Cryptococcosis is an opportunistic infection caused by a ubiquitous encapsulated yeast, Cryptococcus neoformans. Affects 5–10% of patients with HIV worldwide. Disseminated cryptococcosis is one of the AIDS defining criteria and the most common cause of life threatening meningitis. Upto 20% of patients with disseminated disease can have skin involvement. Cutaneous lesions in disseminated cryptococcosis are seldom pathognomonic and portend neurological involvement. The significance of skin lesions may provide the first evidence of dissemination and indicate a poor prognosis, however, earlier recognition and treatment would improve survival. Herein we report a case of cryptococcal meningitis with skin lesions in a HIV seropositive patient.

**Streszczenie**
Kryptokokoza jest zakażeniem oportunistycznym spowodowanym wszechobecnym, otoczkowym drożdżakiem, Cryptococcus neoformans. Dotyka 5-10% pacjentów z HIV na całym świecie. Rozsiana kryptokokoza jest jednym z kryteriów określających AIDS i najczęstszą przyczyną zakrzepczego zapalenia opon mózgowych. U 20% pacjentów z rozsianą chorobą mogą występować zmiany skórne. Zmiany skórne w rozsianej kryptokokozie rzadko są znanymi dla tej choroby, a stan ogólny pogarsza zaangażowanie zmian neurologicznych. Obecność zmian skórnych może być pierwszym dowodem rozsiania oraz wskazać gorsze rokowanie, jednak wczesne rozpoznawanie oraz leczenie może poprawić przeżywalność. Opisujemy przypadek kryptokokowego zapalenia opon mózgowych ze zmianami skórnymi u seropozitiwnego pacjenta z HIV.

**Key words:** cutaneous cryptococcosis; HIV AIDS; dissemination

**Słowa klucze:** skórnna kryptokokoza; HIV AIDS; rozsianie

**Introduction**
Patients infected with HIV are susceptible to many opportunistic fungal infections. Cryptococcosis is an opportunistic infection caused by a ubiquitous encapsulated yeast, Cryptococcus neoformans, present in soil, dust and pigeon excreta. The main route of infection is inhalation of small yeast forms which are aerosolized. The pulmonary infection is primary site and most frequently self-limited and may be asymptomatic [1]. It occurs in 6 to 13% of patients with acquired immunodeficiency syndrome (AIDS), when their CD4 lymphocyte count is below 200/cmm [2]. Currently, AIDS represents the most common risk factor and cryptococcosis at other sites follows dissemination from lungs. Most common recognized site of disseminated cryptococcosis is the central nervous system. Cutaneous cryptococcosis is rare (20%) and is a sign of dissemination and may precede life threatening disease by several weeks. The lesions may vary greatly in morphology and mimic molluscum contagiosum or penicillium marneffei. Other presentations include acneiform papules or pustules, tumors, plaques, abscesses, cellulitis, purpura, draining sinus, ulcers, bullae, subcutaneous swelling, herpetiform lesions, violaceous lichenoid lesions, nodular eruption on chin, a wart-like tumor on foot, a pseudofolliculitis & cryptococcosis mimicking Kaposi sarcoma [1,3]. These lesions are an
ominous sign as they are often the first presenting symptom of systemic disease.

Case Report

A 38-year-old male presented with skin lesions over face, chest & back since 10days and was admitted in neurology ward with severe headache, vomiting and seizures of 1 week duration.

Patient was a known HIV seropositive since 3 yrs. Patient was asymptomatic till he presented with above complaints. No history of similar complaints in the past. History of extramarital exposure – 5 yrs back. No History of any chronic illness and patient did not have antiretroviral therapy.

On Dermatological examination, multiple umbilicated papules and nodules present over face, front of the chest, upper back, upper arms & forearms (Fig. 1,2). Few lesions showed necrosis at the centre (Fig. 3). Excoriations were seen. No lesions were seen over palms, soles, oral mucosa and genitals. There was no cervical or axillary lymphadenopathy. Systemic examination of nervous system was remarkably normal with no signs of meningeal irritation and neck stiffness, deep tendon reflexes were normal.

There was no hepatosplenomegaly and lungs were apparently normal. Haematological and Biochemical investigations were within normal limits except ESR was 95mm/1st hour. CD4 counts revealed 140 cells/cu mm. CSF examination revealed round bodies arranged singly & budding yeast cells upon gram staining (Fig. 4). Negative staining with congo red with mordant showed typical capsule surrounding budding yeast cells suggestive of Cryptococcus (Fig. 5). Plain CT scan of brain showed normal study. Histopathology of Skin biopsy showed thinning of epidermis and dermis loaded with small round bodies and deep inflammatory reaction in H&E (Fig. 6) and was positive for special stain Alcian blue which confirmed cryptococcosis. Culture showed cream colour mucoid growth seen in saboraud agar media and bio-chemical tests revealed urease positivity which was consistent with Cryptococcus neoformans var. neoformans (Fig. 7,8).

The patient was started on Inj. fluconazole IV along with ART and symptomatic treatment. Patient died four days later.
Discussion

Cryptococcosis is Synonymous with Torulosis and European Blastomycosis. It is an acute, subacute or chronic infection caused by encapsulated yeast ‘Cryptococcus neoformans’. Cryptococcus has a predilection for brain & meninges, occasionally lungs & skin. Other organs involved rarely are bone marrow, heart, liver, spleen, kidneys, thyroid, lymphnodes & adrenal glands. C.neoformans was first demonstrated by Busse & Buschke in 1894 C.neoformans has two variants: a) C.neoformans var. neoformans, b) C.neoformans var. gattii. Serotypes A, D, or AD & B or C have been isolated. In Europe and USA, neoformans is found whereas in tropics & Africa gattii is seen. In HIV infection, neoformans variety is most common. neoformans exists as saprophyte, abundant in soil enriched in pigeon droppings. And gattii is isolated from leaf & bark debris from red gum trees. Main route of infection is inhalation of small yeast forms which are aerosolized. Most common age group affected between 30 to 60 years, uncommon in children. Predisposing factors include immunodeficient states – AIDS, malignant lymphomas, sarcoidosis, collagen disease, carcinoma, systemic corticosteroid therapy & patients with immunosuppression following renal transplantation [4-6].

Cryptococcosis a ‘Sleeping giant’ among fungal diseases, Ajello in 1980. But after emergence of AIDS, cryptococcosis an ‘Awakening giant’[7]. It affects 5 – 10% of patients with AIDS worldwide. Upto 20% of
patients with disseminated disease have skin involvement, mostly by strains of serotype D. Mortality is high with 30% fatality inspite of antifungals [6].

In immunocompetent individuals, CNS is the most common system involved. It presents as chronic meningitis and focal brain lesions with classic signs of meningismus, changes in consciousness, mental changes & nerve palsy. In AIDS patients, symptoms of meningitis are minimal. Evidence of wide dissemination is by positive blood cultures or multiple skin lesions. In pulmonary infection, chest signs include nodular shadows, cavitation & pleural effusion.

In disseminated disease, cutaneous lesions may precede or follow the signs of involvement of CNS & lungs. It occurs in about 10% of patients and are seldom pathognonomic. Molluscum contagiosum like lesions, i.e., umbilicated skin-coloured papules or nodules is the most common morphology of cutaneous cryptococcosis in 54% [6,7]. Acneiform papules or pustules are characteristic of widespread systemic infection. Most common sites are head & neck in 78%, but may be widespread [8]. Other cutaneous lesions include pustules, cellulitis, ulceration, panniculitis, palpable purpura, subcutaneous abscess and pyoderma gangrenosum like lesions [6].

In HIV AIDS, cryptococcosis is suspected when papulonodular necrotizing skin lesions like MC are seen in immunocompetent individuals, CNS is the most common system involved. It presents as chronic meningitis and focal brain lesions with classic signs of meningismus, changes in consciousness, mental changes & nerve palsy. In AIDS patients, symptoms of meningitis are minimal. Evidence of wide dissemination is by positive blood cultures or multiple skin lesions. In pulmonary infection, chest signs include nodular shadows, cavitation & pleural effusion.

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In HIV AIDS, cryptococcosis is suspected when papulonodular necrotizing skin lesions like MC are seen with neurological or pulmonary disease. Other varieties described are herpetiform lesions, violaceous lichenoid lesions, acneiform papulopustular & nodular eruption on chin, a warty tumor on foot, a pseudofolliculitis and cryptococcosis mimicking Kaposi sarcoma [6,9]. Commonest differentials are Molluscum contagiosum, other systemic mycoses like Histoplasmosis and infections such as Penicillium marneffi. In all suspicious lesions, it is important to take biopsy & culture.

Systemic diagnosis is done with aid of serology, blood culture and lumbar puncture, CSF serology, culture and India ink staining. Cutaneous diagnosis is confirmed by skin biopsy with special stains for capsule (eg: mucicarmine or alcin blue) and culture or Tzanck preparation.

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