BILATERAL HILAR ADENOPATHY: ITS SIGNIFICANCE

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SYNOPSIS

Bilateral hilar adenopathy is an uncommon radiological finding in the local population. To elucidate its significance, an analysis was made of 30 cases of bilateral hilar adenopathy detected over a five year period. 27 cases were found to be due to sarcoidosis, one to metastatic malignancy, one from silicosis and another was of indeterminate aetiology. Sarcoidosis, although rare in our community, is still the commonest cause of bilateral hilar adenopathy.

INTRODUCTION

Bilateral hilar adenopathy is not a common radiological finding among local population. In the tuberculosis prevalence survey conducted by the Ministry of Health, Singapore in 1975 not a single subject out of 16667 respondents (forming 1.1 percent of the total population aged 15 years and above) was found to have bilateral hilar adenopathy (1, 2).

This report is an analysis of 30 consecutive cases of bilateral hilar adenopathy seen at the chest outpatient clinic of the Tan Tock Seng Hospital, Singapore over a five year period from May 1976 to May 1981.

MATERIAL AND METHOD

It is estimated that about 24,000 new adult patients comprising both tuberculosis (about 10,500 cases) and non-tuberculous chest cases were seen over this five year period at the chest outpatient clinic of the Tan Tock Seng Hospital. Excluding Caucasians and non residents, 30 patients were found to have bilateral hilar adenopathy. The group consisted of 27 patients with sarcoidosis, one patient with silicosis, another with metastatic malignancy most probably from a bronchogenic carcinoma, and a patient with indeterminate disease.

Bilateral hilar adenopathy was defined as unmistakeable evidence of bilateral enlargement of the hilar nodes on the posterio-anterior chest radiograph. Cases showing questionable or no abnormality of one hilus were excluded. The opacities due to the enlarged nodes were usually round, oval or lobulated and more often than not were of approximately equal size bilaterally.

For the diagnosis of sarcoidosis, the criteria as put forward at the Second International Conference of Sarcoidosis by Israel and James (3) were adopted. Classification was into four groups: (i) both biopsy and Kveim test positive (ii) biopsy negative or omitted but Kveim test positive (iii) biopsy positive but Kveim test negative and (iv) both biopsy and Kveim test negative and the diagnosis made on clinical grounds.

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RESULTS

(i) Bilateral hilar adenopathy due to sarcoidosis. The 27 patients were categorised into four groups as mentioned above (Table 1). In addition to bilateral hilar adenopathy, 11 patients had enlarged paratracheal nodes usually right sided and unilateral (Figure 1). Parenchymal lesions consisting of reticulo-nodular opacities were seen in ten patients (Table 2). The group comprised 18 males and nine females and had a mean age of 30.9 years; only two patients were 50 years or older at the time of diagnosis. The racial distribution of the patients is given in Table 3.

TABLE 1: Classification of 27 Patients with Sarcoidosis and Bilateral Hilar Adenopathy

Group	Features	Number of Patients
1	Biopsy positive Kveim test positive	2
2	Biopsy omitted Kveim test positive	11
3	Biopsy positive Kveim test negative	4
4	Biopsy omitted Kveim test negative	10

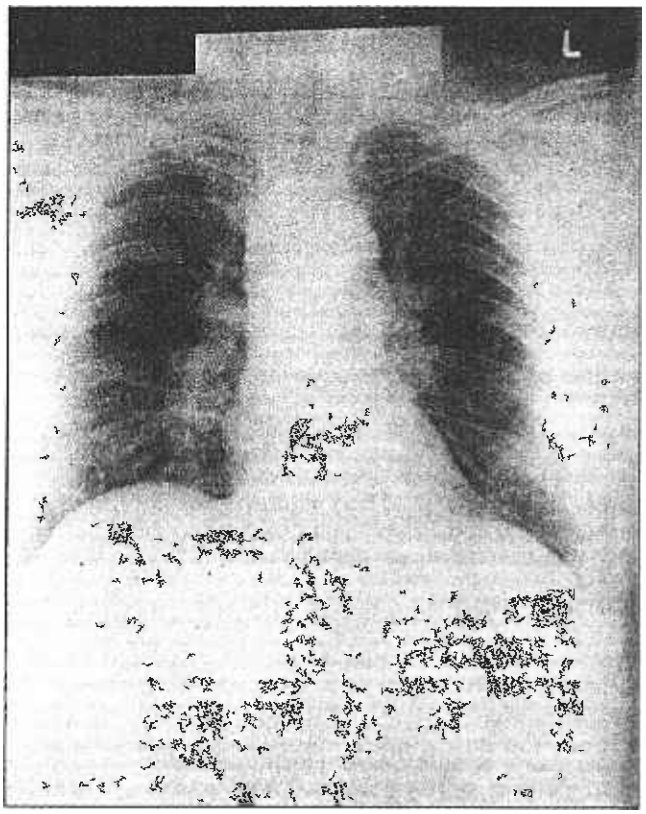

Figure 1: Bilateral hilar adenopathy and enlarged right paratracheal nodes in a 33 year old man with asymptomatic sarcoidosis

The patients' symptoms are shown in Table 4. 15 patients were symptomless. No patient complained of arthralgia or had erythema nodosum. Physical examination revealed no abnormality in 20 of the 27 patients. Cervical adenopathy was found in four patients, subcutaneous nodules in one patient, uveitis (one patient) and Bell's palsy (one patient).

The tuberculin test to ITU PPD with tween 80 gave a positive reaction (10 mm or more of induration) in six patients. Two patients, one with a positive Kveim test and the other with a positive Kveim test and uveitis, had reactions of 18 mm and 19 mm respectively. Laryngeal swab cultures for acid fast bacilli were negative in all the patients. Diagnostic thoracotomy was performed in two patients.

TABLE 2: Initial Radiographic Findings in 27 Patients with Sarcoidosis and Bilateral Hilar Adenopathy

Findings	Patients	
	No.	%
Bilateral hilar adenopathy	27	100
Paratracheal adenopathy	11	41
Parenchymal opacities	10	37

TABLE 3: Racial Distribution of 27 Patients with Sarcoidosis and Bilateral Hilar Adenopathy

Race	Number of Patients
Chinese	9
Indian	9
Malay	7
Ceylonese	1
Eurasian	1

TABLE 4: Symptoms in 27 Patients with Sarcoidosis and Bilateral Hilar Adenopathy

Symptom	Patients	
	No.	%
Asymptomatic	15	55
Cough	7	26
Chest pain	6	22
Dyspnoea	4	15
Weight loss	3	11
Fever	2	7
Bell's palsy	1	4
Uveitis	1	4

Of the 15 untreated patients with bilateral hilar adenopathy and no parenchymal opacities, four were lost to follow-up; in the remaining 11 patients, three developed parenchymal infiltrates on follow-up. Eight showed normal radiographs, one within nine months, six within 18 months and one within two years.

(ii) Bilateral hilar adenopathy due to metastatic malignancy. One patient with bilateral hilar adenopathy was found to have lymphangitis carcinomatosis (confirmed by open lung biopsy) most probably from a bronchogenic carcinoma (Figure 2). He presented with symptoms of cough, dyspnoea and hemoptysis. He was a heavy cigarette smoker and had been treated three years previously for pulmonary tuberculosis.

(iii) Bilateral hilar adenopathy due to silicosis. Silicosis was diagnosed in a 52 year old man who had been working in a granite quarry for 21 years. He had bilateral hilar adenopathy and diffuse nodular opacities.

(iv) Bilateral hilar adenopathy due to indeterminate disease. This patient, a 23 year old Malay man, first presented with fever of one month's duration, associated with small left supraclavicular nodes, right hilar and right paratracheal nodes and infiltrates in the right upper lobe.

His tuberculin test was 15 mm and a Kveim test was non reactive. He was treated with anti-tuberculous chemotherapy with resolution of the infiltrates and the right hilar and paratracheal nodes. He, however, defaulted treatment after ten months and was not seen again until two years later when he presented with complaints of fever, cough and loss of weight. He had slightly enlarged left supraclavicular nodes and bilateral hilar adenopathy (Figure 3). The tuberculin test to ITU PPD showed a 20 mm induration with blister. Biopsy of the left supraclavicular node revealed granuloma formation with caseation necrosis. No acid fast bacilli were noted. His laryngeal swab cultures for acid fast bacilli were negative. He responded well to anti-tuberculous chemotherapy.

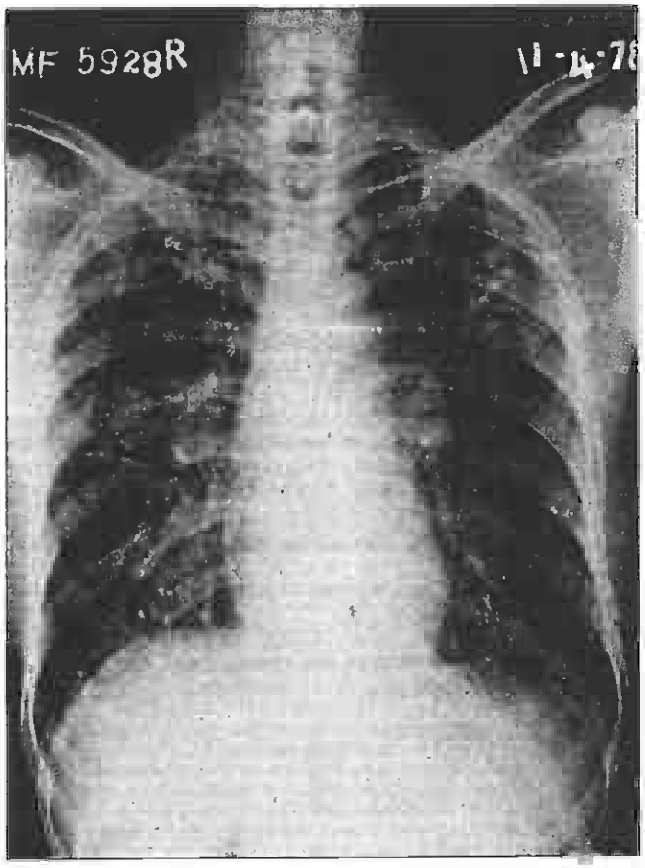

Figure 2: Bilateral hilar adenopathy, calcified tuberculous lesions and reticulo-nodular opacities bilaterally — lymphangitis carcinomatosis

DISCUSSION

Bilateral hilar adenopathy may be due to a number of different conditions; the differential diagnosis most commonly involves sarcoidosis, neoplasms especially lymphomas, pneumoconiosis, tuberculosis, beryllium disease and fungal infections such as histoplasmosis and coccidiiodomycosis. Schaumann (4) in 1924 was the first to recognise sarcoidosis as a common cause of bilateral hilar adenopathy. Since then sarcoidosis has been recognised as one of the commonest causes of bilateral hilar adenopathy.

Apart from Japan, there is a "near-zero incidence of sarcoidosis in most Asian countries" (5). Among the Chinese, sarcoidosis is noted to be extremely rare, only 26 cases have been reported todate (5). Of the nine cases included in this report, seven were diagnosed either by biopsy or a positive Kveim test, and in two the diagnosis was made on clinical grounds. The rarity of sarcoidosis in Asians accounts for the paucity of bilateral hilar adenopathy as a radiological finding in the local population.

It is interesting to note that the usual female preponderance is not seen in this series of 27 patients with sarcoidosis and bilateral hilar adenopathy. Furthermore, 22 percent of the patients were reactors to ITU PPD. Chusid

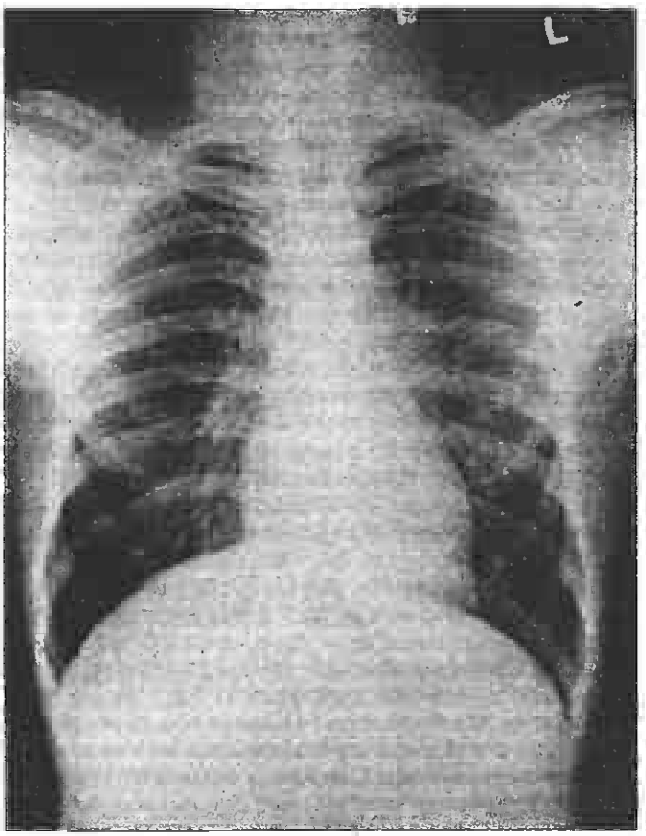

Figure 3: Bilateral hilar adenopathy and enlarged left paratracheal nodes. Calcified lesion seen in left apex.

et al (6) noted that 49 (14 percent) of their 350 patients with sarcoidosis were reactors to ITU PPD to 10TU PPD and Crofton (7) states that less than five percent of patients are reactors to ITU PPD. Our relatively high rate of reactors probably reflects the high prevalence of tuberculosis in the local community where out of the four percent of school children aged 15-17 years without a BCG scar, 88 percent are found to be reactors to ITU PPD (8). It is likely the degree of tuberculin sensitivity attained could not be entirely suppressed with the advent of sarcoidosis (9).

The association of erythema nodosum with sarcoidosis appears to vary quite significantly in different parts of the world, being common in Scandinavia and Britain and unusual in the United States (7). Erythema nodosum occurred in 33 percent of patients with sarcoidosis and bilateral hilar adenopathy in the Edinburgh series (7), and in 53 percent of patients with bilateral hilar adenopathy in the study by Lofgren and Lundbach (10) of 212 patients with the "bilateral hilar lymphoma syndrome". On the other hand, Winterbauer et al (11) from the United States reported an incidence of only 15 percent in their 74 patients with sarcoidosis and bilateral hilar adenopathy. None of our 27 patients had erythema nodosum. This is probably due to geographic and racial variation and to the preponderance of males in the group.

Israel (12) states that "symmetrical enlargement of the hilar lymph nodes in an asymptomatic person or one with erythema nodosum or iridocyclitis is rarely due to anything but sarcoidosis". In a review of 100 patients with bilateral hilar adenopathy, Winterbauer et al (11) concluded that "bilateral hilar adenopathy in asymptomatic patients with negative physical examinations or in association with erythema nodosum or uveitis should be considered a priori evidence of sarcoidosis, and biopsy confirmation of the diagnosis is not necessary". In the absence of erythema nodosum and in patients with a strong reaction to ITU PPD, the management of patients with bilateral hilar adenopathy presents a challenge. With the exception of serum angiotensin converting enzyme estimation, no simple laboratory tests clearly separate sarcoidosis from adenopathy due to infections or neoplasm. Nevertheless, in our local popu-

lation, in spite of the rarity of sarcoidosis in Asians, the results of this analysis support the above conclusions.

No case of lymphoma was encountered. Although in patients with bilateral hilar adenopathy, lymphoma is a common differential diagnosis, it is noteworthy that Winterbauer et al's (11) entire group of 212 patients with lymphoma included only one patient with bilateral hilar adenopathy who had no extrathoracic abnormalities on physical examination at initial diagnosis. Hodgson et al (13) reviewing 100 consecutive cases of lymphoma found bilateral hilar adenopathy in nine patients, all of whom had lymph nodes or skin lesions easily accessible for biopsy. They were of the opinion that "by the time Hodgkin's disease or lymphosarcoma produces bilateral hilar adenopathy, the process is so advanced that diagnosis should be quite easy".

Bilateral hilar adenopathy due to metastatic malignancy is rare. One patient had bilateral hilar adenopathy due most probably to a bronchogenic carcinoma. He was ill and severely symptomatic. Winterbauer et al (11) reported four patients with bilateral hilar adenopathy due to metastatic malignancy (two out of 500 patients with bronchogenic carcinoma and another two from 1201 patients with primary extrathoracic malignancy). All the four patients were symptomatic. The appearance of the bilateral hilar adenopathy may be indistinguishable from benign conditions.

In spite of the high prevalence of tuberculosis in the community, its presentation as bilateral hilar adenopathy is extremely rare as shown by its absence in the recent survey (1, 2) and in this report. Combining the data of Hodgson et al (13), Winterbauer et al (11) and Löfgren and Lundbach (10), out of 422 patients with bilateral hilar adenopathy, only two were found to have a definite tuberculous aetiology. Our patient with bilateral hilar adenopathy of indeterminate aetiology had a strongly reactive tuberculin test and incompletely resolved tuberculous supraclavicular lymphadenopathy. The bilateral hilar adenopathy could be due to relapse of his tuberculosis or more likely to concomitant sarcoidosis as it is recognised that in the presence of active tuberculosis, either before or concurrently with sarcoidosis, the tuberculin response is not suppressed. (6)

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