country who develop an ulcer. This figure is 30 times the number of corneal ulcers seen in the United States.[8]

In a prospective population-based study by Upadhyay et al. in Bhaktapur District, Nepal, the annual incidence of corneal ulceration was found to be 799 per 100000 people.[9]

This extraordinarily high rate is seven times the incidence reported in South India and 70 times the rate in the United States. These findings suggest that corneal ulceration maybe much more common in developing countries than previously recognized and that epidemics similar to that in Nepal may currently be occurring on a global scale.

Suppurative keratitis and its complications constitute important causes of ocular morbidity often leading to blindness if early management is not instituted. A proper history coupled with detailed clinical examination would be beneficial to clinically identify the predisposing factors for corneal perforation in microbial keratitis.

Proper management and treatment of fungal corneal ulcers, a major cause of blindness world wide requires precise identification of the aetiology so that an appropriate antifungal agent targeting the organism responsible can be administered on time.

Nonetheless, the inconsistency in prevalence and causes of corneal blindness across geography and ethnic groups make it challenging to administer a standard set of protocols in order to lower the incidence of corneal ulcer.[9] Given these milieu, the awareness among ophthalmologists of regional epidemiological features, risk factors, and etiological data concerning this ophthalmic condition is necessary. Thus, we explored the etiological agent of corneal ulcer, identified associated risk factors and antifungal susceptibility of fungal isolates were identified.

Conclusion

Fungal corneal ulcer continues to be an important cause of corneal morbidity.

India being an agricultural country, the incidence of mycotic keratitis is significantly high, mainly in the working age group i.e., 21 to 60 years (89.3%).

This study signifies the importance of keeping in mind fungus as one of the inflicting agent in causation of corneal ulcer especially when predisposing factors like corneal trauma with organic matter, are present and also by looking at the clinical features.

With timely specific treatment, one can combat the disease efficiently and thus prevent the eye going in for blindness.

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Case Report

Ophthalmology and Allied Sciences
Volume 7 Number 2 / May–September 2021
DOI: http://dx.doi.org/10.21088/oas.2454.7816.7221.3

Neurocysticercosis: A Case Report

G Harika[1], L R Murthy[2], J Lakshmi Sindhura[3], K Navatha[4]

Abstract

Aims:

1. To present a case report of a case of Neurocysticercosis presented with severe episodes of headache and bilateral papilloedema as a relatively silent manifestation of Neurocysticercosis.
2. To evaluate the bilateral papilloedema as to whether it is true papilloedema or a pseudo papilloedema as an ocular manifestation of ocular cysticercosis involving optic discs of both eyes or due to combination of both.

Introduction: Neurocysticercosisis (NCC), a parasitic infestation caused by the Tapeworm,Taenia solium. It is the leading cause of epilepsy in developing countries including India, Africa, Latin America and China. Alternately patients may present with generalized headache secondary to raised intra cranial pressure and meningitis. In addition, in many cases of NCC, the number, size, location and intensity of cysts lead to varied symptomatic presentations. These clinical manifestations vary from completely asymptomatic infestation to severe disease and death.

Case report: In this paper we discuss a case of 17 year old female who presented with severe episodes of headache in March 2021. She was found to have disseminated NCC on MRI and CT and bilateral papilloedema as an ocular manifestation of ocular cysticercosis involving optic discs of both eyes. We also discuss about the cause of papilloedema and how this patient was non surgically managed.

Discussion : The present case is a rare case of disseminated NCC presenting only as severe episodes of headache with out any evidence of focal or generalized neurological signs or symptoms (ie)relatively a silent case. There was evidence of bilateral papilloedema which can be due to infectious generalized subtle brain parenchymal edema or due to meningitis. The presence of calcified foci on both optic discs give an appearance simulating pseudopapilloedema, as seen in Drusen of the optic disc. Both factors might have played a role in producing the bilateral papilloedema. MRI and CT scan of brain and high resolution ultrasound of orbits confirmed disseminated NCC and ocular cysticercosis and symptoms improved after medical management with anti epileptics, cysticidal antihelmenthic drugs and steroids.

Conclusions

1. This case highlights how NCC may present as a case of severe episodes of headache without focal or generalized neurological signs as a relatively silent case.
2. Bilateral papilloedema seen needed to be evaluated whether it was true edema or pseudo papilloedema as an ocular manifestation of ocular cysticercosis involving both optic discs.
3. The nonsurgical medical management in the form of antihelmenthic cysticidal drugs though contraversial, along with steroids will try to delay or prevent the occurrence of focal or generalized neurological signs and symptoms.

Keywords: Neuro cysticercosis; Epilepsy; Seizures and pseudopapilloedema.

How to cite this article:
G Harika, L R Murthy, J Lakshmi Sindhura, et al./Neurocysticercosis- A Case Report;2021;7(2):23-26.

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Introduction

Parasitic diseases are a growing global public health concern with severe neurological consequences. Neurocysticercosis (NCC) is a parasitic infection caused by Tapeworm, Taenia Solium. It is a leading cause of epilepsy in developing countries like India, Africa, Latin America and China.[1]Alternately patients may present with a generalized headache secondary to increased intra cranial pressure and meningitis. MRI can help in staging of these cystic lesions in brain into vesicular, colloid cysts, granular nodular degenerations without calcification and complete calcification.[2] The two most common types of cysts are 1. Vesicular cysts which are less epileptogenic and have less mass effect on imaging and 2. Colloid cysts which consist of gelatinous material that exhibits ring enhancement and edema on imaging which is more epileptogenic. The main feature of NCC include variation in clinical presentation as well as disease severity that can vary from completely asymptomatic infestation to severe disease and death. In addition the number, size, location and intensity of cysts also lead to varied symptomatic presentations in patients.[3] Generally cysts in brain parenchyma that present as severe episodes of headache or new onset of seizures can be effectively treated by antiepileptics along with antihelmenthic cysticidal drugs and steroids.

Case Report

A 17 year old non vegetarian female presented to our OPD with main complaint of severe episodes of headache in March 2021 since 2 months. No H/O blurring of vision, diplopia, trauma, nausea, local or systemic medication. No similar complaints in the past. H/O using glasses since 6 years. Anterior segment examination and intra ocular pressure with in normal limits. Both pupils are normal in size and reacting to light normally. Ocular movements and position of eye balls are normal. Fundus examination revealed bilateral papilloedema grade 2 to 3 on Frisen scale in both eyes more in right eye when compared to left eye Fig.[1]

MRI showed NCC at various lobes bilaterally, brainstem and left cerebellum. Ventricular system was normal. Sulci, Sylvian fissure and basal cisterns were normal Fig.[2]

On high resolution ultra sound of orbits calcific foci were noted at optic discs on both sides and mild elevation of optic discs Fig.[4] The patient was put on tab. Albendazole, tab. Levetiracetam, tab. Prednesolone, tab. Supradyn and Dolo SOS on the advise of Neurosurgeon and was advised review after one month. But due to Covid lockdown she could not review and discontinued the medications after two months, in July 2021 she came back with similar complaints of headache of 10 days duration with the presence of bilateral papilloedema. She was referred to Neurosurgeon for review and for CAT scan of brain which showed multiple small intra and extra axial calcified nodules seen scattered in cerebral, cerebellar hemispheres, basal ganglia and upper pons Fig.[3]

Tiny calcification seen at right optic disc. Her other investigations like complete haemogram, ESR, liver function tests, Renal function tests and chest X- ray were normal. She was put on tab, Levipil, tab. Albendazole, tab. Sibelium, tab. Voveran and tab. Pantops, on the advise of Neurosurgeon and was advised review after one month. She came back for review in August 2021. Her headache subsided and she was better symptomatically. Fundus showed subsiding bilateral Papilloedema.

Discussion

Cysticercosis is caused by Cysticercus cellulosae, the larval form of the Tape worm Taenia solium. Humans acquire cysticercosis through faeco-oral contamination with Taenia solium eggs from tape worm carriers.[4] NCC is an uncommon manifestation of this common disease. Widespread dissemination of the cysticerci can result in involvement of almost any organ of the body. The main features of NCC include intractable epilepsy, dementia, and focal neurological signs or raised intracranial pressure depending on the amount and localization of the cysts. The differential diagnosis of cystic cerebral lesion on CT or MRI includes abscess, tubercle, metastasis and glioblastoma. Parasitic CNS infections and subacute cerebrovascular events should also be considered.[5] According to post mortem studies, 80% of Neurocysticercal infestation remain asymptomatic.[6] Human cysticercosis occurs either via endogenous or exogenous autoinfection in Tapeworm carriers or by ingesting Taenia solium eggs after faecal oral transmission. Diagnosis of NCC is often based on the clinical presentation, neuroimaging abnormalities and serology. Serological techniques can vary depending on the activity of the cyst and the number of lesions.[7] Thus, negative results on serological testing do not rule out NCC.

Management of NCC is symptomatic (antiepileptics and steroids), surgical (removal of cysts and ventriculoperitoneal shunt) and Cysticidal drugs. The role of treatment with albendazole (15 mg/kg/day for 30 days) or praziquantel (10-15 mg/kg/day for 6-21 days) is controversial. These drugs

hasten the death of the cysts, which may occur even in the absence of such treatment.[8] Neurocysticercosis is a serious disease with potentially life threatening complications. Patients with active cysts remain at risk of serious complications. It is therefore recommended that all patients with multiple cysts should receive treatment with cysticidal drugs.

The present case is a rare case of disseminated NCC presenting only as severe episodes of headache with out any evidence of focal or generalized neurological signs or symptoms as a relatively silent and asymptomaetic case, There was evidence of bilateral papilloedema which can be due to infectious generalized subtle brain parenchymal edema or due to meningitis. The presence of calcified foci on both optic discs give an appearance simulating pseudopapilloedema, as seen in Drusen of the optic disc. Both factors might have played a role in producing the bilateral papilloedema. MRI and CT scan of brain and high resolution ultrasound of orbits confirmed disseminated NCC and ocular cysticercosis and symptoms improved after medical management with anti epileptics, cysticidal antihelmenthic drugs and steroids.

Conclusions

1. This is a case of dessiminated NCC relatively asymptomatic and silent apart from episodes of headache without any focal or generalized neurological signs or symptoms.
2. The associated occurrence of ocular cystcercosis manifestation of papilloedema should be properly evaluated to differentiate from pseudo papilloedema.
3. The non surgical medical management in the form of antihelminthic cysticidal drugs along with steroids will try to delay or prevent the occurrence of focal or general neurological signs and symptoms.

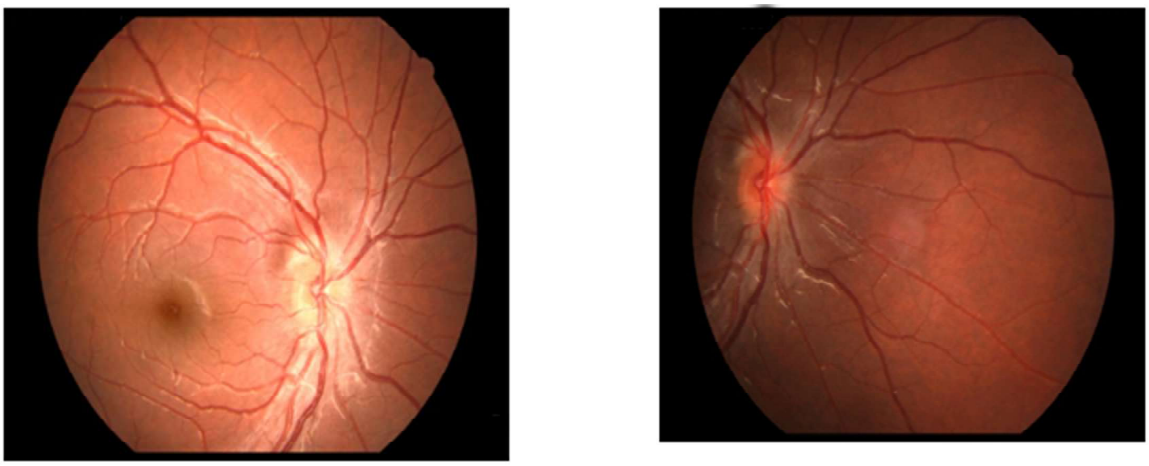

Fig. 1: Fundus photographs.

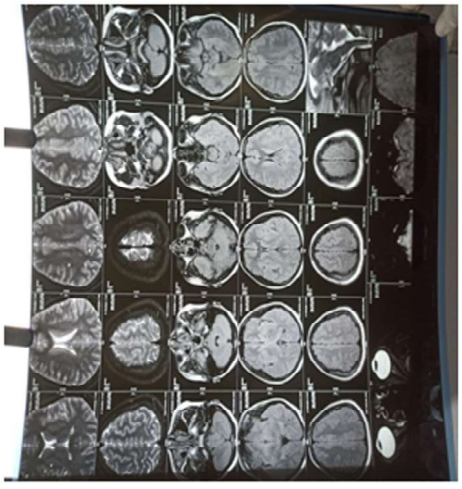

Fig. 2: Mri Brain.

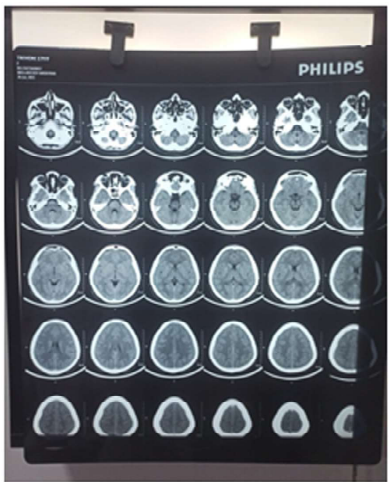

Fig. 3: Cat Scan.

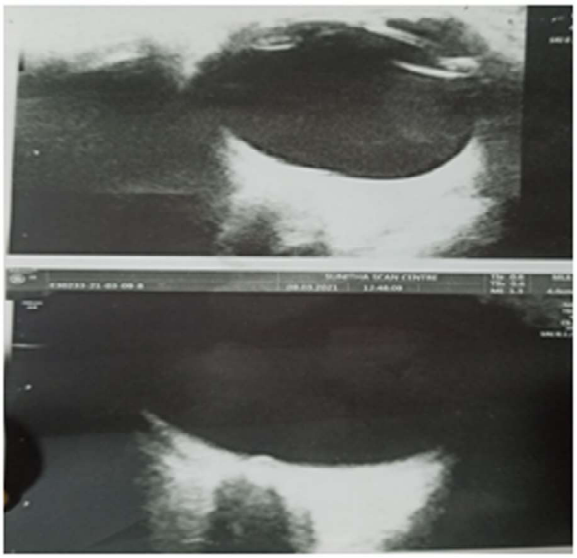

Fig. 4: Ultrasound B-Scan.

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