



THE THIRD

ICATD

International Conference on
AGROMEDICINE & TROPICAL DISEASES
FACULTY OF MEDICINE - UNIVERSITY OF JEMBER

INTEGRATED APPROACHES ON PREVENTION, CURATIVE AND CONTROL
OF ZOOONOTIC AND EMERGING DISEASES IN AGROMEDICINE FIELD

ABSTRACT BOOK

JEMBER - EAST JAVA
SEPTEMBER 12TH - 13TH 2020

ACKNOWLEDGEMENTS

The Organizers ICATD 2020 express sincere appreciation and grateful thanks to all those who have contributed their kind support to facilitate this conference.



WELCOMING ADDRESS

Dear distinguished guest and participants,

On behalf of the committee of The 3rd International Conference on Agromedicine and Tropical Diseases (ICATD) 2020, it is a privilege and my great honour to welcome you to this virtual conference. This is a biannual conference organized by Faculty of Medicine University of Jember. Due to the pandemic situation, we have to conduct this conference virtually.

The needs for the Agromedicine research for the improvement on occupational and environmental health and safety in agriculture are growing. The challenges in zoonotic and emerging diseases such as a recent covid-19 pandemic situation are also increasing that require global solution to prevention and elimination. To address the approaches in successful handling of complex challenges, the theme of this conference is kept as 'Integrated approaches on prevention, curative, and control of zoonotic and emerging diseases in Agromedicine field.

This event aims at providing a forum for presentation and discussion of the current and new research on this topic along with dissemination of relevant information among scientists, medical doctors, practitioners, researchers, and other professional from different countries. There are distinguished speakers from Ministry of Agriculture, the expert from Australia, Philippines, Sweden, as well as Indonesia. There are more than 40 researches will be presented in this conference, and approximately 200 participants from Indonesia, Malaysia, Philippines, and Argentina will join the event. And surely, this event will be an outstanding place for networking opportunities to discuss interesting ideas and develop the fruitful project in the future. As a major goal of this event, we hope that it can be an excellent chance for coordinating new partnerships which advance collaboration in the research field as well as the career of all participants.

The insight and hard work of the members both technical and organizing committees have made this event possible. Each member mad significant contribution toward the success of this conference, and we thank everybody for their valuable support. Finally, I would like to express our sincere thanks and appreciation to all participants and colleagues for their indispensable support in organizing the event.

Erma Sulistyarningsih

Chairman of the 3rd ICATD Organizing Committee



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GENERAL INFORMATION FOR THE PARTICIPANTS

Instruction for all participants

- Registration includes:
 - The 3rd ICATD 2020 abstract e-book
 - Certificate of attendance
- The conference will be held via Zoom with the link below:
 - **Plenary Lecture/Main Room**
Link:
[Click here to join](#)
Meeting ID : 992 4533 4716
Password : 065773
 - **Paralel Session (Oral Presentation)**
 - **Room A**
Link :
[Click here to join](#)
Meeting ID : 920 4275 5085
Password : 185267
 - **Room B**
Link :
[Click here to join](#)
Meeting ID : 941 0834 5688
Password : 068838
- Please insert your full name on your zoom account, not alias or device name. (NAME_INSTITUTION)
- WE STRONGLY ADVISE you not to share the link and password to NON PARTICIPANTS.
- Make sure your internet access is well established.

Instruction for the Moderator

- Please ensure that the sessions and speaker presentations are kept strictly on time.

Instruction for Speakers (Keynote Speaker and Oral Presenter)

- 45 minutes have been allocated for each keynote speakers, including for answering the questions.
- Speakers for oral presentations were given 10 minutes including answering questions.
- Please be aware that the above times must be strictly adhered to.
- Oral presentations will be assessed and selected for best 1,2 and 3.

Instruction for Poster Presenter

- Posters will not be presented. They only will be displayed by the officer after plenary session in the plenary room before lunch break.
- Posters will be assessed and selected for the best 1,2 and 3.



The 3rd ICATD COMMITTEE

Steering Committee	dr. Supangat, M.Kes, Ph.D, SpBA dr. Ancah Caesarina Novi Marchianti, Ph.D Dr.dr. Diana Chusna Mufida, M.Si dr. Bagus Hermansyah, M.Biomed
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Public relation division	dr. Inke Kusumastuti, M.Biomed., Sp.KJ
Food and beverage division	Ns. Novi Wiarti K.S.

TIMETABLE

Time (GMT+7)	Activity	Annotation
Day 1: 12 September 2020		
08.00-08.30 am	Registration Day 1	Committee
08.30-09.00 am	Opening Ceremony display: “Indonesia Raya” “Hymne UNEJ”	Committee
	Welcome Speech 1. Chairman of 3 rd ICATD 2. Rector of Jember University	1. Dr. rer. Biol. Hum. dr. Erma S, M.Si 2. Dr. Ir. Iwan Taruna, M.Eng
09.00-10.00 am	Keynote Speech Head of Balai Besar Penelitian Veteriner, Bogor-Indonesia <i>Dr. Drh. NLP. Indi Dharmayanti, M.Si.</i>	MC: dr. Dwita Aryadina Rachmawati, M.Kes
10.00-12.00 am	Plenary Lecture I 1. <i>dr. Supangat, M.Kes., Ph.D., Sp.BA</i> 2. <i>Prof. Susan Alison Brumby, Ph.D.</i> 3. <i>Discussion</i>	Moderator: dr. Laksmi Indreswari, Sp.B
12.00-12.30 am	Poster Slide Show	Committee
12.30-13.00 am	LUNCH BREAK	Committee
13.00-14.30 am	Paralel session (Class A and Class B) Oral Presentation I	Moderator: dr. Pulong Wijang Pralampita, Ph.D. dr. Elvia Rahmi Marga Putri
Day 2: 13 September 2020		
08.30-09.00 am	Registration Day 2	Committee
09.00-12.00 am	Plenary Lecture II 1. <i>Prof. Dr. drh. Wayan Tunas Artama</i> 2. <i>Fatima May R. Tesoro, RPh, MSPharm</i> 3. <i>Prof. Peter Lundqvist, Ph.D.</i> 4. <i>Discussion</i>	Moderator: dr. Inke Kusumastuti, M.Biomed., Sp.KJ
12.00-12.30 am	Poster Slide Show Closing Ceremony	Committee
12.30-13.00 am	LUNCH BREAK	Committee
13.00-14.30 am	Paralel session (Break Out Room) Oral Presentation II	Moderator: dr. Pulong Wijang Pralampita, Ph.D. dr. Elvia Rahmi Marga Putri
15.00-15.30 am	Best Poster & Oral Presentation Announcement CLOSING CEREMONY	Chairman of 3rd ICATD

SCIENTIFIC PROGRAM

ORAL PRESENTATION

DAY 1 : 12 September 2020 (13.00 – 14.30 WIB)

ROOM A

No	Author's Name	Institution	Title
1	Muhammad Reza Febriliant, Niniek Budiarti	Saiful Anwar General Hospital, Brawijaya University	Duration Differences of The Denial-Acceptance of The Kübler-Ross Cycle After Diagnosed HIV Based on Gender
2	Sugeng Mashudi, Sri Susanti, Sulisty Andarmoyo, Elok Yulidaningsih, Yuzana binti Mohd Yusop	Malang Health Polytechnic, Trenggalek Campus	Coping Behaviors for Support Among Family During The Covid-19 Pandemic
3	Ancah Caesarina Novi Marchianti, Dwita Aryadina Rachmawati, Ida Srisurani Wiji Astuti, Angga Mardro Raharjo, Rony Prasetyo	University of Jember	Determinants of Stunting and Undernutrition in Children in The Agricultural Area of Jember Regency, Indonesia
4	Pujiati, Eria Narulita, N. Nurhayati	University of Jember	Development of Healthy Food and Packaging from Bacterial Secondary Metabolites <i>Acetobacter xylinum</i>
5	Awalya Rahma Putri, Dina Helianti, Nindya Shinta Rumastika	University of Jember	Gastroprotective Effect Of Onion Peel (<i>Allium cepa L. var Ascalonium</i>) Extract On Wistar Rats Induced By Mefenamic Acid
6	Virgilio Y. Tan Ii	Riverside College, Inc., Bacolod City, Philippines	Microcrystalline Cellulose Derived From Rice (<i>Oryza sativa L.</i>) Straw Waste As Binder for Tablet Formulations
7	Wiwien S. Utami, Elsa H. Murhandarwati, Wayan T. Artama, Hari Kusnanto	University of Jember	Spatial Analysis of Cryptosporidiosis in Livestock Community in Mlati District, Sleman, Yogyakarta

ROOM B

No	Name	Institution	Title
1	Zainabur Rahmah, Doby Indrawan	Maulana Malik Ibrahim Islamic Public University	Mimba Leaf Therapy Causes High Level of TGF- β Expression and Low Expression of TNF- α in The Spleen of Mencit in Infection of <i>Plasmodium berghei</i>
2	Aurora Urbahillah, Jay Jayus, N. Nurhayati	University of Jember	Improving The Quality of <i>Kombucha cascara</i> as Functional Beverage
3	Ariyani Noviantari, Khariri	Center for Research and Development of Biomedical and Basic Health	Cell Culture as The Most Certain Way of Diagnosis In Rabies Infection

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		Technology	
4	Bhisma Satya Dharma, Isa Ma'rufi, Dewi Rokhmah	University of Jember	Dengue Fever Risk Mapping Area Based on Behaviour Prevention on Four Sub Districts in Jember District
5	Eka Noneng Nawangsih, Lia Siti Halimah, Euis Reni Yuslianti	University of Jember	Development of a Novel Diagnostic Kit Candidate To Detect Dengue Antibody, Using Co-Agglutination Method, Utilizing Protein a Positive <i>Staphylococcus aureus</i> As a Carrier
6	Khariri, Lisa Andriani Lienggonegoro	Center for Research and Development of Biomedical and Basic Health Technology	The Threat of Zoonotic Infections That Lurk From The Culture of Consumption of Wild Animal Meat
7	Putri Reno Intan, Khariri, Zainal Khoirudin	Center for Research and Development of Biomedical and Basic Health Technology	Distribution of Rabies That Infect Humans In Indonesia During One Last Decade
8	Nanda Eka Sri Sejati, Elvia Rahmi Marga Putri	dr. Soebandi Regional General Hospital, Jember	In Silico Molecular Docking Study on Substances From <i>Psidium guajava</i> Against Dengue Protease NS2B/NS3

DAY 2 : 13 SEPTEMBER 2020 (13.00 – 14.30 WIB)

ROOM A

No	Name	Institution	Title
1	Syubbanul Wathon, Yasir Mubarak, Rike Oktarianti, Kartika Senjarini	University of Jember	In Vitro Analysis of Human Humoral Immune Response Against 31 Kda Immunogenic Protein Fraction from Salivary Gland of <i>Aedes albopictus</i>
2	Vincent Susanto, Anna Rozaliyani, Diah Handayani, Erlina Burhan, Harmi Rosianawati, Mulyati Tugiran, Ridhawaty Syam, Findra Setianingrum, Robiatul Adawiyah	University of Indonesia	Species Distribution of Fungal Isolated from Sputum of Previous Tb Patients and Its Susceptibility towards Itraconazole
3	Aris Purwantoro, Wayan Tunas Artama, Bambang Sumiarto, Adi Heru Husodo, Nabila Cahyarani, Riandanu Dharmawan, Elkautsar Rizqi Ramadhanti	Gadjah Mada University	Toxoplasmosis Molecular Detection of Goat Meats from Satay Kiosks at Kulon Progo Regency, Indonesia
4	Suyatmi, Indriaswari Kirana Suri, Tri Agusti Solikhah, Reza Novierta Pesik	Sebelas Maret University	Comparative Study on Anticancer Activity of Compound Extracted From <i>Caesalpinnia sappan</i> on Breast Cancer Cell Line (MCF-7)



5	Riza Indira Fadillah Zam Zam, Erma Sulistyaningsih, Ancah Caesarina Novi Marchianti	University of Jember	The Bacteria and Parasite Patterns In Flies Do Not Associate with The Prevalence of Fly Vector-Borne Diseases at The Dairy Farm
6	Tri Yudani Mardining Raras, Intan Rakhma Kinanti	Brawijaya University	The Repression Effect of Cell Free Supernatant of <i>Lactobacillus helveticus</i> C2 on Biofilm-Related Genes of Mdr Klebsiella Pneumoniae
7	Sheilla Rachmania, Erma Sulistyaningsih, Anak Agung Istri Ratnadewi	University of Jember	The DBL2B-PFEMP1 Recombinant Protein of Indonesian <i>Plasmodium falciparum</i> Induces Specific Polyclonal Immunoglobulin-G In Wistar Rats
8	Rike Oktarianti, Rochmatul Nuryu Khasanah, Syubbanul Wathon, Kartika Senjarini	University of Jember	Immunogenic Protein of Salivary Gland from <i>Aedes albopictus</i>

ROOM B

No	Name	Institution	Title
1	Bagus Hermansyah, Yunita Armiyanti, Yudha Nurdian	University of Jember	Profile of Immune Response Against Infection Hookworm in Plantation Workers in Jember
2	Ni Ketut Yuliana Sari, Heny Arwati, Indah Setyawati Tantular	Airlangga University	Antimalarial Activity of Mahogany Seed Ethanolic Extract in Balb/C Mice Infected With Plasmodium Berghei Anka and The Corelation of Parasitemia and Plasma Level of IFN- γ
3	Fauzul Muna, Khariri, Ambar Retnowati, Yuswandi	Center for Research and Development of Biomedical and Basic Health Technology	Detection of Brucellosis in Imported Dairy Cattle During Animal Quarantine Process to Prevent Disease Transmission to Humans
4	Nugraha Wahyu Cahyana	University of Jember	Fungal Keratitis with Corneal Ulcer in Farmer
5	Marshal Achmad Wachdin, Anna Rozaliyani, Jamal Zaini Abul A'la Al Maududi, Mulyati Tugiran, Ridhawaty Syam, Findra Setianingrum, Robiatul Adawiyah	University of Indonesia	Species Distribution of Fungal Isolated From Lung Cancer Patients and Its Susceptibility to Itraconazole in Persahabatan Hospital
6	Evi Umayah Ulfa, Elly Munadziroh, Hermansyah, Ni Nyoman Tri Puspaningsih	University of Jember	Expression of Secretary Leukocyte Protease Inhibitor in <i>Saccharomyces cereviciae</i> BJ1824
7	Isnaini, Ika K. Oktaviyanti, Lia Y.	Lambung Mangkurat	Antibacterial and Wound Healing Activity of Extract Ethanolic Flowers of



	Budiarti	University	<i>Melastoma malabathricum</i> L
8	Solikha Solikha, Jay Jayus, Nurhayati	University of Jember	Healthy Modulation of Microflora Using Activated Biochar

POSTER

12-13 September 2020 (12.00 – 12.30 WIB)

No	Name	Institution	Title
1	Iif H. Nurrosyidah, Isnaeni, Ni M. Mertaniasih	University of Jember	Antibacterial Activity of Cell Free Fermentation Supernatant of Red Passion Fruit Pulp (<i>Passiflora Edulis Sims.</i>) Againsts <i>Escherichia coli</i> Extended Spectrum Beta Lactamase (<i>E.Coli</i> Esbl) and Methicillin Resistant <i>Staphylococcus aureus</i> (MRSA)
2.	Muhammad Ihwan Narwanto, Masruroh Rahayu, Setyawati Soeharto, Nurdiana, Mochammad Aris Widodo	University of Jember, Brawijaya University	<i>Tamarindus indica</i> Seed Extract for Preventing Memory Impairment in Rat Model of Alzheimer's Disease
3.	Ratna Indriawati, Adnal Khemal Pasha	Yogyakarta Muhammadiyah University	Hypoglycemic and Hypolipidemic Capacity of Java Cherry Steeping (<i>Muntingia calabura</i> L.) on Diabetic Rats
4.	Enny Suswati, Vera Asmita Fitriani, Edy Junaidi	University of Jember	The Difference in Milking Techniques Against <i>Salmonella Sp.</i> Contamination In Ajung And Arjasa Districts, Jember Regency, Indonesia
5.	Sayu Putu Yuni Paryati, Shiffa Ramadhanti, Khomaini Hasan	Universitas Jenderal Achmad Yani	Vaccination with Anti-Idiotype Antibody and Nano-Chitosan Adjuvant Against Antibody Rabies Titer in Rats
6.	Kristanti Parisihni, Vania Dealaura Christania, Yulie Emilda Akwan, Yoifah Rizka Wedarti	University of Jember	Antimicrobial Potency of Squid Ink Hexane Extract to Periodontal Bacteria <i>Fusobacterium nucleatum</i> Biofilm
7.	Dini Agustina, Bima Setia Sandya Nugraha, M. Ali Shodikin, Diana Chusna Mufida, Enny Suswati, Bagus Hermansyah	University of Jember	Role of Outer Membrane Protein (OMP) 32 kDa <i>Klebsiella pneumoniae</i> as a Hemagglutinin Protein and Adhesin
8.	Ibnu Mubarak, Astika Shiella Nabila Putri, Clarrisa Ayu Candra Kirana, Kristanti Wahyuningtiyas, Mury Ririanty, Nabila Zandra Kartika, and Rofiah Adawiyah Wisudawati Ning Tias	University of Jember	Orange Peel and Sugar Java as An Alternative to Natural Disinfectant in Covid-19 Prevention Efforts in The Tobacco Farming Area, Coastal Area, Jember District



9.	Yunita Armiyanti, Anzil Aziza, Ika Rahmawati Sutejo	University of Jember	In Vitro Ovicidal Activity of Combination Illicium Verum Extract And Coconut Oil Against <i>Pediculus humanus capitis</i>
10	Elly Nurus Sakinah, Aris Prasetyo, Jauhar Firdaus	University of Jember	Analysis of Short Chain Fatty Acid (SCFA) After Consumption of Young Coconut in Healthy Humans
11	Rena Normasari, Muhammad Iqbal Fauzi, Ayu Munawaroh Aziz	University of Jember	Extract of <i>Tamarindus indica</i> Seed Effect on Testicular Damage in Aluminium Chloride (AlCl ₃) Induced Rat
12	Faika Rachmawati, Khariri	Jember Pharmacy Academy	The Approach of One Health Concept In Addressing The Spread of Zoonotic Diseases In Indonesia
13	Harwanto, Heru Susetya, Khrisdiana Putri, Elfa Zuraida, Widodo Pujiatmoko ⁴	Universitas Gadjah Mada	The Protectiveness of Dogs and Cats Post Rabies Vaccination in Banjarbaru, Indonesia



KEYNOTE SPEAKER



FUNGAL KERATITIS WITH CORNEAL ULCER IN FARMER

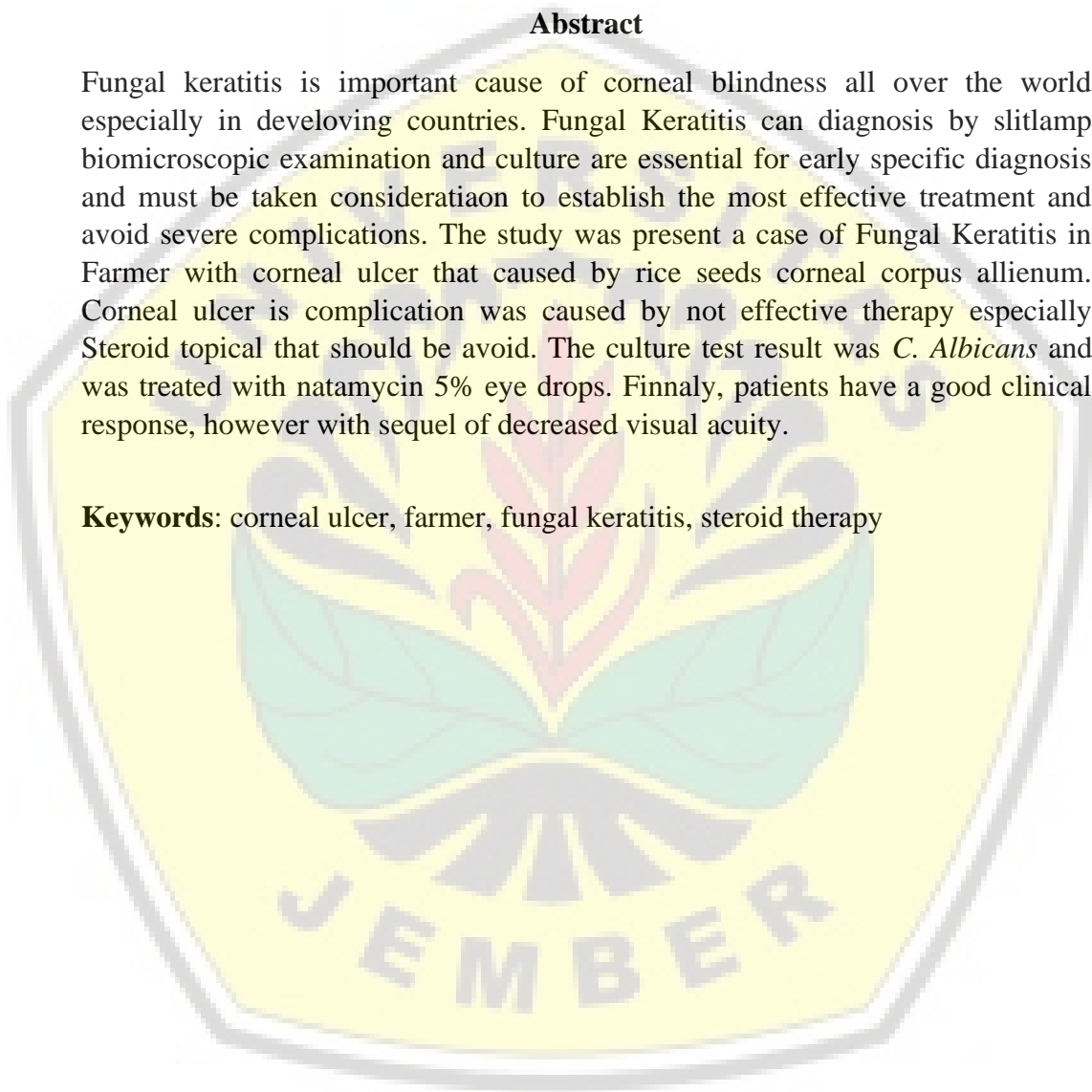
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Abstract

Fungal keratitis is important cause of corneal blindness all over the world especially in developing countries. Fungal Keratitis can diagnosis by slitlamp biomicroscopic examination and culture are essential for early specific diagnosis and must be taken consideration to establish the most effective treatment and avoid severe complications. The study was present a case of Fungal Keratitis in Farmer with corneal ulcer that caused by rice seeds corneal corpus allienum. Corneal ulcer is complication was caused by not effective therapy especially Steroid topical that should be avoid. The culture test result was *C. Albicans* and was treated with natamycin 5% eye drops. Finnaly, patients have a good clinical response, however with sequel of decreased visual acuity.

Keywords: corneal ulcer, farmer, fungal keratitis, steroid therapy



Fungal Keratitis with Corneal Ulcer in Farmer

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Abstract

Fungal keratitis is important cause of corneal blindness all over the world especially in developing countries. Fungal Keratitis can diagnosis by slitlamp biomicroscopic examination and culture are essential for early specific diagnosis and must be taken consideration to establish the most effective treatment and avoid severe complications. The study was present a case of Fungal Keratitis in Farmer with corneal ulcer that caused by rice seeds corneal corpus allienum. Corneal ulcer is complication was caused by not effective therapy especially Steroid topical that should be avoid. The culture test result was *C. Albicans* and was treated with natamycin 5% Eye drops. Finnaly, patients have a good clinical response, however with sequel of decreased visual acuity.

Keywords: Corneal Ulcer, farmer, Fungal keratitis , steroid therapy

Introduction

Keratomycosis is an inflammatory disorder of the cornea and its tissues caused by fungi infection (Whitcher *et al.*, 2001), and is the most common form of oculomycosis Cohen *et al.*, 2000. This ocular disorder is of public concern, as it is detrimental to ocular health, leading to visual impairment and blindness if rapid diagnosis and treatment is not instituted. The combined effect of its cost, protracted treatment and requirement for regular medical visits for follow-ups poses a burden on affected individuals, whose productivity could be affected with the loss of working hours due to residual visual impairment that occurs after treatment.

Keratomycosis constitutes between 17 and 60% of all culture-proven microbial keratitis globally (Upadhyay *et al.*, 1991; Bharathi *et al.*, 2003), is relatively common in the tropical

regions of the world and has very debilitating effects on the vision of affected individuals (Alfonso *et al.*, 2006; Khor *et al.*, 2006). Risk factors commonly implicated in keratomycosis are corneal trauma, contact lens wear, prolonged use of topical or systemic corticosteroids, systemic diseases such as diabetes, previous ocular surgery and ocular surface disease (Alfonso *et al.*, 2006; Khor *et al.*, 2006).

In developing countries, keratomycosis is historically associated with trauma from vegetative matter or objects contaminated with soil. In developed countries, however, keratomycosis is often associated with contact lens wear, with as many as 60 species of fungi having been found to cause the condition, with filamentous fungi, such as *Fusarium* species, and yeast-like species, such as *Candida*, being most implicated (Basak *et al.*, 2005). Patients with keratomycosis usually report the sudden onset of pain, photophobia and reduced vision, with clinical features including an inflamed eye (conjunctival injections), corneal ulcers that often lead to opacification, corneal infiltrate with feathery margins, elevated edges, rough texture, gray– brown pigmentation, satellite lesions, endothelial plaque and hypopyon (Prajna *et al.*, 2002) (Basak *et al.*, 2005)

Candida keratitis was first characterized in the mid-20th century,¹ and clinical reports extended knowledge of its risk factors and management.² Because filamentous fungal keratitis is more prevalent in the tropics, *Candida* accounts for proportionately more fungal corneal isolates at temperate latitudes.³ However, *Candida* keratitis is a worldwide problem, and we estimate its annual incidence as approximately one person per million.

Case Report

A 45-year-old male agricultural worker presented with complaints of pain and defective vision in the right eye for three weeks (Fig-1). He gave history of foreign body in the Cornea that caused by rice seeds and eye topical drop by mixture of polidemicin, polimicin and corticosteroid. There was blurred vision, redness, watering, pain and photophobia. On examination, the visual acuity was 5/60. Slit lamp evaluation of the right eye revealed a full thickness corneal ulcer. The margins of the ulcer were irregular,

base appeared as a sloughing raised mass and the peripheral rim of the cornea was vascularized. Hypopyon filled the lower third of anterior chamber and ocular tension was fairly high. Using standard techniques, corneal scrapings, obtained by a sterile blade no 15 on Bard Parker handle, were inoculated directly onto Sabouraud's media, corn-meal agar, blood agar, and mac conkey agar. These were incubated at room temperature for 4 to 6 wk. The growth of fungus was obtained within 8d to 14d and cultures were discarded after 45d. The fungi were isolated and identified. The fungus was identified as *Candida*. The species was confirmed as *albicans*. The fungus isolated was *C.albicans* Based on clinical impression, the patient was started on 5% topical natamycin drops along with 150 mg oral fluconazole twice a day. The patient's have a good clinical response, however with sequel of decreased visual acuity (Fig-2).

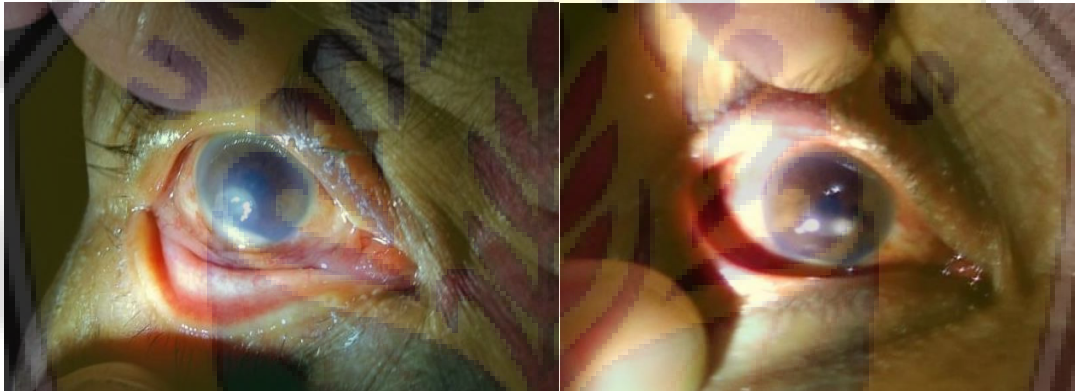


Fig-1.Keratomycosis Candida before treatment

Fig-2. Keratomycosis Candida after treatment

Discussion

Keratomycosis is synonymous to fungal corneal ulcer which is characterized by stromal infiltration caused by fungi. Fungi are ubiquitous organisms as they are present in environment as a saprotrophs. These fungi cause infection when there is a breach in corneal epithelium as epithelium acts as a barrier to microorganisms, but some of them especially *Fusarium* spp. may penetrate the intact cornea. World Health Organization reported that corneal diseases are the major cause of monocular blindness after cataract. Around 1.5 to 2 million new cases of corneal ulcer are reported annually (Whitcher *et al.*, 2001).

Keratomycosis is a major cause of mono-ocular visual disability in developing countries (Miño de Kaspar *et al.*, 1991). The first case of keratomycosis was reported by Professor Theodor Leber in 1879 and since then there has been a rapid rise in the diagnosis of fungal corneal ulcer (Kaufman *et al.*, 1965; Anderson *et al.*, 1963). This is either due to increased awareness among clinicians with better diagnostic facilities or really increasing number of infected cases. Injudicious use of corticosteroid and antibiotics increases the frequency of fungal corneal ulcer. It is estimated that in India, prevalence of fungal corneal ulcer is 44-47% (Srinivasan *et al.*, 1997; Polack *et al.*, 1981; Thomas, 1994) compared to 17-36% worldwide (Upadhyay *et al.*, 1991; Rosa *et al.*, 1994; Liesegang and Forster 1980). High prevalence of fungal corneal ulcer is attributed to tropical climate and agriculture as a major occupation. Indians are at a high risk of keratomycosis due to high vulnerability for occupational trauma especially by organic materials and sand particles. Fungi are opportunistic pathogens as they cause tissue invasion only in immunocompromised state or after direct entry of pathogens in a closed ocular space. The risk factor for the case is traumatic that was caused by rice sheeds corneal trauma. Trauma especially by vegetative material, sand or dust particles and the tail of an animal is the major predisposing factor in 55-65% cases of fungal corneal ulcer (Srinivasan *et al.*, 1997; Upadhyay *et al.*, 1991; Bharathi *et al.*, 2003; Panda *et al.*, 1997).

Despite reducing inflammation, topical corticosteroid disability in developing countries (Miño de Kaspar *et al.*, 1991). The first case of keratomycosis was reported by Professor Theodor Leber in 1879 and since then there has been a rapid rise in the diagnosis of fungal corneal ulcer (Kaufman *et al.*, 1965; Anderson *et al.*, 1963). This is either due to increased awareness among clinicians with better diagnostic facilities or really increasing number of infected cases. Injudicious use of corticosteroid and antibiotics increases the frequency of fungal corneal ulcer. It is estimated that in India, prevalence of fungal corneal ulcer is 44-47% (Srinivasan instillation enhances fungal growth (Mitsui and Hanabusa 1955; Agarwal *et al.*, 1963; Forster and Rebell, 1975). Contact lens users are also at high risk for developing ulcer especially by *Fusarium* spp. as there are micro epithelial erosions with the use of contact lens (Höflin-Lima AL, Roizenblatt, 2002; Choi *et al.*, 2001; Alfonso *et al.*, 2006; Khor *et al.*, 2006; Nelson *et al.*, 1994). Other risk factors include corneal surface disorders like dry eyes, corneal dystrophy, exposure keratitis and previous corneal surgery (Anderson *et al.*, 1959; Cohen *et al.*, 2000; Thomas, 2003).

Filamentous fungi are the major pathogen causing fungal keratitis. Hyaline fungi

(*Aspergillus* and *Fusarium* spp.) have a major preponderance followed by Phaeoid fungi (*Curvularia* and *Bipolaris* spp.) (Vijaya *et al.*, 2001; Basak *et al.*, 2005). *Candida* spp., a yeast like fungi, have a low preponderance in developing countries. Until recently more than 70 different species of fungi have been identified as the causative agent for fungal corneal ulcer (Prajna *et al.*, 2002)

Early and prompt diagnosis of fungal corneal ulcer is essential to prevent devastating complications. A good clinical evaluation including relevant clinical history and slit- lamp examination is required to suspect a case of fungal corneal ulcer. The duration of infection in fungal ulcer is usually long. Fungal keratitis can involve any part of cornea. In untreated cases, fungal corneal ulcer is seen to have feathery borders or hyphate edges. Entire lesion or large area of the lesion is elevated well above the surrounding area. Ulcer may be surrounded by a clear rim (devoid of fungi) known as 'Immune Ring of Wessley'. This ring represents immune response against fungi. Non-specific satellite lesions or discrete stromal infiltrates surrounding the ulcer is another common finding. Fungal keratitis, caused by phaeoid fungi has brown-black pigmentation on the surface of corneal ulcer. Hypopyon, the collection of exudates in anterior chamber, is present in around 50% of cases. Signs of inflammation like pain and ciliary congestion are usually minimal compared to bacterial keratitis. Typical clinical features of fungal corneal ulcer may be masked by instillation of drugs.

Laboratory diagnosis is essential for accurate diagnosis of etiological agents. Prompt and effective treatment, not only slows the progression of the disease, but also results in early healing of the ulcer. False negative diagnosis not only delays the specific antifungal therapy, but also injudicious use of medication leads to rapid growth of organisms. For a better and reliable diagnosis, cornea is scraped several times so that adequate sample material is obtained for microbiological examination.

Using plain 10% KOH wet mount, some counter stain substances like India ink, lactophenol cotton blue, ethylene blue and calcofluor white stain can also be used. These substances bind with fungal cell wall component and gives counter stain to the fungal elements resulting in better identification. But they failed to differentiate the types of fungi whether they are hyaline or phaeoid. KOH wet mount is easy, simple to perform, less time consuming and cost effective. It can also be performed in remote areas, where other facilities of diagnosis are not available. But certain expertise is required to identify and interpret the results. Sensitivity of KOH varies from 33 to 100% (Liesegang and Forster,

1980; Sharma *et al.*, 1998). Lisegang *et al.*, found 33% sensitivity of 10% KOH, compared to 100% sensitivity as reported by S. Sharma in detection of fungal elements in culture proven cases. Sensitivity of KOH is increased after addition of counterstaining substance like lactophenol cotton blue or fluorescent calcofluor white stain.

Giemsa is a compound stain formed by interaction of methylene blue and eosin. When methylene blue is exposed to acid, alkali or ultraviolet rays, a large number of oxidation products (methylene azure) are formed. In this staining, smear is fixed in methanol and then exposed to Giemsa stain. This stain is used to evaluate the cytology of corneal scrapes, aqueous and vitreous aspirates, pus and necrotic materials. It stains yeast cells and fungal hyphae as purplish blue. Apart from fungi, *Acanthamoeba* cysts are easily visualized. Sensitivity of Giemsa stain varies from 66- 85% in culture proven fungal ulcer cases (Gopinathan *et al.*, 2002). Drawbacks of this stain are similar to the Gram's stain like artefact, debris and thick smear that interfere with the results.

Culture is considered as gold standard for diagnosis of fungal infection. Culture should be done on freshly prepared Sabouraud's Dextrose Agar (SDA) and Blood Agar. After collection of appropriate sample, it should be inoculated on SDA in "C" shape pattern. Growth occurring within the streak lines should be considered as significant as fungi are the commonest laboratory contaminants. Liquid media (BHI) should also be inoculated to enrich the fungal element.

Sabouraud's Dextrose Agar is the most commonly used media for fungal cultivation. Media is made selective by addition of antibacterial antibiotics such as chloramphenicol (40µm/ml) or gentamicin (50µm/ml) as these substances inhibit the concomitant bacterial pathogens. Cyclohexamide should not be incorporated in media as it inhibits most of the fungi implicated in ocular fungi like *Aspergillus*, *Penicillium marneffe* and *Scytalidium* spp. Plates are incubated at 25°C in BOD incubator.

Conclusion

Candida keratitis was reported in Farmers patients with corneal ulcer that caused by rice seeds corneal corpus allienum. Corneal ulcer is complication was caused by not effective therapy especially Steroid topical that should be avoid. The patients was treated

by natamycin 5% Eye drops with a good clinical response, however have sequel of decreased visual acuity.

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