

Tuberculous pericarditis in Birmingham

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Gooi, H. C., and Morrison Smith, J. (1978). *Thorax*, 33, 94-96. **Tuberculous pericarditis in Birmingham.** Forty-one patients with acute tuberculous pericarditis were studied retrospectively. Anti-tuberculosis chemotherapy alone was effective in thirty. Five patients died, two from unrelated causes, two due to delayed diagnosis, and one after pericardiectomy. Constrictive pericarditis developed in seven patients, six of whom had successful pericardiectomy. Corticosteroids could not be shown to have reduced the risk of developing constriction. When constriction occurred it did so within the first six months of illness in all cases in contrast to a separate series of 15 patients who presented with constrictive pericarditis. These had had no previous history of tuberculosis, and in 10 cases where pericardiectomy was done, no histological evidence of tuberculosis was found. They were European with an average age of 49 years whereas in the group with acute tuberculous pericarditis 33 were Asian and the average age was 36 years.

Acute tuberculous pericarditis is an uncommon condition. Despite advances in the treatment of tuberculosis, the effect of chemotherapy on its outcome has not been studied fully. In this paper we review, retrospectively, experience in Birmingham.

Patients and methods

The records of all patients who attended the Birmingham Chest Clinic between 1960 and 1976 for tuberculous pericarditis were analysed. They satisfied one or more of the following criteria: (1) histologically proven tuberculous pericarditis; (2) isolation of *Mycobacterium tuberculosis* from the pericardial fluid; (3) pericarditis with proven extra-pericardial tuberculosis; and (4) acute pericarditis or pericardial effusion not due to another cause which responded to anti-tuberculosis chemotherapy. The diagnosis was considered definite when criteria 1, 2, and/or 3 were met and probable when criterion 4 only was satisfied.

Results

CLINICAL FEATURES

There were 41 cases of acute tuberculous pericarditis available for study, 17 proven and 24 probable.

Thirty-seven patients were men and four women. Thirty-three were Asian and the rest

European. Their ages ranged from 18 to 74 years, the average being 36 years. Twenty-nine (88%) of the Asians were under the age of 45 years; the oldest was 55 years.

The more frequent symptoms and signs are recorded in Table 1. The electrocardiogram showed changes consistent with pericarditis in 18 (44%) patients. Enlargement of the cardiac silhouette and pleural effusion on chest radiography were noted in 40 (98%) and 17 (41%) cases respectively. The pericardial fluid was haemorrhagic in 11 out of the 13 specimens examined and *Myco. tuberculosis* was isolated from four. Polyserositis was seen in three patients, proven tuberculous lymphadenitis in five, tuberculous osteomyelitis in one and pulmonary tuberculosis in six.

Table 1 *Clinical features of acute tuberculous pericarditis*

Clinical feature	No.	%
Chest pain	17	41
Cough	19	46
Dyspnoea	18	44
Fever	30	73
Pericardial rub	16	39
Paradoxical pulse	16	39
Hepatomegaly	18	44
Chest radiography		
Cardiomegaly	40	98
Pleural effusion	17	41
Parenchymal lung lesion	6	15
Hilar lymphadenopathy	4	10

TREATMENT

Thirty-two patients were treated with a combination of streptomycin, PAS, and isoniazid, two with streptomycin, PAS, isoniazid, and rifampicin, and six with streptomycin, isoniazid, and rifampicin. One received no treatment. Streptomycin was discontinued within three months in all cases when used. Twenty-six patients discontinued chemotherapy after at least 18 months of treatment while nine were still on medication when last seen at follow-up. One had treatment stopped after nine months because of drug reaction.

Of the 40 treated patients, 18 were also given corticosteroids. Seven patients required subsequent pericardiectomy for constrictive pericarditis, four (all proven cases) from the corticosteroid group and three (one probable and two proven cases) from the remainder. Only one had cardiac catheterisation before surgery but all were seen by a cardiologist who confirmed constrictive pericarditis. Surgery, when undertaken, was carried out within six months of starting treatment. Disseminated tuberculosis did not complicate surgery in any patient.

Follow-up was from one to 16 years (Table 2). Nineteen out of 30 (63%) patients treated medically had been followed-up for at least three years and these included nine who had been seen for more than five years. None showed evidence of developing constrictive pericarditis. The six patients who survived pericardiectomy had been followed up for 3-14 years. No recurrence of constriction was found.

Table 2 Follow-up of acute tuberculous pericarditis

Treatment	Length of follow-up				Dead	Total
	< 18 months	18 months to 3 years	3-5 years	Over 5 years		
Medical only	5	6	10	9	3	33
Medical and surgical	0	0	2	4	1	7
Untreated	0	0	0	0	1	1
Total	5	6	12	13	5	41

There were five deaths. One patient was given corticosteroids only for three months for pericardial effusion before the correct diagnosis was made and antituberculosis treatment started. Another died the day after admission. There was one early postpericardiectomy death secondary to ventricular rupture. Two deaths were due to unrelated causes—myocardial infarction and carcinoma.

Discussion

As with other series (Bauer *et al.*, 1956; Hagerman *et al.*, 1964; Roone *et al.*, 1970) acute tuberculous pericarditis was found to be predominantly a disease of adult males. Most of our patients (80%) were Asian. This reflects the higher prevalence of tuberculosis among them. Of note is the absence of Negro patients in our series whereas they form the majority in the papers from North America mentioned above.

Without treatment tuberculous pericarditis results in death or constrictive pericarditis (Andrews *et al.*, 1948; Harvey and Whitehill, 1937). Streptomycin alone reduced mortality from 90% to 43% (Shapiro and Weiss, 1953). In our series, the overall mortality was 7%, and in proven cases 18%. This marked improvement is probably due to more effective chemotherapy.

It is probable that the risk of developing constrictive pericarditis is reduced by adequate treatment. This complication occurred in 17% of our patients. Owing to the high mortality in untreated cases it is difficult to be certain about the effect of chemotherapy on the occurrence of this complication, but 16 out of 18 untreated patients reported by Andrews *et al.* (1948) developed constrictive pericarditis. The finding of tubercle bacilli in the pericardial fluid or caseating granulomata in the pericardium increased the likelihood that constrictive pericarditis would develop. When it occurred, it did so early in the course of the illness. More than half our patients have been followed up for three years or more, and none has shown any evidence of constrictive pericarditis later than six months. Surgery under the cover of adequate chemotherapy is not contraindicated early in the course of the disease since dissemination of tuberculosis or failure of wound healing did not occur.

Four out of seven patients who required pericardiectomy had been given corticosteroids in the acute stage of their illness whereas the other three had only chemotherapy. It is not possible, therefore, to determine the role of corticosteroids in preventing the development of constrictive pericarditis. General improvement occurred more rapidly when corticosteroids were used, and there was no evidence of added risks provided adequate chemotherapy was given concurrently.

Constrictive pericarditis without a previous acute episode was found in a separate series of 15 patients (10 men and 5 women). All were European and their average age was 49 years. None gave a past history of tuberculosis in any site. Pericardiectomy was carried out in 10 patients, and none had histological evidence of tuberculosis.

The findings were non-specific fibrosis and collagenisation and, in some cases, calcification.

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