Emerging *Kodamaea ohmeri* and SARS-CoV-2 Co-Infection Causing Death in a Premature Neonate: A Case Report from Rural Bangladesh

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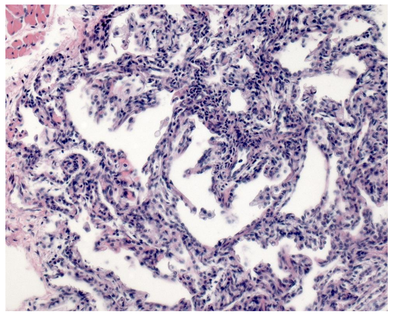
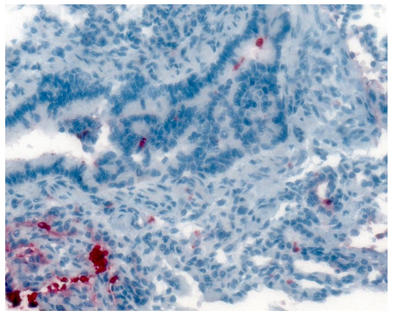
Background: A rare opportunistic pathogen, Kodamaea ohmeri, formerly named Pichia ohmeri is a yeast-like fungus that was widely used in the food industry for fermentation in the past decades. Recently, this fungus has been identified in an increasing number of serious infections in humans. Here we report a premature neonate who died due to fungemia caused by Kodamaea ohmeri with a SARS-CoV-2 co-infection.

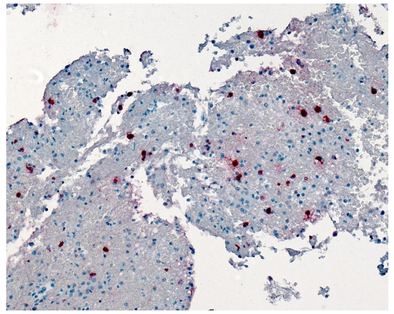
Case study: An 8-day old male baby was admitted to Bangabandhu Sheikh Mujib Medical College Hospital, Faridpur on 30th January, 2021. Parents reported the child was unable to feed and had low body temperature. The baby was ill-looking, irritable during admission, and died after 7 days of hospitalization. The neonate was a twin and was delivered at home prematurely at 34 weeks gestation with a very low birth weight (1290 gm). Post-mortem specimens were collected using a minimally invasive tissue sampling method and tested by microbial culture (BD BACTEC and Vitek-2), immunohistochemistry and TaqMan Array Card platform based on real-time PCR. All clinical, demographic and laboratory diagnosis results were reviewed by a panel of experts to determine the cause of death.



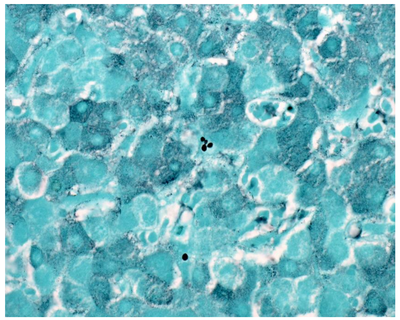
A - Lung: preterm lung with aspiration of squames, H&E.



B-Lung: Immunohistochemical staining of fungal antigens (red)



C-Blood clot: Immunohistochemical staining of fungal antigens (yeast forms) (red), IHC



D-Liver: Grocott methenamine silver stain highlights yeast forms in sinusoidal space, GMS.

Figure 1: GMS and IHC show evidence of fungemia in lungs, blood clot, CNS and liver.

Results: Sepsis due to *Kodamaea ohmeri* was identified as the immediate cause of death, and SARS-COV-2, prematurity and intrauterine growth retardation were underlying causes. *Kodamaea ohmeri* was cultured from both blood and cerebrospinal fluid (CSF). The isolate was sensitive to 7 (Amphotericin B, Clotrimazole, Nystatin, Posaconazole, Ketoconazole, Voriconazole, and Fluconazole) out of 9 antifungals tested. SARS-CoV-2 RNA (pango lineage B.1.1.25) was identified from nasopharyngeal swab, blood, CSF and lung tissue. The source of the infections and timing of acquisition were unclear.

Conclusions: Early diagnosis of unusual fungal infections like *Kodamaea ohmeri* requires advanced laboratory techniques, and appropriate treatment is recommended for a better outcome.

See more data at champshealth.org

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