



Introduction & Rationale

There are several published papers on dermatophytoses and other superficial mycoses from Bangladesh. Deep mycoses are also recognized as an important emerging problem. We have reviewed the prevalence of serious fungal infections in Bangladesh and suggest strategies for enhanced diagnosis of these infections and more epidemiological work

whereas tinea corporis was most common (17.4%) in adults. Mycotic keratitis accounted for 23-40% of suppurative keratitis.

Histoplasmosis occurred in 16 cases with disseminated disease in 14 of them. Skin sensitivity surveys to histoplasmin demonstrated 12-23% reactivity depending on population.

Other deep mycoses recorded from BD include a single case of blastomycosis, two of mucormycosis, one case each of renal aspergillosis caused by *Aspergillus fumigatus* and aspergilloma with past history of tuberculosis, and one of post renal transplant meningitis.

Methods

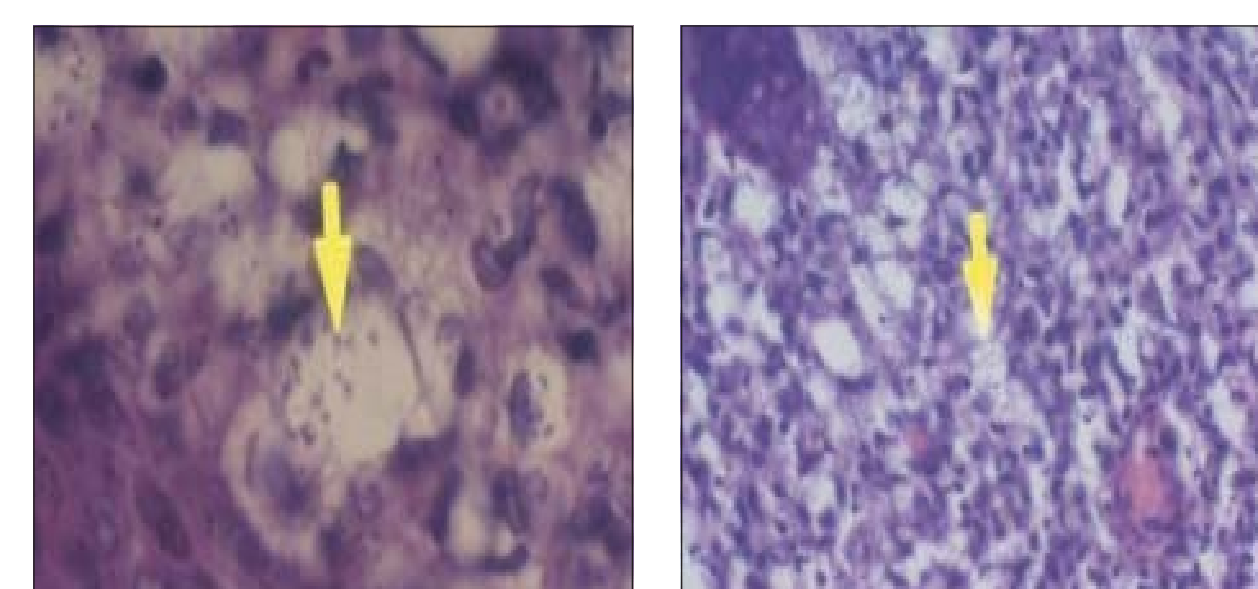
Demographic data were obtained from World Population reports and the data on TB, HIV from CDC fact sheets, and COPD from published papers. All the published papers on fungal infections in Bangladesh were identified through extensive search of literature, using PubMed, MEDLINE, Med Facts, and different sets of key words in the search engines.

Results

Bangladesh (BD) has a population of ~162 million, 31% children and only 6% over the age of 60 years. The pulmonary TB caseload reported in 2014 was 119,520, assuming a 25% mortality. This leads to an estimated prevalence of 20,720 people with chronic pulmonary aspergillosis, assuming TB accounts for 80% of the cases. The prevalence of COPD is 7.2%, in adults >40 years; asthma affects 5.2% of population with an adult prevalence of 3.23%. Asthma is also very common in rural children and is an important cause of morbidity. About 25% population suffer from different allergic disorders in BD. The prevalence of HIV is low in BD, an estimated 8,000 infected people, of whom 2900 are not on ART with a CD4 count <350. HIV infects about 0.1% of TB patients. Superficial mycoses are very common in Bangladesh (BD) with *Trichophyton rubrum* being the commonest etiological agent (80.6%) of dermatophytosis, followed *T. mentagrophytes* (8.2%) and *E. floccosum* (5.2%). Numerous cases of mycotic keratitis have been reported from several parts of Bangladesh. Among *Candida* infections oral thrush is most common (12.5%) followed by intertrigo (6.5%), chronic Paronychia (3.5%) and genital candidiasis (1.8%). *Tinea capitis* (11.85%) and oral thrush (14%) were most prevalent in children,



Ulcerated growth on hard (Ahmad et al 2010 BSMMU 3: 44-46) palate and tongue in a case of histoplasmosis



(Ahmed et al 2010 BSMMU 3: 44-46)

H. capsulatum yeast cells in tongue and lymph nodes



Proptosis of the left and periorbital edema

Hyphae invading eye ball, ptosis the blood vessel

(Choudhary et al 2004).

Conclusions

A high index of clinical suspicion followed by appropriate investigative procedure is likely to reveal a much larger number of cases of histoplasmosis and other deep mycoses. Further work on ecology of *H. capsulatum*, epidemiology of mycotic vulvo-vaginitis and mycotic keratitis is needed.

Infection	Subpopulation					Total burden	Rate/100,000
	None	HIV	Respiratory	Cancer /Tx/ Imm*	ICU		
Oesophageal candidiasis		835				835	0,5
Recurrent candida vaginitis	2,622,627					2,622,627	3,238
Candidemia				5,670	2,430	8,100	5
Allergic bronchopulmonary aspergillosis			90,262			90,262	56
Severe asthma with fungal sensitisation			119,146			119,146	74
Chronic pulmonary aspergillosis			20,720			20,720	48
Invasive aspergillosis				972	4,194	1,432	3.2
<i>P. jirovecii</i> pneumonia		58				58	0.04
Cryptococcal meningitis		15				15	0.01

References

1. Rehman MH, Hadiuzzaman Md, Bhuiyan J, Islam N, Ansari NI, Mumu SA, Chowdhury IJ. Prevalence of superficial fungal infections in the rural areas of Bangladesh. *Iran J Dermatol* 2011; 14: 86-9.
2. Rahim R, Saleh AA, Pattern of dermatophytosis in Bangabandu Sheikh Mujib Medical University. *Bangladesh J Med Microbiol* 2012; 6: 11-14
3. Huq F, Moazzam MG, Shaharuzzaman. *Candida* infection in human. *Bangladesh Med Res Counc Bull.* 1978; 4: 28-31.
4. Minassin DC. Randomized trial of 2.5% natamycin for fungal keratitis in Bangladesh. *Br J Ophthalmol* 1998, 82: 919-925.
5. Akter L, M. A. Salam MA, Bulbul Hasan B, Begum N, Iftikhar Ahmed I. Etiological agents of suppurative corneal ulcer: Study of 56 cases. *Bangladesh J Med Microbiol* 2009; 3 : 33-36
6. Parvin R, Amin R, Shariar Mehbub MD, Husnain H, A, Arif KM, Titu Mia MD Das Gupta R, Bilal Alam MD, Ahsan HM. Deep fungal infection an emerging problem in Bangladesh. *J Medicine* 2010; 11: 170-175
7. Ahmed S, Shahzad N, Rahaman FMU, Md. Abdul Kader MA, Md. Abul Kalam Azad MAK, Haq SA. Disseminated histoplasmosis without pulmonary involvement in an immunocompetent host. *BSMMU J* 2010; 3: 44-46.
8. Chowdhary M, Memud T, Sarker ZM, Huda S, Ahmed S, Jahan F, Rafiquddin AKM. Rhinocerebral mucormycosis-a case report, *J Bangladesh Coll Phys Surg* 2004; ; 22: 115-118.