Infected interventricular Teflon patch: repair and closure of fistula with omentum

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Abstract
A pericardiocutaneous fistula five years after repair of a rupture of the ventricular septum was managed by removing all foreign material (Teflon). The resulting defect was repaired with part of the central tendon of the diaphragm and a pedicle of omentum was used to cover the heart. This radical approach was found necessary after other measures, including surgical excision of the fistula, had failed.

Rupture of the myocardium is one of the more common modes of death after infarction.1 2 It is amenable to repair but requires some form of patch to close the septal defect and material to buttress the sutures in the friable infarcted ventricular myocardium. Teflon felt is commonly used. This operation has increased in Britain in the period 1979 to 1988 from about 50 cases to about 200 cases per year with an overall mortality of 34%. Mortality varied between 26% (1980) and 39% (1987) with no evident trends.3 The use of foreign material in surgical repair is associated with a risk of persisting infection that is virtually incurable unless the material is completely removed.

Case report
In 1985 a woman aged 53 had an anterior myocardial infarction caused by occlusion of the left anterior descending coronary artery that was complicated by ventricular septal rupture. The septum was repaired with a double Teflon patch that was brought out through the ventriculotomy with two further ribbons of Teflon to buttress the closure, a standard technique.

She remained well for three years but then presented in July 1988 with an abscess inferiorly in the left breast. It was drained by a general surgeon who recognised that the tract went between the ribs. He did not pursue it further but referred the patient back to the cardiothoracic team. A purulent discharge persisted despite antibiotic treatment. A sinogram showed extension deep into the rib cage and in February 1989 the surgeon who performed the original repair re-explored the pericardium through a left thoracotomy, excised the sinus, and established that the Teflon cardiac repair was the source of chronic infection. The sinus started discharging again a few days after the operation. Understanding the significance of the situation, the patient was against further surgery and preferred conservative management with intermittent antibiotics. The chronically discharging sinus was tolerated for two years.

In January 1991 the patient presented with daily rigors, fever, and an intermittently bloody discharge from the sinus. Staphylococcus epidermidis was isolated from the blood. A sinogram confirmed a tract reaching the anterior surface of the ventricle. A left ventriculogram excluded ventricular pseudoaneurysm. The right and circumflex coronary arteries were still free from significant disease. The balance of risks and benefits was thought to justify radical surgery. This was offered to the patient and accepted.

She was reoperated on in April 1991. The femoral artery was cannulated, the previous median sternotomy was reopened, and a cardiopulmonary bypass was established using the right atrium for venous drainage. The heart was completely mobilised, all foreign material was removed, and the area irrigated with Betadine solution. This left a 2 × 3 cm ventricular septal defect with fibrosed margins. Part of the central tendon of the diaphragm was used to close the defect, and the ventriculotomy was closed with a continuous prolene suture through secure fibrous tissue. The whole of the greater omentum was mobilised on the right gastroepiploic artery, brought through the diaphragmatic defect, and tacked in position over the anterior and lateral aspect of the heart.

The patient made a good recovery. She is free from fever and there is no discharge from the sinus.

Discussion
The surgical principles in the eradication of chronic infection include removal of all necrotic tissue and foreign material. This is a major problem when prosthetic material forms an integral part of the repair in cardiac and vascular surgery. In this case a radical operation was the only possible solution, more conservative methods having failed.

Tissue flaps can be used to obliterate space and separate planes to prevent recurrence of fistulas. The omentum has proved highly successful in this respect and has been used for many years by Turner-Warwick et al in their work in reconstructing organs damaged by pelvic fracture.4 Several authors have used it as a means of closing bronchopleural fistulas,5 6 aorto-oesophageal fistulas,7 aortobronchial fistulas,8 infected vascular grafts,9 11 and...
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