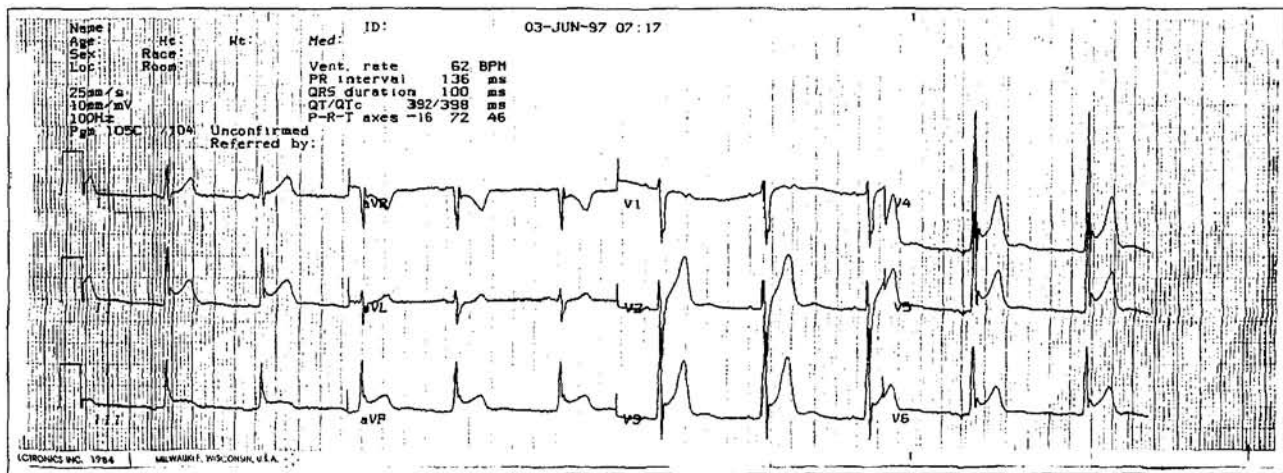


ECG ROUND

Clinical History:

A 28-year-old gentleman attended the Accident and Emergency Department with one day history of sharp, retrosternal chest pain. The following ECG strip was obtained.

Figure 1



What was the diagnosis?

- A. Acute Pericarditis
- B. Acute Myocardial Infarction (extensive)
- C. Unstable Angina
- D. Early Repolarization (Normal Variant)

This ECG Round was prepared by: **Dr. S.H. Wan and Prof. C.P. Lau**

Address for correspondence: Dr Siu-hong Wan, Cardiology, Department of Medicine & Geriatrics, Tuen Mun Hospital, New Territories, Hong Kong.

ECG ROUND

Answer : A. Acute Pericarditis

The electrocardiogram showed widespread and generalised ST segment elevations with a concave upward appearance. The ST segment elevations involved all limb and chest leads except lead aVR which showed a reciprocal depression. There were no significant changes in the QRS complexes. This electrocardiogram is typical of acute pericarditis.

In acute myocardial infarction, there are usually more leads with reciprocal ST segment depressions, Q waves as well as loss of the amplitude of the R waves. Serial electrocardiograms are very useful in the differential diagnosis. For acute pericarditis, the ST segment elevations usually normalise in a few days time and T wave inversions then develop. Whereas in acute myocardial infarction, T wave inversions occur in a matter of hours before the normalisation of the ST segments. In unstable angina, ST depressions with or without T wave changes occur. In early repolarization, the widespread ST segment elevations usually involve the chest leads and the ST/T ratio is less than 0.25.¹

The chest pain in acute pericarditis is typically sharp in nature, locates precordially and radiates to the back and the trapezius ridge. The pain is often pleuritic in nature which is aggravated by breathing, coughing and relieved by sitting up and leaning forward. The patient may have prodromal symptoms of a viral infection 10-14 days before the onset of the chest pain. Clinical signs include fever, tachycardia and pericardial friction rub (typically high pitched and scratchy in nature).

Question 2: What investigations would you do?

- A. Chest X-ray
- B. Complete blood picture (CBP) and blood culture
- C. Echocardiogram
- D. Viral titre and autoimmune markers

Answer: ALL of the above

The underlying causes for pericarditis include viral infections (e.g. Coxsackie viruses A or B, echovirus, herpes simplex or adenovirus), bacterial infections (e.g. tuberculosis), neoplasm (e.g. carcinoma of lung or breast), collagen vascular diseases (e.g. systemic lupus erythematosus or rheumatoid arthritis), hypothyroidism, post cardiac injury (post myocardial infarction or post cardiac procedures) and drugs (e.g. procainamide, hydralazine). The investigations therefore should include complete blood picture, blood culture, viral titre, antinuclear factor, rheumatoid factor, thyroid function test, tuberculin skin test, chest x-ray, serial electrocardiograms and echocardiogram.

Question 3: What treatment would you give?

- A. Thrombolytics
- B. Aspirin
- C. Nitroglycerin
- D. β -blocker

Answer : B. Aspirin

Aspirin 2-4 g per day (e.g. 600-900mg qid) is the recommended treatment of acute pericarditis. If this fails to control the symptoms, other non-steroidal anti-inflammatory drugs (e.g. indomethacin 25-75 mg qid) or steroid can be started.

Around 80% of acute pericarditis are considered to be idiopathic, presumably due to viral infections.² The most important complication of acute pericarditis is pericardial effusion. If the pericardial effusion accumulates in a relatively short period of time or a sufficiently large volume of fluid accumulates slowly, cardiac tamponade may develop. Echocardiogram is invaluable for the diagnosis which shows the pericardial effusion as well as the typical diastolic collapse of the right ventricle. Drainage of the pericardial fluid

ECG ROUND

(pericardiocentesis) usually by the subxiphoid approach under ultrasound or fluoroscopic guidance is necessary.

Most patients with acute pericarditis will recover without any complications. However, some of them may develop recurrence which requires further courses of non-steroidal or steroidal anti-inflammatory drugs. Occasionally, azathioprine and colchicine may be used.^{3,4} ■

References

1. Harrison's Principles of Internal Medicine 13th Edition. 1994;1:1094-1098.
2. Ricardo Z, Manuel A, Francisco T. *et al.* Incidence of Specific Etiology and Role of Methods for Specific Etiologic Diagnosis of Primary Acute Pericarditis. *Am J Cardiol* 1995;75:378-382.
3. Guindo J. *et al.* Recurrent Pericarditis: Relief with colchicine. *Circulation* 1990;82:1117.
4. Marcolongo R, Russo R, Laveder F. *et al.* Immunosuppressive therapy prevents recurrent pericarditis. *J Am Coll Cardiol*. 1995;26:1276-1279.



THE HKCFP AWARD FOR THE BEST RESEARCH OF THE YEAR 1997

The Research Committee of the Hong Kong College of Family Physicians has set up a Prize Award to the Best Research of the Year in 1997. All members and fellows of the College are invited to participate and submit their research papers to the Research Committee for selection. The Prize would be presented at the Conferment Ceremony in 1998.

Entry and assessment criteria are listed below:

Entry Criteria:

1. The principal author has to be a member or fellow of the Hong Kong College of Family Physicians.
2. The research must be original work of the author(s).
3. The research should be done in Hong Kong.
4. The research must have been completed.
5. The paper should be presented under the standard headings of Abstract, Introduction, Methodology, Results, Discussion and Conclusion. References should be listed in full at the end in Harvard or Vancouver format.

Assessment Criteria:

1. How relevant is the topic and finding to General Practice?
2. How original is the research?
3. How well designed is the methodology?
4. How well are the results presented and analysed?
5. How appropriate is the discussion and conclusion?
6. How useful are the results for patient care in General Practice?
7. How much effort is required?

Each research will be assessed according to the seven criteria listed above by a selection panel. Each criterion will attract different weightings to be decided by the selection panel.

DEADLINE OF SUBMISSION: 31st December, 1997.