Left ventricular aneurysm

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Left ventricular aneurysm in African patients is most often luetic; the only other common left
ventricular aneurysm in African patients is agnogenic and not a complication of coronary artery
disease. The management of a left ventricular aneurysm by surgical excision with cardio-
respiratory bypass in an African patient is described. The literature which relates to left ventricular
aneurysm in African patients is briefly reviewed.

Ventricular aneurysms are rare, and most com-
plicate myocardial infarction. Coronary artery
occlusion is rare in the African; there is only one
report of ventricular aneurysm which may have
followed myocardial infarction in an African
patient, and in this case there was the possibility
that the infarct was the complication of coronary
embolism (Lurie, 1960). Ventricular aneurysm in
the African is most often a complication of syphils (Brink and Barnard, 1954; Jacobs and
Elliott, 1955), an aetiological emphasis different
from that in patients of Caucasian stock, among
whom ventricular aneurysm is usually the con-
sequence of coronary artery occlusion and myo-
cardial infarction. Cardiac aneurysm in the
African has also been reported as complicating
bacterial endocarditis (Pirani, 1943), tuberculosis
(Brink and Barnard, 1954), malaria (Macfie and
Ingram, 1920), Chagas disease, and rheumatic
myocarditis (Crawford, 1943). Stab wounds of the
heart, either homicidal or surgical (for example,
for transthoracic mitral valvulotomy), are rarely
complicated by aneurysm. Errors in development
may result in a variety of unusual aneurysms.
Robertson and Jackson (1960) and Abraham,
Barton, Cockshott, Edington, and Weaver (1962)
have described a variety of sub-valvular aneurysms
in the left ventricle in patients in Nigeria. These
aneurysms develop in relation to the annulus of
either the aortic or mitral valves immediately
below which the orifice of origin of the aneurysm
may be situated; the aneurysmal cavity encircles
or courses within the fibrous ring of either of
the valves mentioned, and ultimately presents through
the wall of the left ventricle or extends into the
interventricular septum. The patients described
with this variety of aneurysm have been young
(6 to 37 years of age), and they present with
congestive cardiac failure, the consequence of
aortic or mitral incompetence, itself related to
stretching of the valve ring. There is also a con-
genital diverticulum which may extend from the
apex of the ventricle to herniate through the dia-
aphragm and present as a pulsating mass in the
epigastrum (Skapinker, 1951). Ventricular muscle
bundles may themselves be the site of abnormal
development and give rise to aneurysms which
present on the antero-lateral surface of the left
ventricle (Clearkin and Bunjé, 1955; Stroud,
1945). These aneurysms are unrelated to the valve
rings or to the apex of the ventricle. When a
coronary artery has an anomalous origin from
the pulmonary artery inadequate myocardial per-
fusion can occur, and a sequel of this may be
myocardial infarction and the formation of an
aneurysm (Bland, White, and Garland, 1933).
Bayer (1940) described a variety of subpericardial
cysts lined by ciliated columnar epithelium which
may present as a ventricular aneurysm. In most
African patients who have left ventricular
aneurysm unrelated to syphils a cause has not
been ascertained.

The purpose of this paper is to describe the
surgical management of a left ventricular
aneurysm in an African patient in whom the cause
for the aneurysm was not found. Schrire and
Barnard (1963) have reported a similar case. Most
other examples of idiopathic left ventricular
aneurysm in African patients have been reports of
necropsy examination.

CASE REPORT

An African man of 26 years was radiographed, not
because of symptoms but because he was about to
undertake particular employment. The radiographs showed (Fig. 1) an anomaly of the left heart border. Clinical examination was uninformative apart from the presence of a heaving cardiac impulse in the third, fourth, and fifth intercostal spaces in the left anterior axillary line, together with a short ejection systolic murmur in this area. A strip of the electrocardiogram is shown (Fig. 2); in this there is a Q wave of 0.05 sec. in lead I, with small Q waves in V5 and V6, a deep S wave in V1 (22 mm.), and inversion of the T wave in the left ventricular leads. One interpretation of this electrocardiogram was that there was an anterior myocardial infarct with left ventricular hypertrophy. When it was subsequently shown that there was a defect in the anterior wall of the left ventricle communicating with an aneurysmal

FIG. 1. Postero-anterior chest radiograph in which the left ventricular aneurysm is clearly seen.

FIG. 2. Pre-operative electrocardiogram in which is seen a Q wave of 0.05 sec. in lead I, small Q waves in V5 and V6, a deep S wave in V1, and T-wave inversion in the left ventricular leads.
left ventricular aneurysm

sac it was thought that the electrocardiographic changes were compatible with this finding, and the original interpretation was discounted.

Left ventricular angiography showed an aneurysmal sac with a narrow neck in the upper aspect of the left ventricle, close to the mitral valve. The radiographic quality of the angiogram does not warrant reproduction. Serological tests for syphilis were negative.

With cardiorespiratory bypass and moderate hypothermia the aneurysm was resected. The approach was through a left thoracotomy; venous drainage for bypass was from the left femoral vein, subsequently supplemented by a venous catheter in the right ventricular outflow. Arterial return was to the left femoral artery and the temperature was allowed to fall to 28° C. in order to induce ventricular fibrillation. The aneurysm was densely adherent to the pericardium, which was not mobilized in relation to the aneurysm. The aneurysm was widely opened and a considerable quantity of clot was evacuated. The communication with the left ventricle was 1-5 cm. in diameter. The left ventricle was vented and the neck of the aneurysm was closed with a series of interrupted silk sutures; thereafter the aneurysmal sac was trimmed and used to cover the ventricular closure in two layers. Convalescence was uncomplicated apart from the need to aspirate a left pleural effusion. Histological examination of that part of the aneurysm resected showed fibrous tissue and areas of chronic inflammation.

Surgical management was undertaken in this patient despite the absence of symptoms because of the strong likelihood of complications from the aneurysm. Patients with left ventricular aneurysm, the complication of myocardial infarction, uncommonly die because of rupture of the aneurysm, probably because they die in cardiac failure or from further episodes of coronary artery occlusion before the aneurysm ruptures. Patients with left ventricular aneurysm, complicating syphilis, or one of the less usual causes of this rare disease, and patients with idiopathic aneurysm of the left ventricle commonly die from rupture of the aneurysm, and death in these circumstances need not have been preceded by symptoms related to the aneurysm (Jacobs and Elliot, 1955).

REFERENCES


