Traumatic Left Ventricular Aneurysm

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SUMMARY

Cardiac ventricular aneurysms are by and large ischaemic and tend to develop following a transmural myocardial infarction. In the minority of cases, the cause may be congenital, infective, traumatic or idiopathic. While postinfarction ventricular aneurysms and those which follow cardiac surgery are common, traumatic aneurysms after accidental trauma are rare. We report a case of a true left ventricular aneurysm caused by a bullet injury.

CASE REPORT

A 20 years old Afghan Refugee was seen by us in the surgical unit of Khyber Hospital, Peshawar, in November 1984. He presented with symptoms of palpitation and breathlessness on exertion of one month duration. He was admitted in the surgical ward for treatment of septic wound in his left upper arm which he had developed following a bullet injury 6 months ago. At that time he was treated in an Afghan Refugee hospital for wounds in the chest and left upper arm. The bullet had entered at xiphisternum and traversed the chest from right to left (see Fig. 1) and then exited from the chest at mid-axillary line and then reentered at the left upper arm. At that time his chest X-Ray and Electrocardiogram were normal and there was no fracture of the ribs or of the humerus. His chest and arm wounds were dressed with antibiotics. The chest wounds healed but his arm wound became infected, for which he was transferred to Khyber Hospital.

On examination, he looked weak and pale. His pulse was 110/per minute and was regular. The blood pressure was 110/80 mmHg. There was ankle oedema and Jugular Venous pressure was not raised. All peripheral arterial pulses were normally palpable.

Examination of his precordium showed healed scars, one just to the left of xiphisternum and another in the left 4th intercostal space in the mid-axillary line. Vigorous double cardiac impulse was palpable in the left 5th intercostal space just outside the mid-clavicular line. First and second heart sounds were normally audible with a third heart sound at the apex. There were

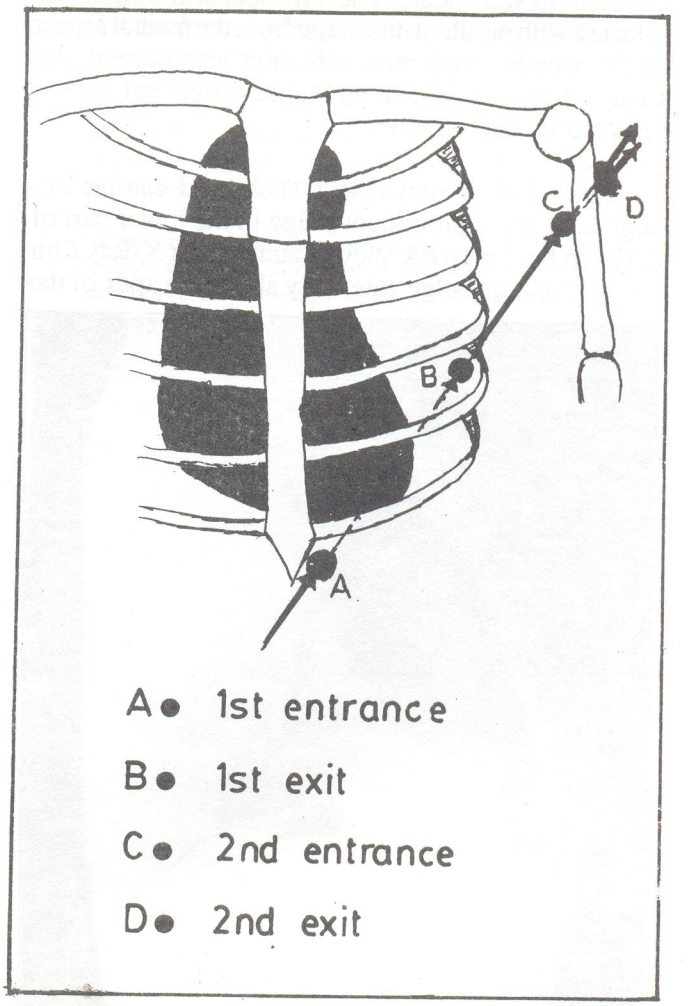

Fig. No. 1

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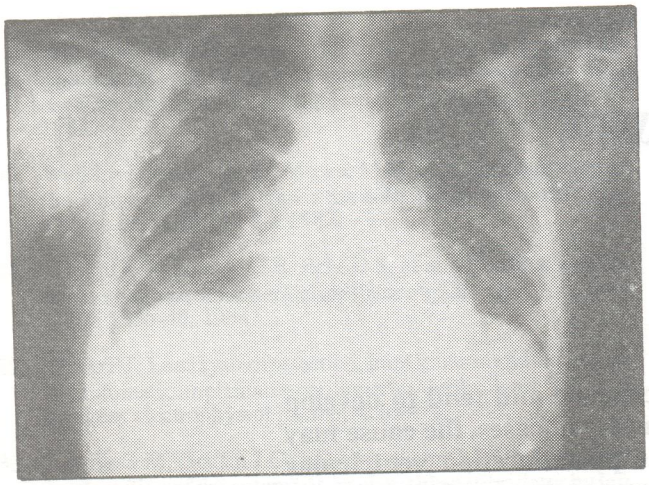

Fig. No. 2

no murmurs or pericardial rub.

On auscultation of the chest fine bilateral basal crepitations were heard. The left upper arm wound was infected with purulent discharge from the medial aspect of the wound. Abdomen palpation was normal and Central Nervous System and musculoskeletal system revealed no abnormality.

Chest X-Ray film (Fig.2,3) showed cardiac enlargement and a prominent bulge in the lower part of left heart border on PA View. Lateral chest X-Ray film revealed a large bulge anteriorly above the apex of the heart. Electrocardiogram showed sinus rate of 100 per minute, Q Wave in AVL and V2-V4, ST elevation with convexity upward in leads I, AVL, V2-V6 with deep inverted T waves in these leads Fig 4. Full blood count, erythrocyte sedimentation rate, urine analysis, blood sugar, blood urea and serum lipids were all normal. M-Mode echocardiogram showed an akinetic segment of the left ventricle near the apex of the left ventricle which was dilated. Two dimensional echocardiogram revealed a large aneurysm in the anterior wall of the left ventricle near the apex. He was treated with diuretics and potassium which improved his symptoms. The arm wound healed with antibiotics, surgical cleaning and dressing. Cardiac angiography was arranged but he refused to undertake further investigations.

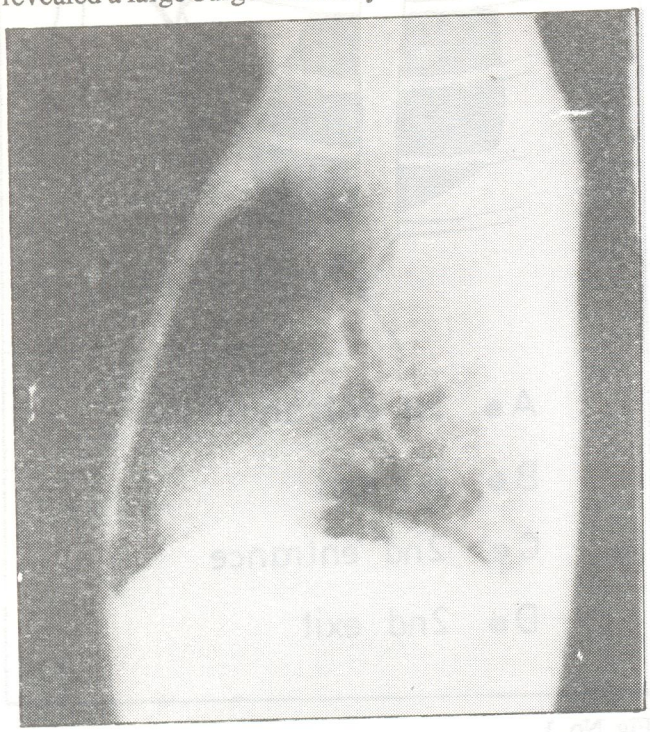

Fig No. 3

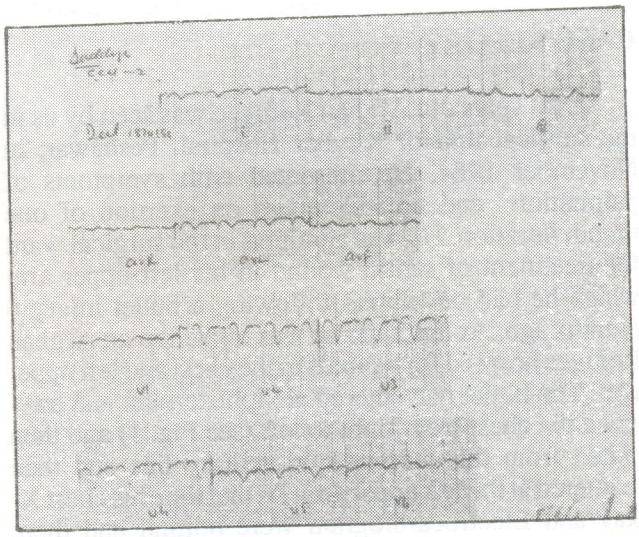

Fig. No. 4

In summary a case of true left ventricular aneurysm caused by bullet injury is presented.

DISCUSSION

The etiology of ventricular aneurysm was discussed in detail by Schlitcher et al (1954) and others. The causes may be classified as: Congenital and Acquired (Harley et al, 1969). Acquired causes include: ischaemia (Myocardial Infarction), trauma, i.e, accidental myocardial damage; closed, or open surgical trauma such as closed and open cardiac operations. Infective causes include rheumatic fever, syphillis, tuberculosis, infective endocarditis with resultant myocardial abscesses, septic embolus and polyarteritis

nodosa. Finally some aneurysms are idiopathic.

Aneurysm of the ventricles may be true or false (Kerr et al, 1961). True aneurysm is formed by a part of the ventricular wall which bulges into a localized outpouching of the ventricle. A false aneurysm lies outside the heart but is connected to the ventricular cavity through a small perforation of the myocardium usually caused by injury or infection. Traumatic ventricular aneurysm may be true or false, whereas non-traumatic types are usually of true type. An example of traumatic true aneurysm was first reported by McCord and Blount (1955). After accidental myocardial trauma, whether open or closed, aneurysms are very rare in either ventricle. (Kerr, Wilken and Steiner (1961), Stansel et al (1963). Harken (1946) found no aneurysm among 56 war injuries close to the heart, even though in 13 instances the missile was found within a cardiac chamber. This makes this case interesting in its etiology. Prior to the development of cardiac surgery iatrogenic ventricular aneurysms were rare (Kerr et al, 1961) but are now increasing in frequency.

Patients with left ventricular aneurysm complicating myocardial infarction commonly die in cardiac failure or from recurrent episodes of coronary artery occlusion but patients with left ventricular aneurysm due to one of the less usual causes commonly die from rupture of the aneurysm (Jacobs and Elliot, 1955).

Our case presented with early signs of left ventricular failure and typical physical signs suggestive of left ventricular aneurysm, having typical radiological electrocardiographic and Echocardiographic signs. Angiography would have delineated detailed anatomy of the aneurysmal sac and would have been helpful in management.

Surgical excision of this unique type of left ventricular aneurysm could have been curative.

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