

## Intranasal Invasive Herpes Simplex, Candidiasis with Mucormycosis in Covid-19 (Delta-Variant) Patient - A Case Report

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### Abstract

This is the first case in English literature to the best of our knowledge. Our purpose is to spread awareness about unlikely and varied infection in covid-19 patients WHO are immunocompromised for various reasons.

**Keywords:** Covid-19; WHO; Mucormycosis

### Abbreviation

HSV: Herpes Simplex Virus; H/O: History Of; H/P: Histopathology; CLLC: Chronic Lymphocytic Leukemia

### Clinical History

35 years old male with H/o diabetes while recovery from covid-19 present.

With nasal obstruction, loss of sensation of leU side of face and symptoms of meningism including neck rigidity on diagnostic nasal endoscopy- typical appearance of black necrosis of nasal mucosa who present in addition to arcos where nasal mucosa pale pink and friable (Picture 1, 2).

Debridement of black neurotic mucosa was done and diagnosis of invasive Mucormycosis with candidiasis was given on H/P examination.

After few days' repeat surgical clarity was done. Two separate biopsies were taken from the friable ulcerated and necrotic pink mucosa. Diagnosis of herpes simplex virus infection was given on the tissue from pink mucosa and Mucormycosis on black tissue on H/P.

Repeat debridement was again carried out 05 days later and tissue was admitted for H/P examination and per sitting change Off HSV, Mucormycosis and candidiasis were reported.

### Histopathology

Broad, ribbon like, branching right angle Mucormycosis (Picture 3).

### *Candida albicans*

Spore and yeast like fungal entangled in inflammation exudate (Picture 5).

### PAS staining of mucor

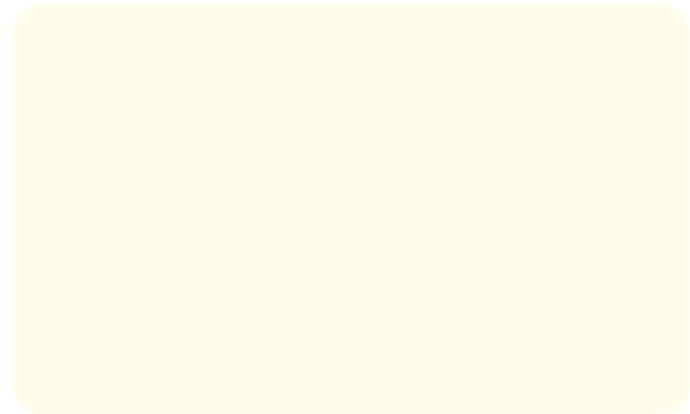
Magenta colored broad ribbon like septate hyphae of mucor.

### Candida in PAS

Redish magenta spores.

### HSV

Acanthosis of cell, intranuclear enlargement, margination, multinucleation, binuclear, intracytoplasmic nucleation, nuclear molding (Picture 4).



### Discussion

To the best of our knowledge our case of intranasal HSV infection associated with invasive Mucormycosis is first case in the English literature. The patient also had infection with Candida yeast.

Intranasal HSV infection clinically mistaken for Mucormycosis was reported by Adani Kaplan, *et al.* [1] in 2019 in a patient of CLL and biopsy showed positivity for HSV1 and 2 on IHC. No fungal of yeast elements was detected. In 2019 only Chia-yu-Chiu, *et al.* [2], also reported intranasal HSV infection in HIV positive female patient.

Necrotizing Nasal and Sinus Herpes infection with orbital involvement mimicking Mucormycosis was reported in 2019 by drydern SC, fleming JC [3] on a 94 year old male with a past medical history of hypertension congestive heart failure and chronic kidney disease.

Patel Nahal [4] published a Pediatric case series of Herpes simplex virus of the nose masquerading as invasive fungal sinusitis.

However it was Dimitrios Ioannidis [5] who had reported positivity of HSV-I virus in poly poidal rhino sinusitis in immunocompetent patient in 2015.

### Effect of immunosuppression on HSV Infection

While on one hand it is believed that immunosuppression increases vulnerability to recurrent infection by human herpes virus infection on the other hand. HSV virus infection causes immunosuppression by indirect and direct means and makes person susceptible to severe infection. Persistence of viral infection and to secondary infection by environmental agents.

Indirect mechanisms include interferon production and stimulation of suppresses cells in animal models.

In direct mechanism there in direct inactivation of immunologically active lymphocytes in humans.

## Conclusion

Invasive HSV candidiasis with mucor mycosis in post covid-19 immunocompromised patient detected in Harsh ENT hospital in first case in English literature. Patient treated with surgical debridement and injection Amphotericin B 5 mg/kg body weight.

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