

## Dermoscopy of Rhinofacial Entomophthoromycosis in Skin of Color: First Report

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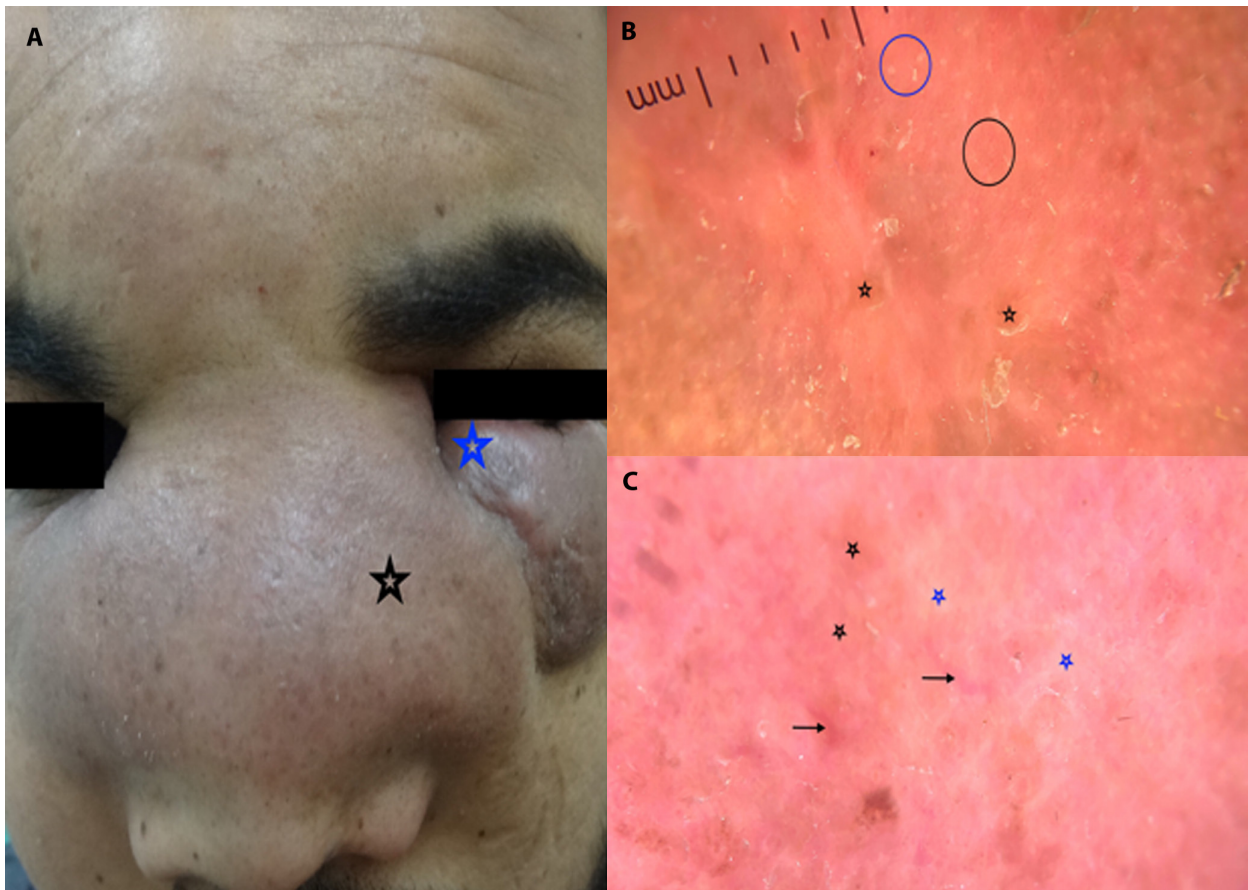
### Introduction

Rhinofacial entomophthoromycosis or zygomyces is a rare infection, caused by *Conidiobolus coronatus* involving the nasal cavity, paranasal sinuses, and soft tissues of the face. It initially starts as a painless swelling of the rhinofacial region which is locally invasive and can lead to facial disfigurement over time [1]. The disease tends to involve immunocompetent males, usually involved in agriculture between the age of 20-50 years. The diagnosis is established through histopathological and mycological examination. Special stains like periodic acid schiff and silver methanamine can help in the visualization of fungal hyphae and confirmation of diagnosis. Herein, we present a case of rhinofacial entomophthoromycosis and describe the dermoscopic findings seen in the patient.

### Case Presentation

A 19-year-old male, a farmer by occupation from the Himalayan region of north India, presented with diffuse facial swelling which initially started as nasal mass, gradually

progressing to involve the upper half of the face including nose, cheeks, and forehead with significant facial disfigurement for 8 months. There were no other symptoms associated with the swelling. The patient had taken multiple short courses of antibiotics and antifungals without improvement. General physical and systemic examination of the patient was normal. Upon mucocutaneous examination, diffuse skin-colored to erythematous, slight scaly, woody hard, lobulated subcutaneous swelling was present over the nose extending to involve the center of forehead, upper part of both the cheeks, inner canthus of the eye, and infraorbital area restricting the patient's vision (Figure 1A). Laboratory examination including blood count and blood chemistry were within normal limits. ELISA assays for detection of Human immunodeficiency virus and hepatitis B surface antigen were negative. Computed tomography scan revealed heterogeneously enhancing soft tissue mass in the left nasal cavity arising from inferior turbinate extending into the soft tissue of nasal septum. Dermoscopic examination (x10, polarized non-contact mode) was done which revealed focal yellowish-orange structureless area, dotted and linear vessels over a background of diffuse erythema



**Figure 1.** (A) Diffuse skin colored to erythematous, slight scaly, subcutaneous swelling involving nose, forehead, inner canthus of eye, upper part of both cheeks. (B) Dermoscopy of the swelling over infraorbital area (represented by blue star in clinical image) displays focal yellowish-orange structureless area (black star), multiple dotted vessels (black circle) over a background of diffuse erythema. Yellow dots (blue circle) and scattered yellow-brown scales also appreciated. (C) Focal yellowish-orange structureless area (black star), white areas (blue star), linear (black arrow) and dotted vessels seen from dermoscopy of the swelling over nose (represented by black star in clinical image).

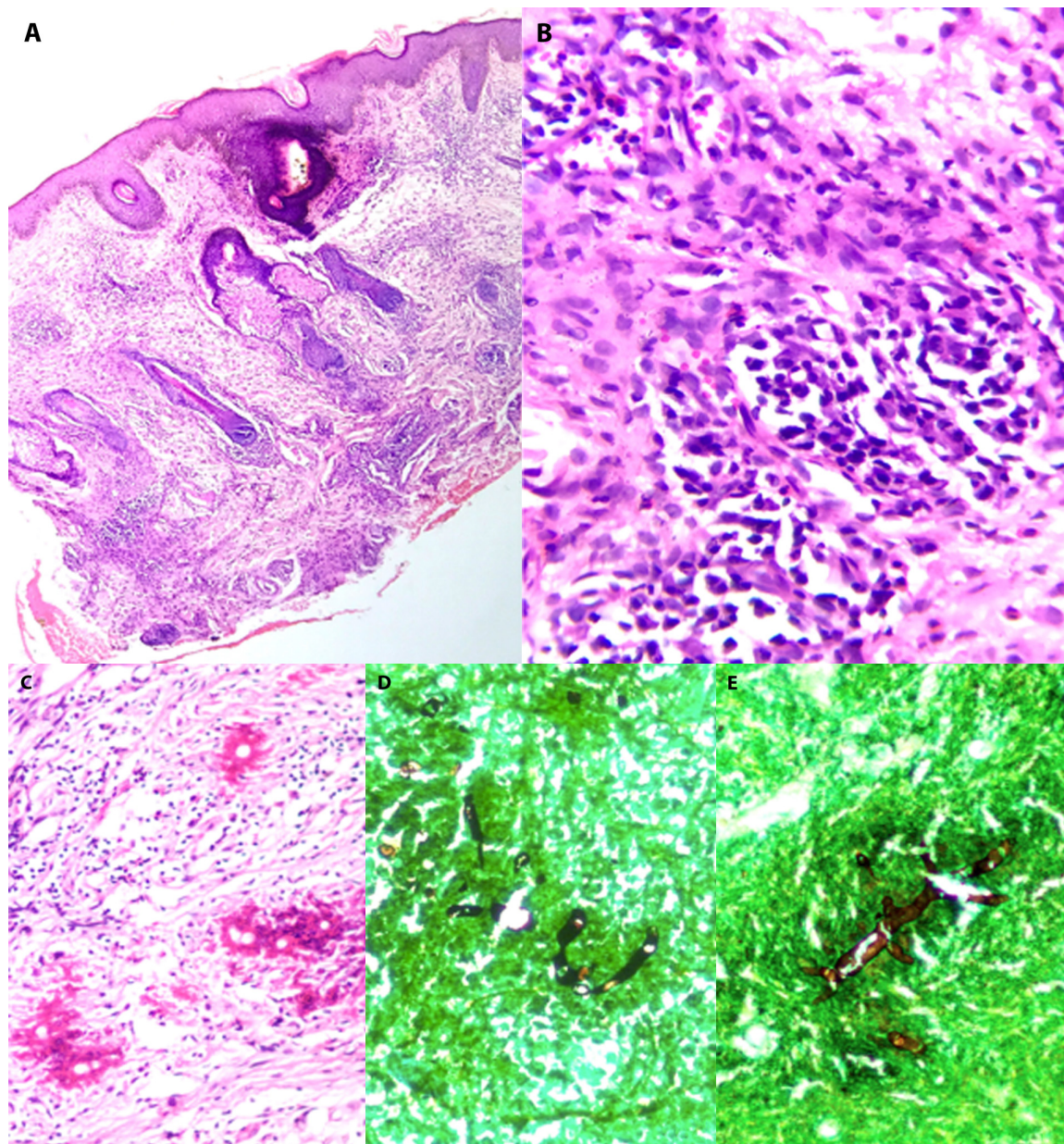
(Figure 1, B and C). Few white areas, scaling, and yellow follicular plugs seen as yellow dots were also appreciated.

Histopathological examination was done from the skin and underlying nasal mass. Skin biopsy revealed epidermal acanthosis, follicular plugs, and multiple epithelioid granulomas in the dermis with eosinophilic infiltrate (Figure 2, A and B). The nasal biopsy displayed amorphous eosinophilic material around fungal hyphae along with acute inflammatory infiltrate (Figure 2C). Gomori methanamine silver stain performed on the nasal biopsy sample demonstrated broad, aseptate fungal hyphae, a few branching at the right angle (Figure 2, D and E). No organism could be grown on tissue culture. A final diagnosis of rhinofacial entomophthoromycosis was made. The patient was started on itraconazole 200 mg twice a day and potassium iodide five drops 3 times a day.

## Discussion

The clinical appearance of rhinofacial entomophthoromycosis can mimic neoplasms like subcutaneous malignant, lymphatic oedema, tuberculosis. Dermoscopy-based

differential diagnosis of the present case include cutaneous tuberculosis, other deep mycosis like cutaneous sporotrichosis, though clinical appearance can help distinguish rhinofacial entomophthoromycosis from the latter. Timely diagnosis of this rare disorder is important to initiate early intervention and thus reduce patient morbidity. Application of dermoscopy has lately expanded to the diagnosis of deep fungal infections, though available literature is still limited [2]. To the best of our knowledge, dermoscopy of rhinofacial entomophthoromycosis has not been previously described. Generalized erythema, yellowish structureless area, presence of vessels, and white scar-like areas have been seen to be common dermoscopic features of deep mycosis [2]. The yellow follicular plugs appreciated in the dermoscopy of the present case are akin to yellow tears described in cutaneous leishmaniasis and cutaneous sporotrichosis. The presence of yellowish-orange areas on dermoscopy reflect the underlying granulomas, yellow dots correspond to dilated infundibulum present on histopathology, whereas white areas represent dermal fibrosis, with generalized erythema and vessels secondary to the dermal inflammation and neoangiogenesis.



**Figure 2.** (A) Histopathology of the skin over infraorbital area showing follicular plugs, epidermal acanthosis, multiple granulomas in the dermis (H&E, original magnification x4). (B) Dermal granuloma formed of epithelioid cells, lymphocytes, plasma, and acute inflammatory infiltrate (H&E, original magnification x40). (C) Histopathology of nasal mass demonstrating amorphous eosinophilic infiltrate surrounding fungal hyphae with dense acute inflammatory infiltrate (H&E, original magnification x20). (D) Gomori methanamine silver stain showing multiple scattered broad, aseptate fungal hyphae (original magnification x 200). (E) Another section showing broad, aseptate fungal hyphae with branching at right angle seen in silver methanamine stain (original magnification x 400).

## Conclusions

Dermoscopic findings of rhinofacial entomophthoromycosis include yellowish-ornate structureless areas, erythematous background, white areas, follicular plus, scaling, linear and dotted vessels. Dermoscopy can act as a useful tool in the diagnosis of this rare disfiguring deep mycosis and further work is needed in this field to corroborate findings seen in the present case.

## References

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