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A 32-Year-Old Man from Malawi With Pain in the Right Upper Abdomen and a Feeling of Faintness

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Clinical Presentation

History

A 32-year-old man from Malawi presents to a local hospital with a history of pain in his right upper abdomen and a feeling of faintness, especially when standing up and walking. He was well until 1 month previously, when he began to experience a feeling of fullness in his upper abdomen. In the week before admission he developed pain in the right upper abdomen that was particularly apparent when sleeping on his right side. He has recently started to feel breathless on lying down and feels faint, especially on standing up. His past medical history is unremarkable, except for an episode of a blistering and painful skin lesion 3 years previously that affected the right side of his abdomen around the level of the umbilicus – this had healed spontaneously after several weeks.

Clinical Findings

He is thin and slightly breathless in the supine position. His pulse is regular at 130bpm with pronounced pulsus paradoxus measured at 15 mmHg. Blood pressure in the supine position is 90/60 mm Hg. The jugular venous pulse is difficult to visualize but appears elevated. The apex beat is impalpable. The heart sounds are quiet but audible; no triple rhythm and no heart murmurs are heard. Auscultation of the chest is normal. There is an enlarged tender palpable liver measured at 8cm below the right costal junction and evidence of mild peripheral oedema of the legs and sacral area.

Laboratory Results

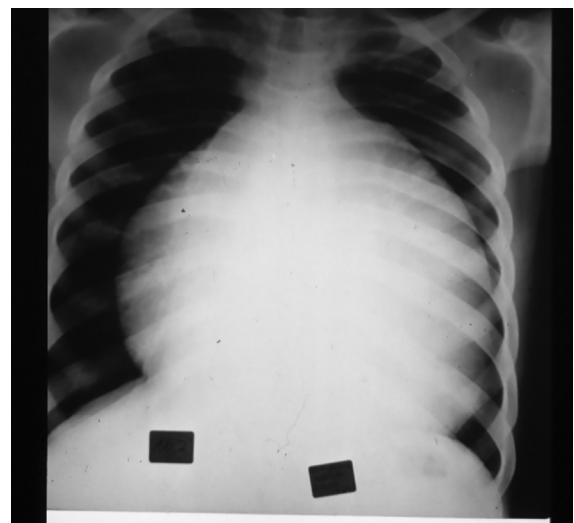
Haemoglobin 10.5 g/dL; WBC 9.8 G/L (4–10). Chest radiography shows an enlarged globular heart with clear lung fields (see Fig. 66.1).

Questions

1. Based on the clinical history, examination and investigations done, what is the most likely pathology to explain this man's illness and what would be the most frequent cause of the problem?
2. What other investigations should be carried out? Outline the immediate and long-term management of his condition.

Discussion

This young African man presents with a history of right upper abdominal pain, breathlessness and syncope. On physical examination, he has signs of cardiac decompensation associated with right heart failure. It is likely that his skin lesion 3 years previously was herpes zoster.



• **Fig. 66.1** Chest radiograph of the patient showing an enlarged globular cardiac silhouette with clear lung fields.

Answer to Question 1

What is the Most Likely Pathology to Explain This Man's Illness and What Would be the Most Frequent Cause of the Problem?

The history, physical examination and chest radiograph findings all point to a diagnosis of pericardial tamponade caused by a large pericardial effusion. The cardiovascular manifestations of tachycardia, pulsus paradoxus, hypotension, impalpable apex beat, raised jugular venous pressure and quiet heart sounds are indicative of pericardial effusion. The presence of syncope, pulsus paradoxus and hypotension are signs of cardiac tamponade indicating the need for a therapeutic pericardial aspiration. In Africa there are several causes of pericardial effusion that include tuberculosis, other bacterial infections, malignancy and HIV-related Kaposi's sarcoma. The presence of a previous attack of herpes zoster is a strong pointer to HIV infection, and in this case the most likely diagnosis is HIV-associated tuberculosis.

Answer to Question 2

What Other Investigations Should be Carried Out? Outline the Immediate and Long-Term Management of His Condition.

The most important investigation that should be carried out immediately is an ultrasound of the heart, which should show the presence of pericardial fluid and sometimes fibrous strands that are strongly suggestive of tuberculosis, especially in highly endemic areas. An electrocardiogram is useful in showing low-voltage QRS complexes and in occasional cases there may be electrical alternans. If there is pericardial fluid on ultrasound, the patient requires a therapeutic pericardial aspiration to relieve the pressure on the heart and restore cardiac output. Once fluid is aspirated and the cardiac output is restored, the patient should be started on antituberculous treatment and corticosteroids. An HIV test should be carried out with appropriate counselling, and consideration given to starting antiretroviral therapy after a few weeks if the HIV test is positive.

The Case Continued...

The patient underwent therapeutic pericardial aspiration and 500 mL of bloodstained pericardial fluid were aspirated. The blood pressure increased to 120/80 mmHg almost immediately. The patient was started on standard first-line antituberculous treatment with rifampicin (R), isoniazid (H), pyrazinamide (Z) and ethambutol (E) and also on prednisolone at a dose of 60 mg daily. HIV testing was carried out and the patient was found to be HIV positive.

The patient received a full 6-month course of antituberculous treatment consisting of a 2-month initial phase of four drugs given daily (2RHZE) and a 4-month continuation phase of two drugs given daily (4RH), prednisolone in

tapered doses for ten weeks, and antiretroviral therapy which was started at 4 weeks after commencing antituberculous treatment. He made a full and uneventful recovery.

SUMMARY BOX

Tuberculosis

In Africa the most common cause of pericardial effusion is tuberculosis; and even if there is no confirmatory evidence of tuberculosis, patients must be treated with a full course of antituberculosis treatment. In countries in central and southern Africa there is a strong association between tuberculosis and HIV infection, with over 50 per cent of tuberculosis patients being HIV positive. The advent of the HIV/AIDS epidemic in Africa was associated with a large increase in the number of patients being diagnosed with tuberculosis pericardial effusion. Once in HIV-positive patients not yet on ART, a diagnosis of pericardial effusion is made, it is important to determine whether tamponade is present, with the characteristic features being syncope, tachycardia, pulsus paradoxus and hypotension. The presence of tamponade is potentially life-threatening and requires prompt pericardial aspiration. Diagnostic pericardial aspiration is usually unhelpful in the district hospital setting, because the fluid is often bloodstained and acid-fast bacilli are rarely visualized in smears of the pericardial aspirate from patients who have tuberculosis. If pericardial fluid is available for investigation, this can be examined with higher diagnostic sensitivity using the Xpert MTB/RIF assay (Cepheid, Sunnyvale, CA, USA) – a fully automated and commercially available cartridge-based nucleic acid amplification test – which allows a confirmed diagnosis of TB within 2 hours. The use of corticosteroids is recommended, especially if there is tamponade. In HIV-negative patients and HIV-positive patients on antiretroviral therapy, randomized controlled trials have shown that corticosteroids may reduce the risk of death. For HIV-positive patients not on antiretroviral drugs, corticosteroids may reduce pericardial constriction. A commonly used regimen is prednisolone administered in tapering doses during the first ten weeks of antituberculous treatment. WHO guidelines recommend that antiretroviral therapy is started within 2 to 8 weeks of the start of antituberculosis treatment. Timely antiretroviral therapy reduces mortality, is associated with excellent immunological and virological responses and reduces the risk of recurrent tuberculosis.

Further Reading

1. Thwaites G. Tuberculosis. In: Farrar J, editor. *Manson's Tropical Diseases*. 23rd ed. London: Elsevier; 2013 [chapter 40].
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3. George IA, Thomas B, Sadhu JS. Systematic review and meta-analysis of adjunctive corticosteroids in the treatment of tuberculous pericarditis. *Int J Tuberc Lung Dis* 2018;22(5):551–6.
4. Wiysonge CS, Ntsekhe M, Thabane L, et al. Interventions for treating tuberculous pericarditis. *Cochrane Database Syst Rev* 2017;9:CD000526.