repeated episodes of ischemia, such “stunned” myocardium might also exhibit improved systolic function with dobutamine.

Alternatively, the dobutamine-induced improvement in regional ventricular performance seen in this patient may simply represent the effects of altered regional loading conditions. The hypokinetie area at rest might include viable myocardium tethered by adjacent infarcted tissue, producing high regional wall stress and reducing local ventricular performance. Arterial vasodilatation caused by dobutamine’s β2-stimulation could decrease afterload, reducing regional wall stress in the area of dysfunction; local systolic performance might improve without an increase in contractility or primary amelioration of any resting ischemia.

The continued improvement of baseline ventricular function following PTCA, however, suggests that segmental “hibernation” caused by chronic ischemia had been relieved.

Previous clinical studies have demonstrated the utility of low-dose dobutamine (10 μg/kg/min) therapy in unmasking viable myocardium as assessed by positron emission tomography and rest and reinjection thallium-201 scintigraphy. High-dose dobutamine therapy has only rarely been associated with improvement in regional wall motion, possibly due to the increased oxygen requirements of the augmented inotropic and chronotropic state. Herein, however, a high-dose dobutamine infusion produced increased systolic thickening in an area of baseline hypokinesis; this may have been a result of the fixed electronically paced rhythm throughout the study, limiting the increase in myocardial oxygen consumption.

This case illustrates both the complex nature of the mechanical response of ischemic myocardium to dobutamine and highlights the potential utility of this agent in the evaluation of myocardial viability during pharmacologic stress testing.

REFERENCES

A Unique Electrocardiographic Finding in a Patient After Esophagectomy*

Robert Ferranti, M.D.

An unusual electrocardiographic finding was seen in a patient with total esophagectomy. The ECG showed an undulating baseline in the anteroseptal leads, and it is postulated that because the surgical result positioned the stomach in the anterior mediastinum, the electrical activity of gastric contractions was being recorded.

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There are numerous causes of artifacts on the standard ECG. For the most part, the magnitude of the electrical signal from the myocardium is sufficiently greater than the signals from other nearby organs (such as the diaphragm and stomach) that the ECG is not significantly disturbed by their signal. Nevertheless, signals from these other organs may be recorded under unusual circumstances.

CASE REPORT

A 43-year-old man required esophagectomy in 1990 after developing esophageal perforation from impaction of a bolus of food. Esophageal-gastric anastomosis performed 3 months later resulted in the stomach lying entirely within the anterior mediastinum. The original perforation was related to the patient’s skin disease, epidermolysis bullosa heredita. He had no history of heart disease or symptoms of angina. Before surgery, ECGs were normal and remained so until the patient’s operation. Thereafter, his ECG revealed a peculiar persistent appearance due to an undulating baseline in the anteroseptal leads (Fig 1).

The patient’s medications included phenytoin (for his skin disease), cisapride, chloral hydrate, and acetaminophen. Electrolyte levels, renal function, and cell counts were normal. No technical error with the acquisition of the ECG could be found. The patient’s chest had a scar from right posterior thoracotomy and a midline incision from upper portion of the sternum to below the umbilicus. The scars were well healed, and no deformity of skin or bone was present.

DISCUSSION

This 43-year-old man has an ECG abnormality that first occurred after a surgical procedure placed his stomach in the anterior mediastinum. Thereafter, the ECG showed an

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Figure 1. Electrocardiographic finding of undulating baseline in anteroseptal leads. This peculiarity persisted despite using different machines and cables.

undulating baseline in the anteroseptal leads but was otherwise normal. This finding persisted despite repeated attempts to achieve a normal baseline tracing using various machines and cables. No symptoms suggested angina, myocardial infarction, or pericarditis.

Electrocardiographic abnormalities suggesting ischemia have been described in the setting of esophageal diseases,1-4 even in patients with angiographically proven normal coronary arteries.2 In some cases, surgical corrections of conditions such as epiphrenic diverticula1 and diaphragmatic hiatal hernia2 have relieved the patient's symptoms of chest or abdominal pain and have reverted the ECG to normal. To our knowledge, this is the only reported case of this unique ECG finding resulting from surgery. It is postulated that the undulating baseline of the ECG may be related to gastric peristalsis, although no attempt has been made to prove this. No other patients with these ECG changes have been found; however, all other cases of complete or partial esophagectomies at our institution were done with a surgical approach that placed the stomach in the posterior mediastinum, so it would be unlikely to find these ECG changes if the hypothesis about their origin was correct.

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Pulmonary Varices Presenting as a Solitary Lung Mass in a Patient With End-Stage Liver Disease*

Kevin M. Man, M.D.; Emmet B. Keeffe, M.D.; Christopher R. Brown, M.D.; Hiroto Egawa, M.D.; and Carlos O. Esquivel, M.D., Ph.D.

A man undergoing evaluation for liver transplantation was found to have an asymptomatic chest mass, which further evaluation revealed to be pulmonary varices. The left hilar lesion was discovered on a screening chest x-ray film and confirmed by a computed tomographic scan of the thoracic cavity. Bronchoscopy was nondiagnostic, and a thoracotomy was required to diagnose the vascular lesion and exclude carcinoma. The pathophysiology of this pulmonary venous anomaly appeared to be related to portal hypertension, since esophageal varices were also present and the pulmonary varices resolved after liver transplantation. This is the first reported case of pulmonary varices caused by portal hypertension.

OLT=orthotopic liver transplantation

Pulmonary varices are rare anomalies of pulmonary veins found most often in patients with cardiovascular disease. They are characterized by aneurysmal dilation of otherwise normal pulmonary veins and often present as a pulmonary or mediastinal mass lesion on a chest roentgenogram. We report a case of pulmonary varices presenting as a solitary lung mass in a patient with end-stage liver disease and portal hypertension undergoing evaluation for orthotopic liver transplantation (OLT).

CASE REPORT

A 57-year-old Japanese man was evaluated at California Pacific Medical Center in September 1991 for OLT. In 1979, abnormal liver biochemical tests were noted on a routine profile obtained during an annual physical examination. Evaluation at that time revealed evidence of previous hepatitis B infection with a positive anti-HBe and anti-HBc. A history of social alcohol usage was obtained. After complete evaluation, chronic non-A, non-B hepatitis was diagnosed on the basis of exclusion. He remained asymptomatic until 1984, when hematemesis occurred. Endoscopy revealed bleeding esophageal varices, which were treated with a course of sclerotherapy. He was initially evaluated for OLT at another institution in 1986, but he was believed to have compensated cirrhosis and follow-up was recommended. The patient later developed jaundice, significant pruritus, ascites controlled with diuretics, and mild encephalopathy requiring chronic therapy with lactulose. Easy bruising and spontaneous bleeding also were noted. Because of progressive deterioration in hepatic function, he was reevaluated at California Pacific Medical Center for OLT.

The patient was found to have antibody to hepatitis C virus by the first generation enzyme-linked immunosorbent assay test. Upper endoscopy revealed large 3+ nonbleeding esophageal

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