

Lung cancer in Malaysia

M A MENON AND H S SAW

From the Departments of Medicine and Surgery, University Hospital, Kuala Lumpur, Malaysia

ABSTRACT Between 1967 and 1976, 388 cases of lung cancer were seen at the University Hospital, Kuala Lumpur, with histological confirmation in 72%. Most were aged from 50-80, with a male to female ratio of 2.8 : 1. The patients were predominantly of Chinese origin (82%) and from the lower socioeconomic strata. A history of smoking was elicited in 78%. The chief clinical and radiological features and the diagnostic methods are presented.

The incidence of the histological types was squamous carcinoma 34%, adenocarcinoma 25%, large cell carcinoma 12%, small (oat) cell carcinoma 12%, "undifferentiated/anaplastic" 15%, and others 2%. Malays appeared to have a higher percentage of adenocarcinoma. A comparison between the histologically confirmed group and the rest showed no significant difference in features. Problems pertaining to the management of Malaysian patients are discussed.

Lung cancer is now an increasingly large cause of death from malignant disease around the world. In the United States, Britain, Finland, Denmark, and Japan the death rates between 1950 and 1965 showed a steady rise, although they have tended to level off within recent years (Schneiderman and Levin, 1972). Britain has the world's highest death rate (Crofton and Douglas, 1975) and in the USA it is now the commonest form of cancer in men (Carnow and Meier, 1973). Among several Chinese populations, lung cancer is the commonest malignant neoplasm in both men and women (Chan and MacLennan, 1977). The incidence in Singapore, where it is now the commonest form of cancer, is higher than in other Asian populations and comparable to that in Western countries (Law and Shanmugaratnam, 1973; Shanmugaratnam, 1976). There is little available information on lung cancer as a problem in Malaysia and we report the clinical features and problems encountered in the management of lung cancer in a developing multiracial country.

Material and methods

We studied and analysed the case protocols of all 388 patients diagnosed as having lung cancer from 1967 to 1976 at the University Hospital, Kuala Lumpur. The patients were divided into two groups.

Group 1 (no histological confirmation) comprised 110 patients (28%) in whom the diagnosis was based on clinical and radiological grounds

only. Evidence of secondary deposits on scans was available in some. The group included 43 patients (11% of all 388 patients seen) who refused further investigations towards histological confirmation and 30 patients who were either too ill to undergo certain invasive investigations or died before investigations could be completed.

Group 2 (histologically confirmed cases) consisted of 278 histologically proved cases. Details of the investigations performed and the positive yields therefrom are shown in fig 1. In 21% of

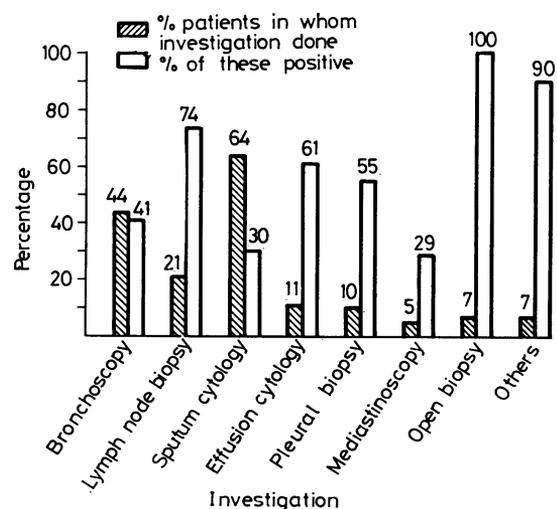


Fig 1 Usage and results of different methods of investigation.

the patients in this group more than one investigatory procedure was positive.

Results

Age

The age of patients ranged from 25 to 86 years (fig 2), with a mean age of 59.7 (group 1) and 60.3 years (group 2).

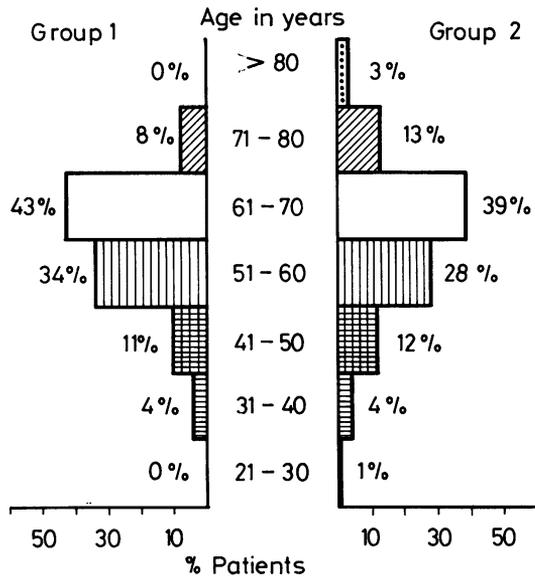


Fig 2 Age distributions.

Sex

Men constituted 80% and 71% of the patients in group 1 and 2 respectively. The male to female ratio was 4:1 in group 1 and 2.4:1 in group 2.

Ethnic groups

Malaysia has a multiracial population (fig 3a) (*Monthly Statistical Bulletin of West Malaysia*, 1976). Figure 3b shows the racial breakdown of the hospital attendances during the study period. There was no significant difference in the pattern of racial distribution between groups 1 and 2 (figs 3c and d). Allowing for the discrepancy in numbers of the three races within the hospital attendances, the incidence in the Chinese patient population was 3.41 times higher than in Malays and 7.43 times that in Indians.

Smoking

Of all the patients in this series, 78% were smokers, the percentage being greater for men

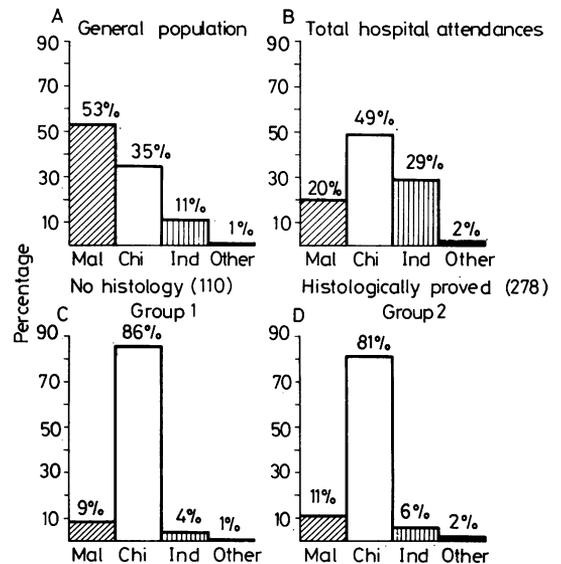


Fig 3 Ethnic group distributions in general population of Malaysia, in hospital attenders, and among lung cancer patients.

(89%) than women (57%). In group 1 83% and in group 2 76% were smokers. Some of the patients classified as non-smokers may have been smokers previously.

Socioeconomic factors

Where possible patients were divided into five socioeconomic classes as described by the British Registrar General, class 1 consisting of professionals and class V of unskilled workers. Relevant information was available in 58% of the total number. All patients in group 1 and 97% in group 2 belonged to classes III to V.

Clinical features

There was close similarity in the presenting clinical and radiological features in the two groups. Of all patients 2% were asymptomatic and 70% presented with a history of less than six months' duration. The presenting clinical and radiological features are shown in figs 4 and 5. The chief difference between the groups was in the higher incidence of features representative of invasion of neighbouring structures or of secondary deposits in group 1 (fig 6).

Histology

Squamous cell carcinoma accounted for 34% of patients in group 2 while 25% had adenocarcinoma, 12% small (oat) cell, 12% large cell, and

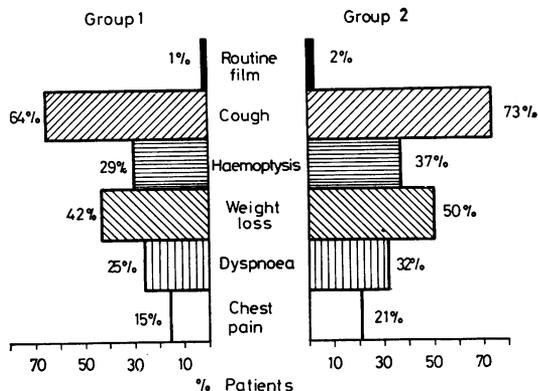


Fig 4 Incidence of clinical features.

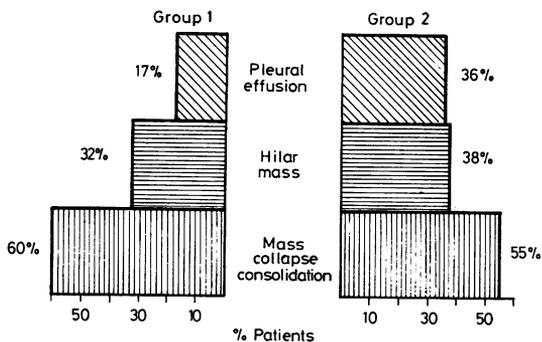


Fig 5 Incidence of radiological features.

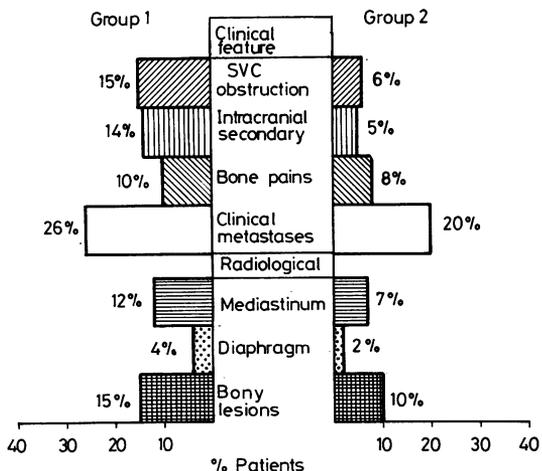


Fig 6 Incidence of features indicative of disease spread.

15% anaplastic carcinoma (fig 7). In the remaining 2% the cell types could not be ascertained. In men squamous carcinoma was the commonest cell type (37%) and in women adenocarcinoma (34%). There was no difference in the occurrence of the other types in the two sexes. The ratio of smokers to non-smokers was lowest for adenocarcinoma (1.6 : 1) and highest for oat cell carcinoma (10 : 1) and squamous cell carcinoma (5.5 : 1).

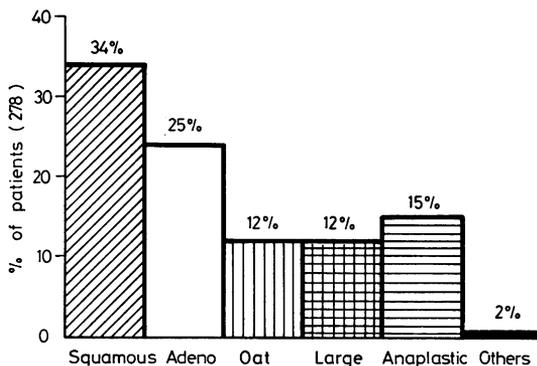


Fig 7 Incidence of histological types.

The influence of race on the histological type is examined (figs 8 and 9). For all cell types the Chinese formed the majority race. In Malays the commonest type was adenocarcinoma (40%) followed by squamous cell carcinoma, whereas the reverse was true for Chinese and Indians.

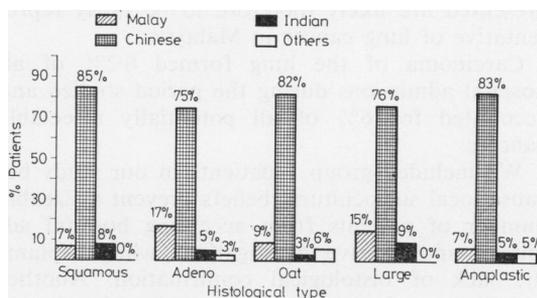


Fig 8 Racial distribution within histological types.

Operability

Operability was judged using relatively simple criteria. Patients who had no obvious evidence of inoperability clinically, radiologically, and bronchoscopically were considered operable. Routine mediastinoscopy, scalene fat pad biopsy, and scanning of the liver, brain, and bones were not done, so the operability rate may have been over-

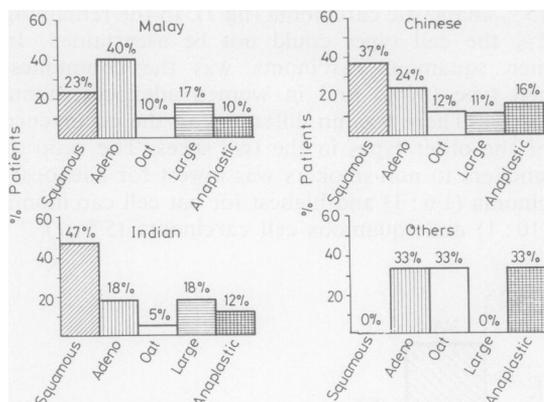


Fig 9 Histological types within racial groups.

estimated. In group 1 11% and in group 2 12% were considered operable. Of these more than half (53%) refused operation. Within the asymptomatic groups, half were operable. The major reasons for inoperability were advanced disease (97%), poor general condition (2%), and poor respiratory function (1%).

Discussion

The University Hospital is an 870 bed general hospital encompassing all major specialties except neurosurgery and radiotherapy. It is one of two major centres offering a thoracic surgical service in Malaysia and as such receives referrals widely from elsewhere within the country. The data presented are likely therefore to be fairly representative of lung cancer in Malaysia.

Carcinoma of the lung formed 0.2% of all hospital admissions during the period studied and accounted for 6% of all potentially resectable cancers.

We included group 1 patients in our study because local sociocultural beliefs prevent a sizeable number of patients from accepting hospital admission and invasive investigations, which explains the lack of histological confirmation. Another contributory factor was the moribund state of some patients at presentation, when it was considered procedures such as bronchoscopy were contraindicated. In addition, low necropsy rates, because of cultural and religious beliefs, added to the failure to obtain histological confirmation. A comparison between features in groups 1 and 2 showed no significant differences in most variables, suggesting that the clinical diagnosis of lung cancer can probably be made with fair accuracy in the stage in which we see patients here. Notwith-

standing this observation, we feel that a histological diagnosis should be obtained whenever possible. Evidence of involvement of neighbouring structures and distant metastases were commoner in group 1, presumably because in this group more reliance had to be placed on such features for diagnosing lung cancer.

Eighty-two per cent of patients were Chinese, in which ethnic group there was a higher incidence of lung cancer. This is in keeping with Shanmugaratnam's (1976) observation in Singapore that Chinese men have a significantly higher relative incidence rate than Malays and Indians, the difference being less pronounced in women. The incidence in Malaysia appears lower than that in Singapore, where contributory factors such as urbanisation and industrialisation (Schneiderman and Levin, 1972; Carnow and Meier, 1973; Blot and Fraumeni, 1976) are more centralised and concentrated, and where the percentage of Chinese in the population is slightly more than twice that in Malaysia. Some of these factors, however, may operate among the Chinese in Malaysia since the Chinese population density is higher in the urban and industrial areas. Differences in the life expectancy do not appear to contribute towards the discrepancy in incidence among the races (Vital Statistics: Peninsular Malaysia, 1974).

The male to female ratio in our patients was 2.4 : 1 for the histologically confirmed cases. This ratio is similar to what has been found in Singapore (Shanmugaratnam, 1976) but lower than generally quoted for Western populations (Harrison, 1977). Brown *et al* (1975) found that the higher socioeconomic classes had a lower incidence of the disease, an observation similar to ours.

The proportion of smokers was much lower in women (57%) than in men (89%) and the commonest cell type in women was adenocarcinoma as has been found in other populations (Beamis *et al*, 1975; Chan and MacLennan, 1977).

Seventy percent of patients had symptoms of less than six months' duration at presentation by which time 89% were inoperable, almost exclusively on account of advanced disease.

In the operable group 53% of patients refused operation so that most patients who received treatment were given radiotherapy.

Follow-up and survival figures were poor and did not provide any useful information. Patients referred to the Institute of Radiotherapy were either seen there or were lost to subsequent follow-up. Some patients came from other districts and were unable to attend follow-up clinics. In view of the terminal stage of their disease, a large pro-

portion of patients were either not requested to return for follow-up or did not do so of their own accord.

We wish to thank Mr S C Lennox, of the Brompton Hospital, London, for previewing this paper and for his valuable comments.

References

- Beamis, J F, Stein, A, and Andrews, J L (1975). Changing epidemiology of lung cancer: increasing incidence in women. *Medical Clinics North America*, **59**, No 2, 315–324.
- Blot, W J, and Fraumeni, J F (1976). Geographic patterns of lung cancer: industrial correlations. *American Journal of Epidemiology*, **103**, 539.
- Brown, S M, Selvin, S, and Winkelstein, W jun (1975). The association of economic status with the occurrence of lung cancer. *Cancer*, **36**, 1903–1911.
- Carnow, B W, and Meier, P (1973). Air pollution and pulmonary cancer. *Archives of Environmental Health*, **27**, 207–218.
- Chan, W C, and MacLennan, R (1977). Lung cancer in Hong Kong Chinese: mortality and histological types, 1960–1972. *British Journal of Cancer*, **35**, 226–231.
- Crofton, J, and Douglas, A (1975). *Respiratory Diseases*, 2nd edn, p 563. Blackwell, Oxford.
- Harrison, T R (ed) (1977). *Principles of Internal Medicine*, 8th edn, p 1388. McGraw-Hill, New York.
- Law, C H, and Shanmugaratnam, K (1973). Histopathology of lung cancer in Singapore Chinese. In *Proceedings of the 8th Singapore-Malaysia Congress of Medicine*, pp 454–457.
- Monthly Statistical Bulletin of West Malaysia*, p 4. Department of Statistics, Malaysia, Kuala Lumpur, December 1976.
- Schneiderman, M A, and Levin, D L (1972). Trends in lung cancer—mortality, incidence, diagnosis, treatment, smoking and urbanisation, *Cancer*, **30**, 1320–1325.
- Shanmugaratnam, K (1976). Epidemiological studies of lung cancer in Singapore. In *Cancer in Asia*, edited by T Hirayama, (Gann Monograph on cancer research no 18), p 153. University Park Press, Baltimore.
- Vital Statistics* (1974). Peninsular Malaysia, Department of Statistics, Malaysia, Kuala Lumpur.

Request for reprints to: Dr H S Saw, FRACS, Department of Surgery, Faculty of Medicine, University of Malaya, Kuala Lumpur.