Medical Memoranda

Recurrent Haemopericardium Due to Fragmented Steel Wire in Heart

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The subject of haemopericardium due to foreign bodies or trauma is well documented, but the case we now report is one of recurrent haemopericardium due to an unusual complication of thoracotomy. We could find no reference to a similar case in the literature, and, since early diagnosis and treatment may save life, a report seems justified.

CASE REPORT

A man of 24 had a right upper and middle lobectomy for suppurative bronchiectasis on 29 May 1959. Histological examination of the resected lobes showed no tuberculosis. The bronchial stump was closed with interrupted stainless-steel-wire sutures (gauge 60). The chest was also closed with stainless-steel-wire sutures. Since the thoracic cavity was opened through the fifth space and no rib was resected, two gauge 32 stainless-steel-wire pericostal sutures were employed to approximate the ribs. After a normal post-operative course the patient was discharged cured 12 June 1959.

He remained well and free from complaints until 25 May 1963, when he was admitted to Musgrove Park Hospital, Taunton, as an emergency case with a week's history of progressively increasing shortness of breath and attacks of sharp stabbing retrosternal pain. The pain was aggravated by deep inspiration. He had taken many aspirins to relieve his pain. He was found to be pale and had

Specimen showing the steel wire *in situ*.

tachycardia with pulsus paradoxus, the jugular venous pressure being raised to the angle of the jaw. A pleuro-pericardial rub was audible. A diagnosis of pericardial effusion with cardiac tamponade was made and a pericardial paracentesis drew off 100 ml. of blood-stained fluid. His condition improved, but, as he again developed signs of tamponade on the next day, another 250 ml. of heavily blood-stained fluid was aspirated from his pericardial sac. At this stage he was transferred to Frenchay Hospital.

On examination he was orthopnoeic and cyanosed, and had classical signs of acute cardiac tamponade. Chest x-ray examination showed a large pericardial effusion and the E.C.G. changes were those of pericarditis. By pericardial paracentesis 200 ml. of heavily blood-stained fluid was drawn off, after which his condition greatly improved.

The following day his condition remained satisfactory, with normal pulse and blood-pressure, but he had some difficulty in passing urine and had to be catheterized once. On the next day

he once again developed signs of cardiac compression, necessitating further paracentesis of 180 ml., and on the following day he developed haematuria and oliguria. By this time his prothrombin ratio was 3.7, his haemoglobin 64%, and his blood urea 248 mg./100 ml. Urinalysis revealed 100 mg. of albumin and innumerable red cells. There were no abnormalities of the platelets or bleeding-time. He was given vitamin K₁ intravenously.

On the fifth day after admission his urinary output further declined and haemoptysis and melaena occurred. Dyspnoea, hepatomegaly, and signs of cardiac tamponade led to a further aspiration of the pericardial sac, 100 ml. of heavily blood-stained fluid being removed. In spite of large doses of vitamin K₁ intravenously his prothrombin ratio was prolonged to four times that of the control. Later he developed acute ileus and foul black material was aspirated from the stomach. He collapsed and died the same night.

Post-mortem Examination.—The pericardial cavity was full of blood and fibrin. A piece of stainless-steel wire about 3.5 cm. long was embedded firmly in the right ventricular wall, crossing the cavity of the ventricle to protrude from the anterior surface into the pericardial sac (see Fig.). The wire was the calibre used in the pericostal sutures, but the route by which it had passed from the chest wall to its final position was not evident. There was gross peripheral venous congestion. No localized source of the haemorrhage could be found in the alimentary or urinary tracts. The bleeding here is presumed to have been from minute submucosal vessels.

COMMENT

In this case the cause of the haemopericardium was not revealed until the post-mortem examination. Stainless-steel-wire has been widely used as a pericostal suture material, and although it sometimes becomes fragmented it does not usually travel far in the tissues. The possibility of a fragmented wire travelling from the chest wall to the heart and lodging beneath the sternum was not envisaged. The absence of a history of trauma and the presence of upper- and middle-lobe bronchiectasis raised the possibility of a tuberculous aetiology, although at no time were tubercle bacilli demonstrated either in the sputum or in the resected lobes. The picture was further complicated by the development of haematuria, haemoptysis, and melaena. Aspirin, which the patient had taken to relieve pain, might have contributed to the hypoprothrombinaemia, and this may in turn have been responsible for the bleeding from many sites, though the vitamin K₁ which was given did not control the haemorrhage.

This case also illustrates that renal failure can develop as a complication of acute cardiac tamponade (Stafford, 1939).

Surgical intervention in this case was not possible at any time, firstly because of his poor general condition, and secondly because of renal failure and haemorrhagic tendency.

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REFERENCE

Stafford, E. S. (1939). *J. thorac. Surg.*, 9, 652, 655.