ACUTE BENIGN PERICARDITIS IN COXSACKIE INFECTION AND GRIPPE

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Several forms and syndromes were differentiated from the so-called acute benign or idiopathic pericarditis, until recently considered by some authors as a separate nosological unit (1, 2). They are post-cardiac-injury syndrome, posttraumatic syndrome, acute benign infectious pericarditis. The etiology of the posttraumatic syndrome and of the post-cardiac-injury syndrome has not been hitherto clarified. Dressler (7) first hinted at the possibility of autoimmune reaction due to sensibilization of the organism by the necrotic tissue of the pericardium or myocardium. A similar point of view has been adhered to by other authors too (6, 17, 19). Bacterial contributing causes however, are by no means discarded.

Unlike pericarditis after myocardial injury in the broad sense of the word (ischemia, operative intervention, trauma), the so-called acute infectious benign pericarditis is produced by virus. Resnik and Harrison (18), Bradley (4) and others very rightfully place emphasis on the fact that, owing to its incidence and possibility for confusion with heavier diseases, it should be considered as an important, independent clinical unit. In a number of cases, the Coxsackie B virus was isolated (9, 20), whilst in others, it took part in the general picture of known virus affections, as for instance infectious mononucleosis (10), hepatitis (21), virus pneumonia (21), ornithosis (22) etc. and was caused by their agents. The acute virus pericarditis is observed in all age groups with highest incidence of affections being recorded among young people. By rule, upper airway infection is established in the past history, dating back two/three weeks. The elevated temperature and pain in the heart region, contrary to acute cardiac infarction (18), usually occur simultaneously and might be very severe, with temperature reaching 39—40°C. The duration of the morbid condition ranges from 2—3 days to two months. Often, one or more relapses take place in several weeks or even months (11). Cardiac tamponade as a complication is exclusively rare. The development of constrictive pericarditis is reported in single cases (14). The ECG changes are usually transient and affect the intermediate segment and the T wave. Occasionally, they might persist for longer, reaching up to two years. The disease runs a benign course, but lethal cases have also been reported (15,23). The treatment is aspecific. In manifold recurrences pericardiectomy is recommended which presumably interrupts the morbid process in similar cases (18).

Recently, we had the opportunity to follow up two patients:

Case report I — R. Z. Y., history of illness № 11639, labour conscript, admitted for treatment at the clinic on 25 July, 1966 with diagnosis: Acute bronchitis. Rheumocarditis. One month previously he had a sudden illness with feebleness, loss of apetite, headache, pains in the throat and high temperature, reaching up to 39°C. In the

service unit he underwent medical examination and treatment with tablets, without any relief of complaints; 3—4 days thereafter he felt slight pains in the wrists which subsided on the following day. Mild, dry coughing occurred with pains in the left thoracic half, intensifying during deep respiration. He was admitted to the clinic with severe pains in the left half of the chest and restrosternally, with temperature 38°C and short breath (asthma) during physical strain. The objective examination disclosed pronounced general feebleness with haloing of the eyes and finger cyanosis of the upper and lower limbs, physical evidence for moderate rightside pleural effusion and increased cardiac percussion borders and regular, relatively slowed down heart activity. A slight systolic sound and pericardial friction murmur were established on the cardiac apex, persisting for two days and thereupon disappearing. Blood pressure 90/45. On admission the urine was within normal limits. Blood picture: erythrocytes 3 800 000, Hb 70%, leukocytes 9400, differential count: staff. 40%, segm. 42%, bas. 2%, monocytes 2%, lymphocytes 14%, Weltmann — 5 test tubes, MacLagan 7 Ph. U. diphenylamine test, 540 Ph. U. antistreptomycin titer 330 antistreptomycin units. The tuberculin tests were negative. Evidence for focal infection — absent. The electrocardiogram disclosed elevation of the intermediate segment, more clearly manifested in the first lead (Fig. 1). The X-ray investigation revealed enlargement of the heart shadow, with irregular outlines, narrowing of the retrosternal and retrocardial spaces (Fig. 2), blurred right costo-diaphragmatic sinus, rightside band-shaped shadow in the vicinity of the wall, produced by the pleural effusion, intense pulmonary border outline.

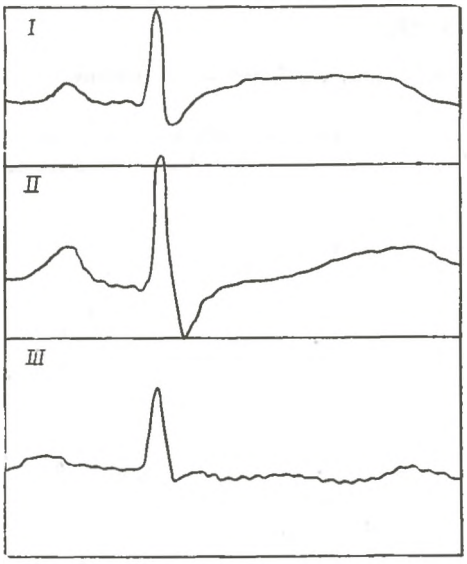

Fig. 1

The feces of the patient were also investigated and after adequate treatment, were inoculated into newborn mice subcutaneously and intracerebrally. Paralysis occurred on the fifth day. The subsequent histological study disclosed diffuse necrosis of muscular tissue *. The muscle cells and the interstitium displayed deleted structure. Nuclei were absent. The changes just described were not found in the control animal.

On account of presumable rheumatic etiology of the disease, initially treatment with penicillin, acetysal and corticopreparations was embarked on. The condition of the patient was promptly improved. On the 5th day since the admission the erythrocyte sedimentation rate was reduced to 45/83 and up to the 10th day it was within normal limits. The Weltmann test and the proteinogram were normalized more slowly — approximately after about 3 months. The pericardial and pleural effusions were promptly resolved (Fig. 3).

The rheumatic etiology in this patient is ruled out since it is well known that rheumatic pericarditis occurs usually in rheumatic forms running a severe course. The diphenylamine test and the antistreptolysin titer are not specific for the rheumatic process and their transience and sporadic rise hardly justify the assumption of such a hypothesis.

The lack of anamnestic data proving a specific infection, the negative X-ray findings and tuberculin tests and the benign course of the disease are

* The histologic investigations were performed by Dr. M. Gardevski, senior assistant at the Chair of Patho-anatomy, Higher Medical Institute — Varna.

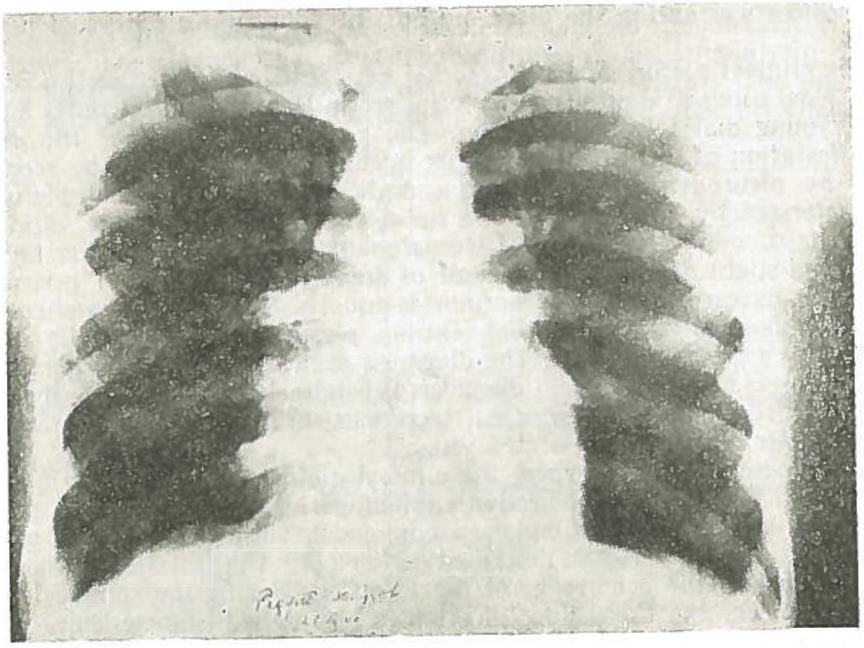

Fig. 2

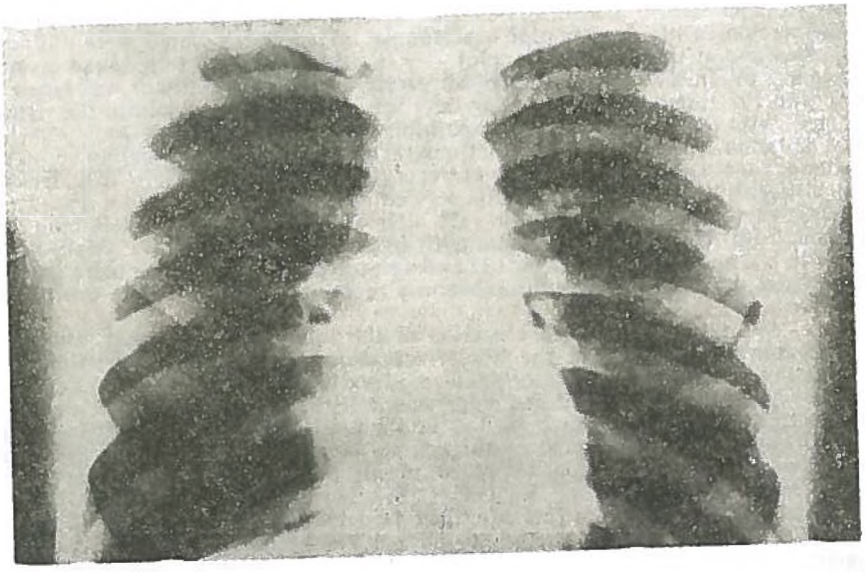

Fig. 3

all indices warranting the discarding of the tuberculous nature of pericarditis.

The clinical picture of the Coxsackie pericarditis has been well described (24). Most often it is produced by vira, group B, runs a mild course and affects young males by predilection. The pericarditis might be the unique manifestation of the Coxsackie virus infection or else, might be accompanied by pleurodynia and ensuing complications. The clinical picture is characterized by a slight or moderate elevation of temperature within several days, oppression and poststernal pain, irradiating towards the left hand and slight dyspnea with a sense of dread. The detection of pericardial or pleuropericardial friction murmur is usually helpful diagnosticalwise. Roentgenologically. a pericardial effusion is established, eventually accompanied by a pleural effusion. The diagnosis pericarditis is supported by the ECG changes. The etiological diagnosis is established by isolating the virus from the feces or from pharyngeal secretions, and by the rise of the antibodies' titer towards the isolated virus.

In the case report concerned, the clinical picture, characterized by acute onset, high temperature, pleurodynia, pleuropericardial effusion and prompt reversible evolution, is completely coincident with the classical picture of Coxsackie B pericarditis, described earlier (24). The isolation of the virus and the fact of the occurrence of the affections during the summer season (as well known, the Coxsackie infection is also called summertime grippe) corroborate the diagnosis Coxsackie B pericarditis.

Case report II — S. R. S., history of illness № 49, labour conscript, admitted to the clinic on 7 January, 1967 with diagnosis: acute catarrh of the respiratory ways. A week prior to admission he fell ill with feebleness, elevation of temperature up to 39°C, headache, dry cough and vomiting. Upon admission he complained of retrosternal pains, irradiating towards the right chest half and both shoulders and dependent on the position of the body. The objective examination disclosed a heavy general condition of the patient, reddening of the face, slight cyanosis. On palpation, pericardial friction murmur was established as well as increased percussion heart borders; absolute and relative percussion in hte greater part overlapping. The heart sounds were dull; at the cardiac apex and at the Botkin-Erb point — a slight wheezing systolic sound overheard. In the course of almost two weeks, a harsh pericardial friction murmur was heard between II and IV intercostal spaces. The liver was palpated 1.5 cm within the right subcostal area, with oval margins, slightly painful. Blood pressure — 100/70.

On admission, the urinary examinations revealed opalescence, albumin, 5—6 erythrocytes and 3—4 leukocytes. Blood picture: erythrocytes 4 400 000, Hb 76%, leukocytes 12 000; differential count — staffed 2%, segmented cells 66%, monocytes 2%, lymphocytes 30%, erythrocyte sedimentation rate after Westergreen 90/60, Weltmann 7 t. t., MacLagan 55 Ph. U. Hypoalbuminemia with hypergammaglobulinemia. Diphenylamine test 600 Ph. U., antistreptolysin titer 125 antistreptolysin units. Transaminase activity — within normal limits. Normoallergic tuberculin reactions. Focal infection was not discovered.

ECG — left type, pronounced elevation of the intermediate segment. On the 10th day of treatment, inversion of the final fluctuation was initiated, persisting till the dismissal of the patient. In the precordial leads elevation was established in $V_{4,5,6}$ (Fig. 4).

The X-ray investigation disclosed enlargement of the heart shadow, deletion of heart vault junctures, reduced vascular shadow and intensified pulmonary outline (Fig. 5).

The virusological studies showed an increase of the antibody titer concerning the A-2 virus, from 1/40 at admission to 1/320, twenty days thereafter; the latter value was maintained.

The condition of the patient just described persisted for nearly 25 days, during which period the temperature did not return to normal values and the pains persisted. The biochemical alterations, the erythrocyte sedimentation rate and leukocytosis did not regain normal values during the first month after the onset of the disease. The X-ray alterations in the heart configuration were retained for about one month (Fig. 6).

With the second patient too, the absence of data for rheumatism in the past history, the absence of valve defect and the low antistreptolysin titer justified the discarding of the rheumatic etiology of pericaditis. The slightly positive tuberculin tests and the benign course as well, the nil effect of

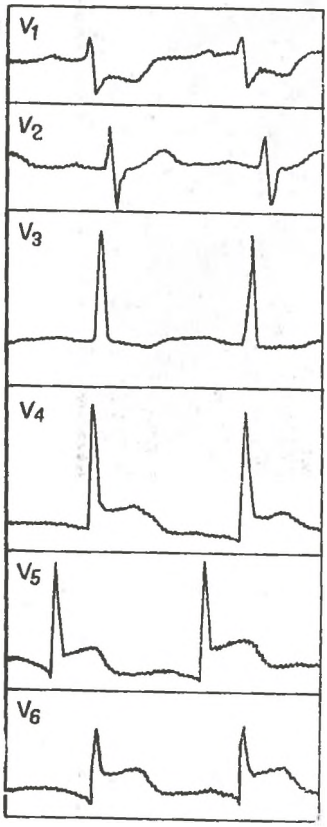

Fig. 4

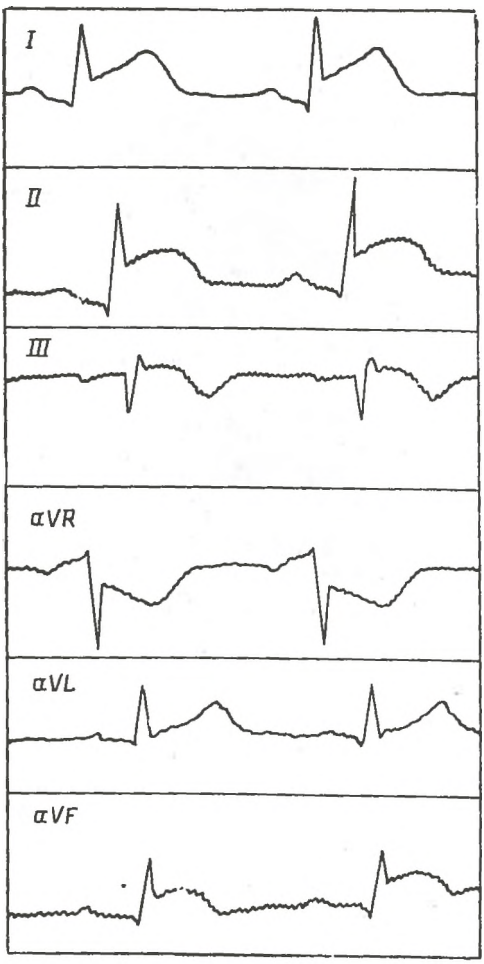

Fig. 5

the specific treatment embarked on and the lack of evidence for tuberculous infection in other organs, all dissipated the suspicion for the tuberculous nature of the disease. The clinical picture and the course with this particular patient correspond to the general clinical picture of acute benign pericarditis.

Grippe virus has been isolated from the heart, kidney and other extrapulmonary tissues in patients with lethal outcome (24). Nevertheless, many authors (13, 24) place under suspicion the existence of a grippe peri- and

myocarditis. The opposite viewpoint, naturally, also has its supporters. Thus Schieche (21) described two cases with acute benign pericarditis, considered by him as proved grippe cases without, of course, fully rejecting the possibility of allergic reaction.

Bearing in mind that the isolation of grippe virus, which, by the way, is possible merely in the first days of the disease, and at least the four-fold

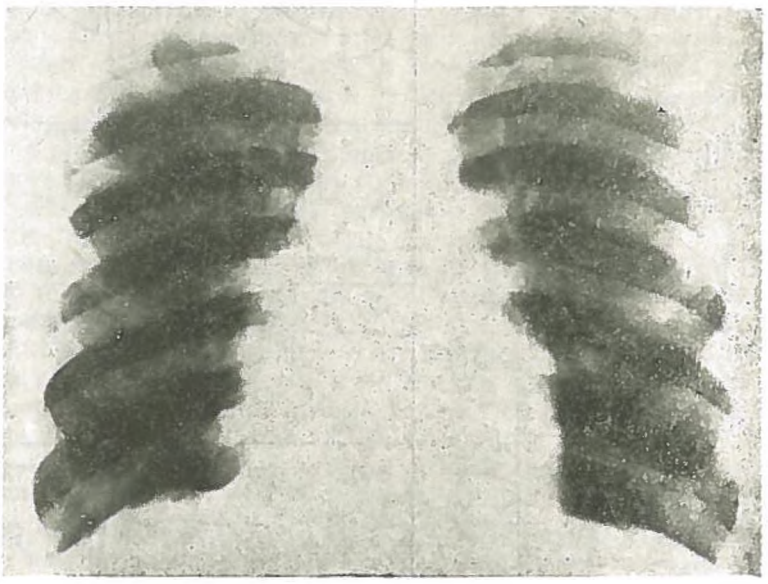

Fig. 6

increase of the specific titer of the antibodies are considered as indicativ of the grippe infection, we believe that there is enough ground to assumee that in this case a grippe pericarditis is concerned. The clinical picturwith the characteristic leukocytosis and the 8-fold increased antibody tis ter, the coincidence of the affection with the height of the grippe epidemic. in the town at that time are all convincing evidence for such an assumptioni

In the Bulgarian literature heretofore no reports on virus pericarditis have been made. Gelinov (1) merely accepts such a possibility in a cass report concerning a female.

In both case reports the clinical doubts were confirmed by the virusological investigation. The isolation with the first one of Coxsackie B virus, and the proving of grippe infection with the second one once again corroborate the polyetiological character of the so-called benign idiopathic pericarditis. In addition, they demonstrate that obviously, virus pericardites are not so rare as usually believed.

REFERENCES

1. Гелинов, Хр. *Съвр. мед.*, 1961, 12, 127—132.
2. Певзнер, Г. *Сов. медицина*, 1964, 27, 54.
3. Artenstein, M. S. et al. *Ann. intern. Med.*, 1964, 60, 196.
4. Bradley, Ec. *Am. Heart J.*, 1964, 67, 121.
5. Colouna, A. et al. *Riforma Med.*, 1965, 79, 1037.
6. Davidson, C., M. F. Oliver, R. F. Robertson. *Brit. Med. J.* 1961, 2, 535.
7. Dressler, W. *Arch. intern. Med.*, 1959, 103, 28.
8. Elias, H., L. Boyd. Clinical aspects of pericarditis and constrictive pericarditis, Cardiology, v. 3, ed. Luisada A. A., 8—33.
9. Fletcher, E., C. F. Brennan. *Lancet*, 1957, 1, 913.
10. Gardner, C. C. *Am. J. Med. sci.*, 1959, 237, 352.
11. Gouffault, J. et al. *Coeur med. Intern.*, 1964, 3, 355.
12. Hamm, J. et al. *Deutsch. Med. Wschr.*, 1965, 90, 1.
13. Kilbourne, E. D. Influenza, Textbook of Medicine, Beeson and Mc. Dermott, 1963, 14—19.
14. Krook, H. *Acta Med. Scand.*, 1954, 148, 201.
15. Liu, H. et al. *Am. Heart J.*, 1965, 69, 678.
16. Leading, Articie. *Brit. Med. J.*, 1965, 5453, 60.
17. Martin, A. *Brit. Med. J.*, 1966, 2, 279, 5508.
18. Resnik, W. and T. K. Harrison. Pericarditis, Principles of internal Medicine, McGraw hill book company, 1962, 1467—1473.
19. Robinson, J., W. W. Brigden. *Brit. Med. J.*, 1963, 2, 706.
20. Sanctos, Monaldi, T. et al. *Brit. Med. J.*, 1963, 5370, 1451.
21. Schieche, M. *Zsch. Artz Fortbild.*, 1965, 59, 80—84.
22. Schoenemann, J. et al. *Z. Ges. inn. Med.*, 1964, 20, 121.
23. Swan, W. G. A. *Brit. Heart J.*, 1960, 22, 651.
24. Wagner, R. R. Coxsackie B viruses, Principles of Internal Medicine, McGraw hill book company, 1962, 131—133.

ОСТРЫЙ ДОБРОКАЧЕСТВЕННЫЙ ПЕРИКАРДИТ ПРИ КОКСАКИИНФЕКЦИИ И ПРИ ГРИППЕ

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РЕЗЮМЕ

Описываются два случая с доброкачественным перикардитом вирусной этиологии.