1964; Salek *et al.*, 1965). Unfortunately our patient was too ill for studies of pancreatic function immediately before and after radiotherapy, but irradiation clearly resulted in a rapid inhibition of exocrine pancreatic secretion. The effect was transient: 12 weeks later pancreatic function was only slightly impaired.

Though pancreatic ascites has resolved after conservative management and after diagnostic laparotomy (Barua *et al.*, 1962; Cameron *et al.*, 1969) the rapid cessation of pancreatic secretion after irradiation in our case clearly suggests a cause and effect relationship and that irradiation of the pancreas may be a useful treatment of pancreatic ascites, particularly when surgery is inadvisable or impossible.

We should like to thank Dr. H. M. Salmon, superintendent of the Johannesburg Hospital, for permission to report this case, and Mrs. Rosemarie Bunker for expert technical assistance. We are

indebted to the photographic unit, department of medicine, University of the Witwatersrand, for the Chart.

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Intractable Hiccuping in Acute Myocardial Infarction

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British Medical Journal, 1971, 2, 504

Intractable hiccuping severe enough to pose problems of management in acute myocardial infarction is rare. We report two cases.

Case Reports

Case 1.—A man aged 67 was admitted to hospital with an acute infarction of the posterior, lateral, and diaphragmatic areas of the heart. Two days later he developed severe paroxysms of hiccuping at about two-hourly intervals and lasting up to one hour. His clinical state deteriorated alarmingly during the paroxysms. A mixture of 5% CO₂ in oxygen was administered without effect. Chlorpromazine 25 mg intramuscularly and repeated after 30 minutes was also ineffectual, though it caused a pronounced fall in blood pressure. Blocking the left phrenic nerve was performed with 15 ml of xylocaine, and hiccuping stopped in 15 minutes and did not recur for three hours. There was no alteration in the blood pressure or cardiac

rhythm. The next spasm was milder and shorter in duration. The nerve block was repeated twice in the next two days and a similar response obtained each time. After each block the paroxysms were milder and eventually were controlled by chlorpromazine alone. They disappeared after eight days.

Case 2.—A man aged 65 developed distressing intermittent attacks of hiccuping three days after admission to hospital with an extensive acute myocardial infarction involving the anterior and lateral surfaces of the heart. On the fifth day hiccuping became almost continuous. Chlorpromazine 100 mg intramuscularly four-hourly to six-hourly failed to stop the hiccups and caused pronounced hypotension. Inhalation of 5% CO₂ was also unsuccessful. The patient was unable to sleep or eat. After left phrenic nerve block the hiccups decreased in severity and were controlled thereafter by chlorpromazine 25 mg intramuscularly as required.

Comment

The aetiology of hiccuping is poorly understood. It can be medicated by central mechanisms, as in encephalitis and brain-stem injury (Harrison *et al.*, 1962), and in renal disease. The commonest cause is a lesion in the vicinity of the diaphragm. The phrenic nerves constitute the motor path of the reflex arc. Blocking both phrenic nerves would cause complete diaphragmatic palsy and severe respiratory impairment. The common feature in our patients was involvement of the lateral surfaces of the left ventricle. This led us to block only the left phrenic nerve, and the satisfactory response suggests that involvement of the left phrenic nerve was a major factor in the development of the hiccuping.

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