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SALISBURY : RHODESIA

# Lung Abscess in Africans Admitted to the Medical Unit, Harare Hospital

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## Introduction

The survey included all patients discharged with the diagnosis of pyogenic lung abscess from the University medical wards from 1967 to the middle of 1970. Only patients over 20 years of age were considered. Lung abscess was defined as a suppurative bacterial process with cavitation. All cases secondary to carcinoma and fungal infections were excluded.

*Results*

In the period, 40 cases of pyogenic abscess were admitted to the medical unit out of a total of 4,819 patients. This gave a percentage of 0.85 per cent.

General aetiological factors: Of 40 cases 31 (77 per cent.) were male and nine (23 per cent.) were female.

*Place of Abode*

Seventy-five per cent. of cases lived in the tribal trust lands.

The tribal breakdown was as follows:

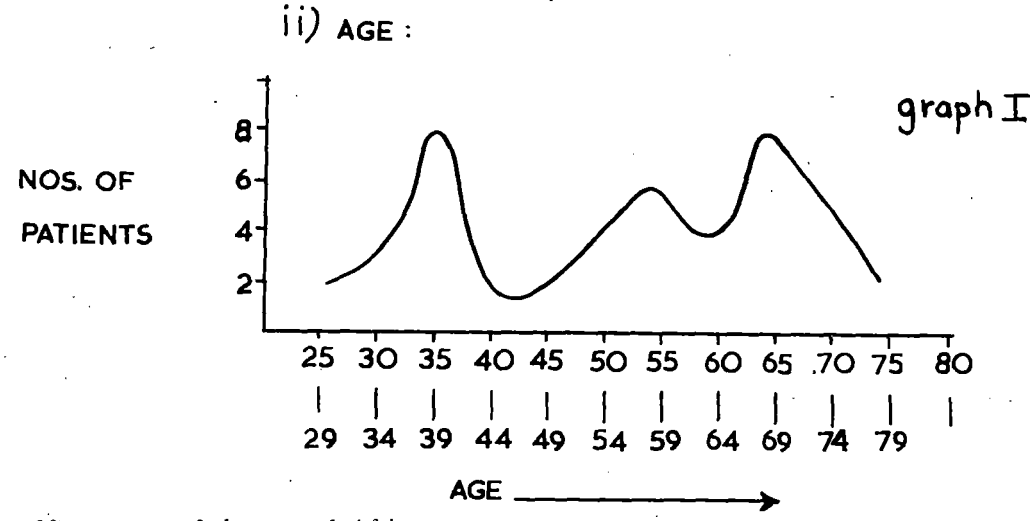
| | |
|---|---|
| Patients from clans in Mashonaland ..... ..... | 30 |
| ,, ,, ,, ,, Malawi ..... ..... ..... | 5 |
| ,, ,, ,, ,, Manicaland ..... ..... | 2 |
| ,, ,, ,, ,, Matabeleland ..... ..... | 2 |
| ,, ,, ,, ,, Portuguese East Africa ..... ..... | 1 |

*Special Aetiological Factors*

(i) In no patient was elicited the history of a period of unconsciousness, epileptic fits, surgery or perhaps aspiration of material into the lungs prior to the onset of symptoms.

(ii) Drink: 18 per cent. admitted to bouts of heavy drinking, but in no case could a drinking bout be related to the onset of symptoms.

(iii) Smoking: 33 per cent. of cases smoked, but it is estimated that in Rhodesia some




30 per cent. of the general African population smoke.

(iv) The inhalation of a foreign body: In no case could such a history be elicited.

(v) Carcinoma of the oesophagus, diabetes mellitus and hepatic amoebiasis were not found in any of the cases.

*Presentation*

The presenting complaints:

A productive cough was present in 95 per cent. of the cases and in 40 per cent. the sputum was also blood stained. A pleuritis pain was mentioned by 73 per cent. of them.

Length of Symptoms:

The average duration of symptoms was 26 days (excluding three patients whose symptoms lasted from 20-36 weeks).

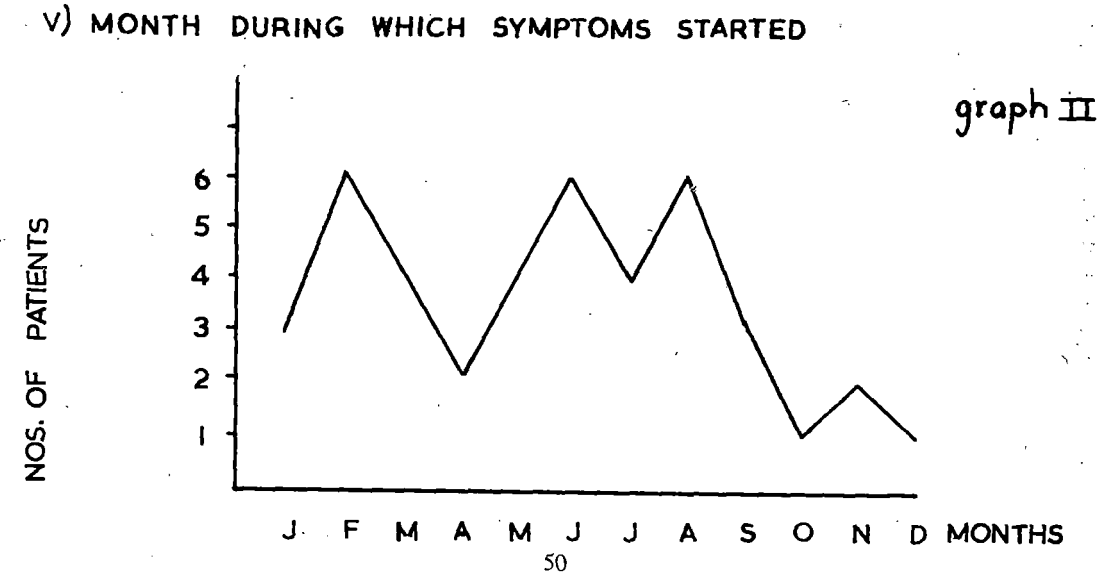
*Physical Findings on Admission*

The main physical signs are given in Table I.

*TABLE I*

| | | % |
|---|---|---|
| General appearance | Ill looking | 53 |
| | Relatively well | 48 |
| Nutritional state | Diminished | 69 |
| | Reasonable | 31 |
| Pyrexia on admission | Apyrexial | 45 |
| | 98.6°F-100°F | 42 |
| | Over 100°F. | 13 |
| Clubbing of fingers | | 30 |
| Foetor | | 13 |
| Jaundice | | 5 |
| Average pulse rate | 92 beats/min. | |

Chest examinations: 18% had clinical signs of cavitation as evidenced by cavernous breathing but pulmonary signs were detected clinically in all cases.



*Investigations*

A slight degree of anaemia was found in most cases, the average haemoglobin being 76 per cent. The average white cell count 8,300 per c.mm. The erythrocyte sedimentation rate was elevated in all cases — the average being 82 mm/hour (range 49-145).

Sputum culture: The findings are shown in Table II:

*TABLE II*
RESULTS OF SPUTUM CULTURE

| | | | |
|---|---|---|---|
| Klebsiella | 11 | Pneumococcus | 2 |
| Commensals | 11 | Proteus | 2 |
| No growth | 7 | Pseudomonas | 1 |
| Mixed | 3 | | |

(No specimen was taken from the patient who died.)

*X-Rays*

All cases showed cavitation of the P.A. view.

The position of the abscess on X-ray is shown in Table III.

*Table III*

| | | |
|---|---|---|
| Right upper lobe | 27% | 59% (R) sided |
| Right lower lobe | 32% | |
| Left upper lobe | 24% | 41% (L) sided |
| Left lower lobe | 17% | |

*Treatment*

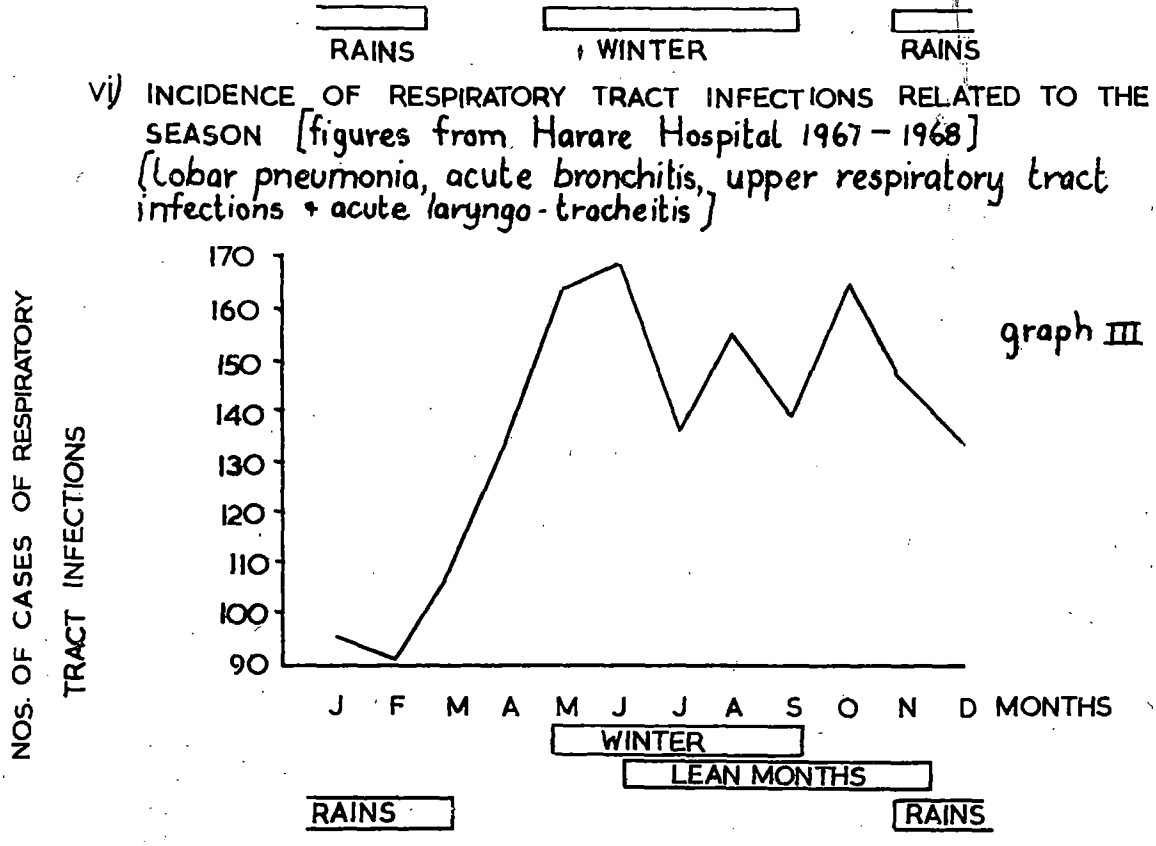
Thirty-eight patients initially received a course of penicillin (1 mega benzyl penicillin q.i.d. intravenously). Of these, 12 had a further course of tetracycline (250 mg. q.i.d.). Each patient was given physiotherapy with postural drainage.

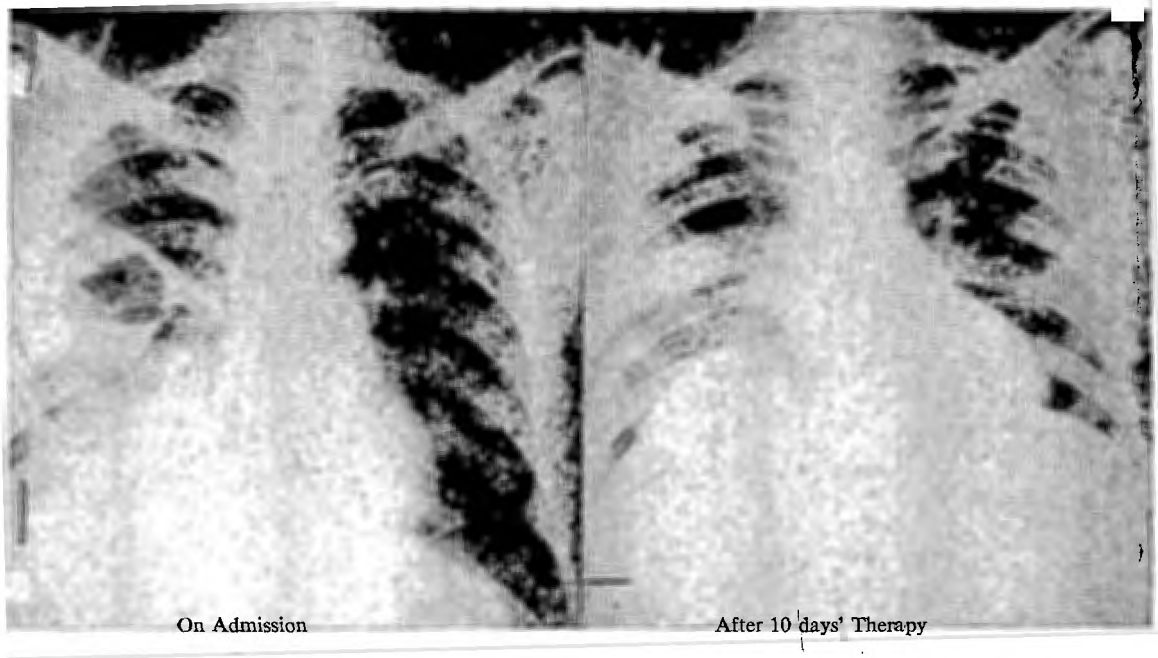
No patient was submitted to surgery.

*Course of Illness*

Forty-five per cent. of cases were apyrexial on admission although half of them developed a pyrexia in the ward. Twenty-five per cent. of cases had an intermittent pyrexia throughout the illness with occasional spikes of temperature.

For the patients who showed either a constant and intermittent pyrexia, the average time taken for the temperature to return to normal was 10 days.





On Admission After 10 days' Therapy

The average time taken for patients to show evidence of cavitation on X-ray was 24 days. This period may have been longer as some patients were discharged while still being investigated for this sign because of the pressure of beds.

The mortality rate was 2.5 per cent. — there was only a single death in one who died within 24 hours of admission.

## DISCUSSION

An incidence of 0.85 per cent. of medical admissions to the University medical unit illustrates the importance of the condition.

The high male preponderance of 77 per cent. is probably not as high in the general population, as the hospital also serves as a local one for the largely male urban population of Salisbury.

Although the majority of cases were over 50 years of age there was a peak of incidence in the 30-40 age group (Graph I). No difference could be found between these two groups in aetiology, clinical findings, course of illness or laboratory findings. It has been suspected that lobar pneumonia which has a high incidence at the younger age group could have been an aetiological factor.

The high incidence of 75 per cent. of cases coming from the rural areas may possibly be explained on the basis of two factors:

(a) Malnutrition.

(b) Delay in seeking medical aid.

(a) *Malnutrition*: Sixty-nine per cent. of the cases of lung abscess were suffering from malnutrition as evidenced by the general appearance of each patient. Those living in the rural areas had an incidence of 80 per cent. of malnutrition. That malnutrition could possibly be an aetiological factor is further illustrated in Graph III where it is seen that the incidence of respiratory tract infections in general remained high in the "lean" months of the year. This incidence fell off rapidly after the onset of the rains when food becomes available in greater quantities.

(b) *Delay in seeking medical aid*: The average duration of symptoms before admission of patients from the rural areas was just over four weeks, while that of the urban group was slightly above two weeks. It could be surmised that those patients coming from the urban areas sought medical aid sooner and thus the possibility of developing a lung abscess would be diminished.

The breakdown into tribes was not significant, the majority of cases coming from the Mashonaland area in which the hospital is situated.

The characteristic aetiological factors described in developed countries as causes of lung abscess were not found in this group. Exciting factors

such as aspiration of foreign body or infected material did not appear to apply.

The site of the abscess followed the typical pattern described in series elsewhere with the right side predominating (see Table III), the right main bronchus being the more likely site of aspiration because of its anatomical position.

The high incidence of commensal bacteria isolated from the sputum (Table II) is as would be expected if aspiration played a significant role.

*Presenting Complaints*

There was nothing remarkable in these findings and in Britain, Cleland (1963) states that pleural pain is usually during the pre-eruptive stage of the abscess. This could possibly be explained by the longer duration of symptoms before medical aid was sought. In this series the average duration of symptoms was 26 days.

*Physical Findings*

A striking feature of the disease as found in Mashonaland was its rather mild nature. This is illustrated by the following:

(i) Forty-eight per cent. of cases looked relatively well.
(ii) Twenty-five per cent. of cases had a mild intermittent temperature.
(iii) Only 13 per cent. had temperatures in excess of 100°F.
(iv) Patients presented themselves at an average of 26 days after the onset of symptoms.
(v) Average white count was only 8,000 per c.m.
(vi) Mortality rate was only 2.5 per cent.
(vii) Simple medical treatment with no surgical intervention was needed.

An interesting feature was that in only 18 per cent. of cases were signs of cavitation detected clinically. This illustrates the importance of the X-ray in diagnosis, for in every case the film showed cavitation in the P.A. view.

*Bacteriological* (Table III)

*Klebsiella* spp were the most commonly isolated bacteria on sputum culture. This differed from other series where this organism was found to be relatively uncommon.

In 11 cases no organisms were isolated, due probably to therapy being started before cultures were taken. In no case were organisms that specifically cause lung abscess isolated except in two in whom the *Staphylococcus pyogenes* was found, but in both cases the typical consolidation with the multiple lung abscess characteristic of this organism were absent.

The sensitivities of the organisms isolated did not seem to bear any relationship to the clinical response to penicillin. Indeed 38 patients received penicillin and of these only 12 had a further course of tetracycline. All of the patients showed good clinical responses.

*Progress*

The low mortality rate of 2.5 per cent. compares favourably with figures quoted elsewhere, such as 11 per cent. among Crawshaw and Fatti's series (1954) amongst Bantu in South Africa. Cleland (1963) in discussing lung abscess in Britain shows how penicillin therapy has altered the whole outlook. Before the introduction of penicillin, external drainage was the procedure of choice even though complications by surgery were common. The entire picture has now altered so that resection is favoured and external drainage rarely performed. Cleland quotes a figure of about 20 per cent. in whom conservative treatment no longer helps and in this group resection should be resorted to. It would seem therefore that lung abscess in Britain is a more serious disorder than in Rhodesia. A further point illustrating this was that in no case were classical complications found, such as brain abscess or severe haematemesis.

No useful information could be obtained about the long term prognosis although in no case was a patient readmitted to the hospital with the same condition or a complication of it. Difficulties were experienced in obtaining records of out-patient follow-ups and in persuading patients to present themselves for follow-up.

## CONCLUSION

1. Lung abscess occurs fairly commonly in the Rhodesian African adult.
2. There appears to be an association with malnutrition.
3. The classically described aetiological factors do not seem to play a significant role.
4. The disease tends to be mild and chronic and responds satisfactorily to medical treatment provided it is continued for a sufficient length of time. Surgery would appear to be rarely inidicated.

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