

# First reported case of *Phoma multirostrata* from central India

Ravita Sharma, Nirmal Channe, Shilpa Pandhare, Varsha Wanjare, Neha Sharma, Sunanda Shrikhande

Department of Microbiology, Government Medical College, Nagpur, Maharashtra, India

## Summary

A 50-year-old male patient, resident of Gondia, Maharashtra, India, presented with chief complaints of swelling and raw areas over left foot for 3 months.

Correspondence: Ravita Sharma, Department of Microbiology, Government Medical College, Nagpur, Maharashtra, India.  
E-mail: ravitasharma02@gmail.com

Key words: *Phoma multirostrata*, fungus, first case, Pycnidia, traumatic injury, immunocompromised and immunocompetent, genotyping.

Authors' contributions: all the authors made a substantive intellectual contribution. All the authors have read and approved the final version of the manuscript and agreed to be held accountable for all aspects of the work.

Conflict of interest: the authors declare no potential conflict of interest.

Funding: none.

Availability of data and materials: all data generated or analyzed during this study are included in this published article.

Ethics approval and consent to participate: no ethical committee approval was required for this case report by the Department, because this article does not contain any studies with human participants or animals. Informed consent was obtained from the patient included in this study.

Consent for publication: the patient gave his written consent to use his personal data for the publication of this case report and any accompanying images.

Acknowledgements: we are extremely grateful to the National Culture of Pathogenic Fungi (NCCPF), PGIMER Chandigarh, India, for genotypic confirmation of strain.

Received: 19 December 2023.

Accepted: 25 January 2024.

Publisher's note: all claims expressed in this article are solely those of the authors and do not necessarily represent those of their affiliated organizations, or those of the publisher, the editors and the reviewers. Any product that may be evaluated in this article or claim that may be made by its manufacturer is not guaranteed or endorsed by the publisher.

©Copyright: the Author(s), 2024  
Licensee PAGEPress, Italy  
Microbiologia Medica 2024; 39:12199  
doi:10.4081/mm.2024.12199

This article is distributed under the terms of the Creative Commons Attribution-NonCommercial International License (CC BY-NC 4.0) which permits any noncommercial use, distribution, and reproduction in any medium, provided the original author(s) and source are credited.

Patient was apparently alright 3 months prior when he had a traumatic injury with a piece of wood which went across his whole foot, which was removed by patient himself, and then he visited a private hospital where he was given various medications, which gave him partial relief.

After a few days, the patient developed a painful swelling over the left foot, up to the ankle, which was associated with difficulty in walking and local rise of temperature, and not with fever or other symptoms.

Following this, after a month, the patient developed a single raised lesion, which progressed to involve the whole left foot over a period of 5 days. The lesions then burst spontaneously, which was associated with bloody discharge. For these complaints, the patient visited a nearby hospital, where he was admitted and given various medications, including tablet amoxicillin-potassium clavulanate 625 mg, tablet pantoprazole 40 mg, tablet paracetamol 500 mg and fusidic acid cream application, which gave him partial relief.

After a few days, the patient developed a burning sensation over these lesions, for which he was then referred to GMC, Nagpur, Maharashtra, India, from same hospital.

## Introduction

*Phoma* is a polyphyletic genus of fungal organisms belonging to the phylum Ascomycota, class Dothideomycetes, order Pleosporales and family Didymellaceae [6,7,4]. More than 220 species were formally recognized in the handbook, "Phoma Identification Manual" by Boerema *et al.*, with identification determined by morphological characteristics, such as the formation of conidia (asexual spores), pycnidia (asexual fruiting bodies), and chlamydospores (enlarged, thick-walled vegetative cells within hyphae or at hyphal tips) [2,3]. *Phoma* spp. constitutes a diverse group of organisms that are ubiquitous; generally found in soil, organic matter, plants, and water sources. Fungal organisms belonging to the genus *Phoma* are known to be phytopathogens, characterized by parasitic relationships with plants. *Phoma* spp. can change from opportunistic to pathogenic organisms once in contact with the appropriate host [1]. The species have been reported to be an opportunistic invasive pathogen in animals and humans. The infections resulting from *Phoma* spp. are increasing with the advancement of medicine, primarily due to the increase in patients who are at risk due to immunosuppression. Given the consistent rise in opportunistic fungal infections correlating to an increase in individuals who are immunosuppressed, food sources typically contaminated by *Phoma* spp. can pose a greater threat to humans than just causing rot in crops [5]. Given that *Phoma* spp. is a contaminant in a variety of foods and has the potential for pathogenicity, it seems that additional standardized food safety practices are warranted for individuals who are immunocompromised.

## Case Report

A 50-year-old male patient, resident of Gondia, Maharashtra, India, presented with chief complaints of swelling and raw areas over left foot for 3 months.

Patient was apparently alright 3 months prior when he had a traumatic injury with a piece of wood which went across his whole foot, which was removed by patient himself, and then he visited a private hospital where he was given various medications, which gave him partial relief.

After a few days, the patient developed a painful swelling over the left foot, up to the ankle, which was associated with difficulty in walking and local rise of temperature, and not with fever or other symptoms.

Following this, after a month, the patient developed a single raised lesion, which progressed to involve the whole left foot over a period of 5 days. The lesions then burst spontaneously, which was associated with bloody discharge. For these complaints, the patient visited a nearby hospital, where he was admitted and given various medications, including tablet amoxicillin-potassium clavulanate 625 mg, tablet pantoprazole 40 mg, tablet paracetamol 500 mg and fusidic acid cream application, which gave him partial relief.

After a few days, the patient developed a burning sensation over these lesions, for which he was then referred to GMC, Nagpur, Maharashtra, India, from same hospital.

On systemic examination, findings were within normal limits. On local examination, multiple well defined hypopigmented to skin-coloured nodules of varying sizes were seen. Few of them showed collarette scaling and few showed brown to black crusting (thin,



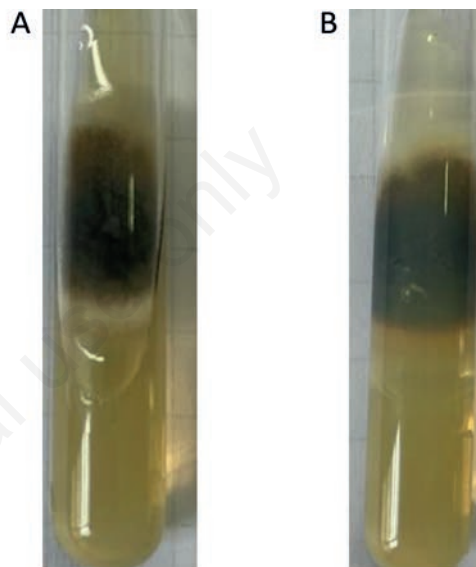
**Figure 1.** Feet of the patient.



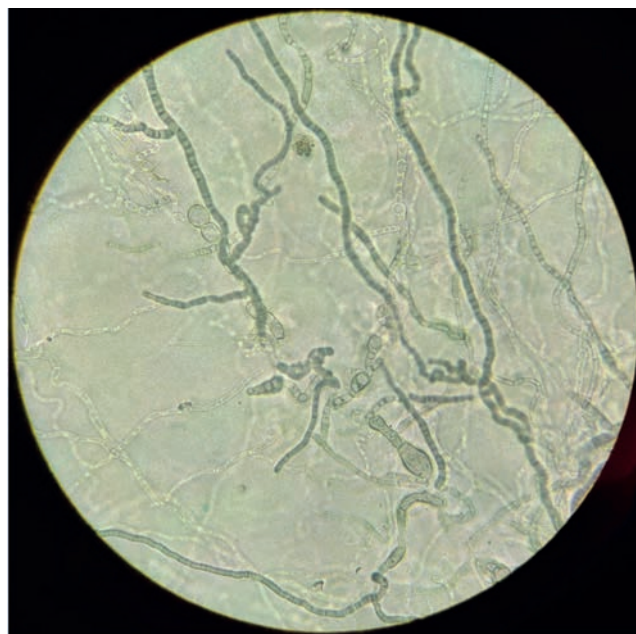
**Figure 2.** Left foot of the patient.

adherent non-foul smelling) with active sinuses and haemorrhagic discharge present over the left foot, with relative sparing of sole and with bone involvement (Figure 1, Figure 2). The largest lesion was 1.5x1 cm, the smallest- 0.5x0.3 cm. No abnormalities were detected in the fingernails. Onychodystrophy was seen in the toenails. Pitting edema was seen over the left foot up to the ankle (Grade 1).

Multiple biopsy tissues were received in the Department of Microbiology, which were inoculated on SDA agar at room temperature and 37°C. Growth at room temperature – in obverse view – showed a grayish-brown, velvety, spreading colony (Figure 3 A). Reverse was brown to black (Figure 3 B). On lactophenol cotton blue mount- Large septate hyphae, branched and dark, were seen (Figure 4). Brownish- black glabrous, solitary and globose

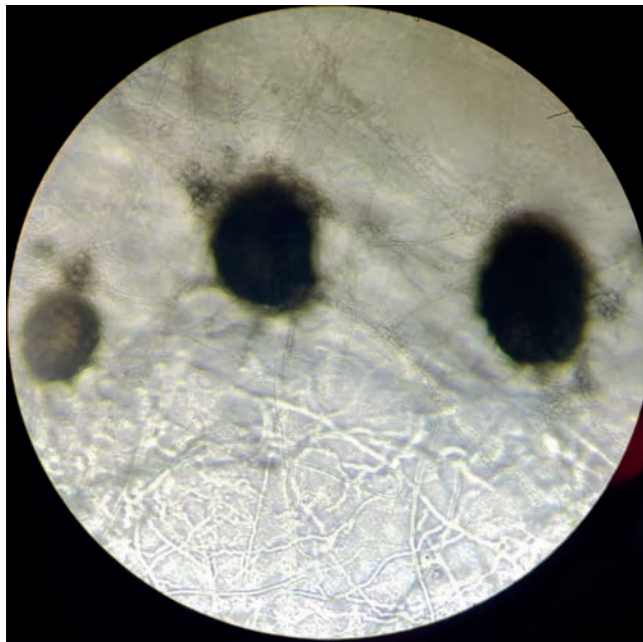


**Figure 3.** View at room temperature. A) Obverse. B) Reverse.

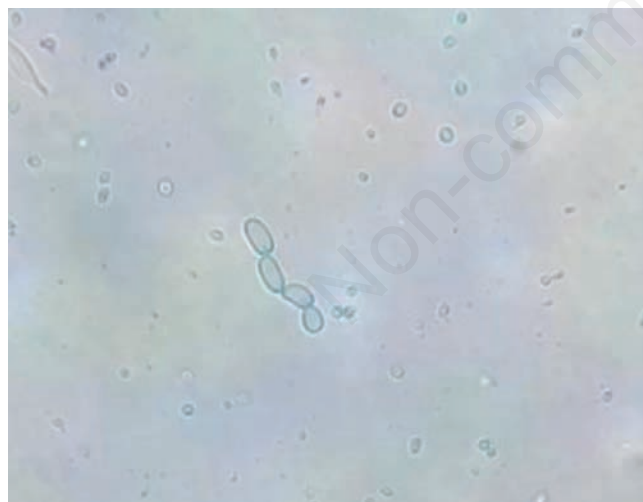


**Figure 4.** Large septate hyphae and chlamydoconidia.

Pycnidia was also seen (Figure 5). Conidia were oblong to ellipsoidal, mostly 4.5-6.5x2-2.5 micrometres (Figure 6). Chlamydospores (common in older cultures) were oblong to ellipsoidal, in chains or clustered (Figure 4). Genotypic identification revealed *Phoma multirostrata*.



**Figure 5.** Pycnidia at 27°C.



**Figure 6.** Conidia.

The patient was treated with injections of amikacin, and tablet cotrimoxazole and itraconazole. Following the treatment, the swelling reduced and no active discharging sinuses were seen. The patient was also symptomatically better.

## Discussion

Although *Phoma* spp. are phytopathogens and are known to infect plants, they can be pathogenic to humans also in certain cases, like in case of trauma, contact with contaminated soil, food and water, especially in immunocompromised individuals. For the surveillance of soil, water and processed and suspected food, new guidelines are supposed to be implemented in order to prevent a further rise in cases associated with *Phoma* spp. The high variability in microscopic morphology results in ambiguity in the classification of the genus, thus phenotypic characters are not always distinctive between the *Phoma* spp; therefore, genotypic identification plays an important role. As technology advances, a better delineation of *Phoma* spp. versus non-*Phoma* spp. fungal organisms will lead to timely and appropriate identification and possibly improved treatment. Education about the hazards of exposure to *Phoma* spp. for susceptible populations as well as for medical facilities that treat such patient populations will help in decreasing the incidence of filamentous fungal infections in the at-risk populations. This is the first case reported to the best of our knowledge.

## References

1. Aveskamp MM, de Gruyter J, Crous PW. Biology and recent developments in the systematics of *Phoma*, a complex genus of major quarantine significance. *Fungal Divers.* 2008;31:1-18.
2. Boerema GH, de Gruyter J, Noordeloos ME, Hamers MEC. *Phoma Identification Manual. Differentiation of Specific and Infra-Specific Taxa in Culture.* CABI Publishing; Wallingford, UK: 2004.
3. Guégan S, Garcia-Hermoso D, Sitbon K, et al. French Mycosis Study Group Ten-Year Experience of Cutaneous and/or Subcutaneous Infections Due to Coelomycetes in France. *Open Forum Infect. Dis.* 2016;3:ofw106.
4. Jones MDM, Forn I, Gadelha C, et al. Discovery of novel intermediate forms redefines the fungal tree of life. *Nature.* 2011;474:200-3.
5. Nucci M, Queiroz-Telles F, Tobón AM, et al. Epidemiology of opportunistic fungal infections in Latin America. *Clin. Infect. Dis.* 2010;51:561-70.
6. Parr CS, Wilson N, Leary P, et al. The Encyclopedia of Life Vol.2: Providing Global Access to Knowledge about Life on Earth. *Biodivers. Data J.* 2014;2:e1079.
7. Valenzuela-Lopez N, Cano-Lira JF, Guarro J, et al. Coelomycetous Dothideomycetes with emphasis on the families Cucurbitariaceae and Didymellaceae. *Stud. Mycol.* 2018;90:1-69.