Clinical Section

President R J Harrison FRCP

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Cases

An Unusual Cause of Syncope

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Woman aged 29. Housewife

History: She had been experiencing 'dizzy turns' on swallowing for about four years. The attacks were unrelated to the size, consistency or temperature of the bolus of food. She had suffered eight Adams-Stokes attacks. Repeated physical examinations and routine laboratory investigations had failed to reveal any abnormality. Dr P H Griffiths at the North Wales Hospital for Nervous and Mental Disorders first recorded episodes of ventricular asystole during swallowing and also noted that these could be blocked by the prior administration of atropine. She was then referred to Professor J F Goodwin at Hammersmith Hospital, where physical examination was again normal.

Investigations: Routine hæmatological and biochemical tests of blood and urine, chest radiographs and tomograms of the mediastinum and the resting ECG were all normal. Repeated barium swallow examinations in the supine, upright and head-down positions revealed no abnormality.

The following ECG changes were observed on swallowing and after the Valsalva manœuvre:

	Swallowing	*Valsalva manœuvre Phase IV*
Sinus rate	No change	Slowed
Origin of atrial impulse	Sinatrial	Ectopic atrial
P–R interval	Unchanged	Shortened
Conduction of atrial impulse to the ventricles	Blocked. Longest observed period of complete ventricular asystole 7·4 sec. No ventricular escape beats	Normal

The changes were completely abolished by the prior administration of 1·2 mg of atropine sulphate intravenously.

Carotid sinus pressure, eye-ball pressure and somatic pain produced no ECG abnormalities. Likewise gargling and aerophagy were without effect.

Inflation of a balloon placed in the œsophagus at the end of a catheter showed reproducible ECG changes and helped to localize the affected segment of the œsophagus as between D5 and D9 vertebral bodies.

Unilateral vagal block was carried out consecutively on either side by Dr A Guz but this failed to abolish the reflex. Local anæsthesia of the œsophageal mucosa was similarly without effect. However, 1·2 mg of atropine, given intravenously, promptly abolished the reflex.

Discussion

Reflex changes in the origin and spread of excitation in the heart have been occasionally observed in relation to swallowing. The present case illustrates such a situation.

There have been a few patients reported in the English literature in whom disorders of conduction were related to swallowing. Sir James Mackenzie reported what was probably the first such documented case in 1906. The cases reported by Weiss & Ferris (1934), Correll & Lindert (1949) and James (1958) all had œsophageal diverticula and the patient of Iglauer & Schwartz (1936) had achalasia and mega-œsophagus. Kopald *et al.* (1964) reported sinus bradycardia or arrest in a patient with diffuse œsophageal spasm.

There is little doubt that a neurogenic reflex is responsible for the changes in conduction shown by the patient reported here. The efferent pathway is almost certainly through the vagus since the reflex can be abolished by atropine. However,

unilateral vagal block failed to abolish the response, indicating that the efferent impulses travel down both vagi.

The afferent site of the reflex has been shown to be at the lower end of the œsophagus but the precise nature of the abnormality at this site is unknown. The afferent pathway of the reflex is also unknown.

Addendum

Since this report was presented the patient has been operated upon by Mr W P Cleland who divided the nerve supply to the affected segment of the œsophagus. The patient made an uneventful recovery. She is now free from symptoms and provocative tests show that the reflex has been abolished.

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Obstructed Volvulus of Stomach in a Diaphragmatic Hernia: A Post-partum Emergency

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Mrs J J, aged 25. Housewife

History: Admitted to the Whittington Hospital at 9.30 a.m. on September 13, 1967, in shock and extreme dyspnœa.

At 6 a.m. she had had the uneventful delivery of her second child at a nearby general practitioner maternity home. The pregnancy had been normal and had gone to term. At 6.30 a.m. she complained of epigastric and low back pain, continuous and cramp-like. She was given a cup of tea and a Disprin, but regurgitated a minute or so later. At about 8.30 a.m. she started feeling increasingly breathless, until she became unconscious by 8.45 a.m. The patient's general practitioner examined her, diagnosed a tension pneumothorax and arranged her removal to hospital forthwith.

On admission she was comatose, pale and cyanosed. The blood pressure was unrecordable and there were signs of a large left-sided tension pneumothorax. With this diagnosis, a trocar and cannula were inserted via the second left intercostal space anteriorly: a large quantity of gas escaped and all present remarked upon its fæcal or intestinal smell.

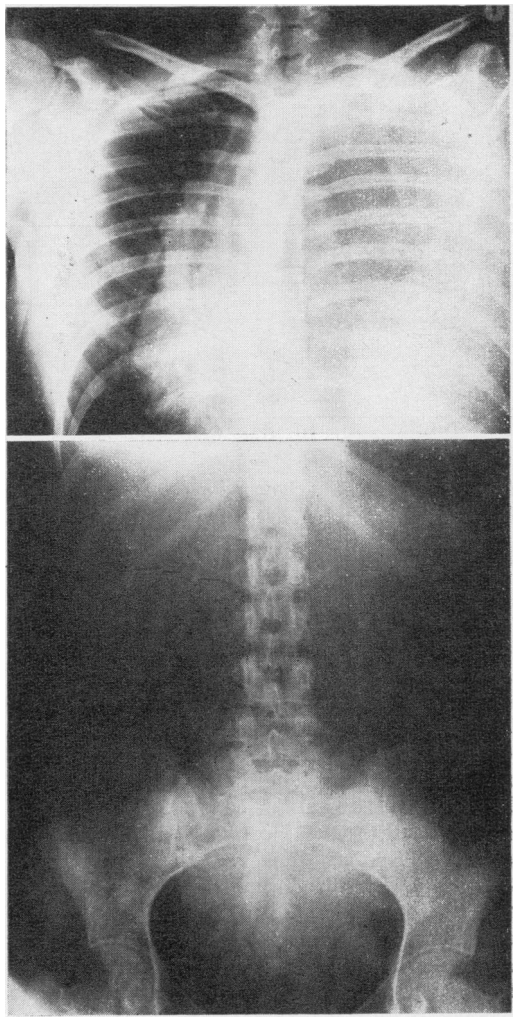

Fig 1 *X-ray of chest and abdomen (13.9.67, 10 a.m.) showing mediastinal displacement by gas and fluid in the left pleural cavity, with inversion of the hemi-diaphragm and no gas in the intestine*

The patient's condition now improved: she became conscious and less dyspnœic and the blood pressure became recordable at 60 mmHg systolic. X-rays were now taken (*see* Fig 1).

Operation (13.9.67, 12 noon): The chest was opened through the bed of the left 7th rib, and was found to contain the enormously dilated stomach, the upper left colon, the omentum and spleen (*see* Fig 2). The stomach had undergone organo-axial volvulus. With the intestinal decom-