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Spontaneous Pneumonia in a Goat Due to *Candida albicans*

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염소에 있어서 *Candida albicans*에 의한 자연발생 폐렴 1예

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요 약 : 인도의 도축장에서 27두의 염소의 폐를 검사하여 진균성 폐렴의 발생을 조사하였다. 27두 중 노령의 쇠약한 암컷 염소 1두에서 *Candida albicans*에 의한 폐렴이 진단되었다. 이 염소의 부검소견으로서 폐엽에 다양한 경화와 회백색의 결정상 병변이 관찰되었다. 폐렴병변 조직의 날인표본을 만든 후 Gram과 PAS 염색을 한 결과 *Candida albicans*와 일치하는 많은 수의 가성균사와 효모균이 관찰되었다. 병변조직을 Pal 배지와 Sabouraud 한천배지에 접종한 결과 *Candida albicans*가 두텁게 증식되었다. 혈청으로 실시한 한천 겔 면역확산시험에서 *Candida albicans*에 대한 가느다란 침강선이 생성되었다. 쇠약하고 노령인 환축에 있어서 기회성 진균의 역할이 강조되었다.

Key words : *Candida albicans*, goat, pneumonia

Introduction

Mycotic pneumonia is a sporadic, infectious disease of man and animals; and is caused by a large number of fungi including *C. albicans*[2,3,4,6,7]. The literature scan revealed a great paucity of information on the role of *C. albicans* in caprine pneumonia[1,2]. The present paper therefore, put on record a naturally occurring mycotic pneumonia in a weak and old goat due to *C. albicans*. The efficacy of Pal's medium for the study of *Candida* organisms is also reported.

Materials and Methods

Twenty seven pneumonic lungs collected aseptically in the sterilized wide mouth caped glass bottle from 27 goats which were slaughtered for human use at a local abattoir in Anand India, were thoroughly investigated mycologically for the presence of fungal pneumonia. A part of the lung tissues was utilized for preparing smears. These were examined after staining with Periodic acid Schiff (PAS) and Gram's technique. Small portion of the tissues was cultured directly on to the plates of Pal's medium[5] and Sabouraud agar. Agar gel immunodiffusion test (AGID) was performed to detect the precipitins in the serum of diseased goat. In addition, *in vitro* antifungal susceptibility testing was conducted against clotrimazole, ketoconazole and gentian violet by disc diffusion technique.

Results

Of the 27 goats examined, only one animal was found to be affected with fungal pneumonia due to *C.*

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albicans. Autopsied lungs of the diseased goat showed consolidation and greyish-white nodular lesions. Microscopic examination of the lung imprints in PAS and Gram's stain revealed many yeast cells and pseudohyphae morphologically indistinguishable from *Candida* organism. Many cream-coloured, pasty and smooth colonies of *C. albicans* grew on Pal's medium and Sabouraud agar at 25 and 37°C, respectively. Serum from the affected goat exhibited mild precipitin reaction against *C. albicans* antigen with AGID technique. The isolates of *C. albicans* were sensitive to clotrimazole, ketoconazole and gentian violet.

Discussion

Mycotic pneumonia, a disease of multiple etiologies, is rarely reported in animals. The autopsy, mycological and serological findings clearly elucidated the occurrence and etiologic significance of *C. albicans* in pneumonia of the goat. Many factors are said to predispose the individual to fungal infection. In the present case, the animal appeared very weak, debilitated and malnourished. The chemotherapy could not be attempted as the diagnosis was confirmed at autopsy.

The rapid and luxurient growth of *C. albicans* on Pal's medium confirmed the efficacy of this cultural medium for the isolation of *Candida* and other yeast pathogens. Moreover, disc diffusion method is very simple and easy to perform to study the drug sensitivity pattern. The results are available within 48 hours and can be conveyed to the clinician to treat the patient with specific antifungal drug.

It is suggested that pulmonary candidiasis should be considered in the differential diagnosis of caprine pneumonia.

Conclusions

Prevalence of mycotic pneumonia has been investigated in 27 pneumonic lungs of goats which were subjected for slaughter at a local abattoir in India. Of the 27 goats examined, fungal pneumonia due to *Candida albicans* was diagnosed in an old, weak and emaciated female goat. The autopsy showed many greyish-white nodular lesions in various lobes of the lungs besides consolidation. Tissue imprints from pneumonic lungs in Gram and PAS stain revealed numerous pseudohyphae and yeast cells morphologically consistent with *Candida spp*. The affected lung tissues on Pal's medium and Sabouraud agar yielded heavy and pure growth of *C. albicans*. Faint precipitin lines against *C. albicans* could be demonstrated in the goat serum by agar gel immunodiffusion test. The emphasis is given to study the role of opportunistic fungi in weak, debilitated and old patients.

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