

## An unusual complication of traumatic diaphragmatic hernia

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Traumatic diaphragmatic hernia is diagnosed during one of three phases. These are immediately after the trauma, during an interval phase, or when it becomes complicated by obstruction or strangulation of the contents of the hernia (Carter *et al*, 1951).

We report a patient who presented some weeks after the original injury with the unusual complication of gangrene of the stomach. In addition, the basal segments of the left lower lobe of the lung that were in close proximity to the stomach were destroyed, presumably by transudation through the necrotic stomach of gastric secretions, necessitating left lower lobectomy. This complication has not previously been reported.

### Case report

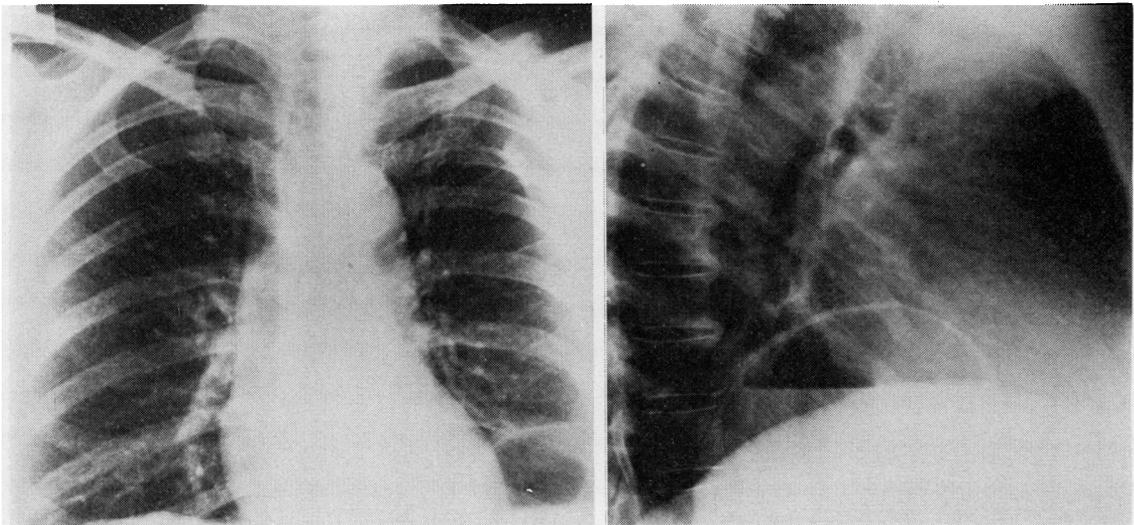
The patient, a 68-year-old woman, was on holiday in Wales when she fell down a short flight of stairs. She sustained fractures of the clavicle and

the left second to eighth ribs. Within a month she had apparently fully recovered.

Four months later she was readmitted as an emergency with severe left-sided chest pain radiating to the left shoulder and arm, and severe colicky pain in the epigastrium. She was not shocked and was afebrile. The only physical sign in the chest was reduced air entry at the left base. She was slightly tender in the epigastrium. The chest radiograph was thought to show a raised left diaphragm with clear lung fields (see figure); an ECG was normal. She was treated symptomatically. A barium meal the next day showed herniation of the greater part of the stomach into the left chest.

Traumatic rupture of the diaphragm was diagnosed, and it was decided to operate. About four hours before the operation she collapsed, became shocked, and did not respond to the usual resuscitative measures. Surgery thus became urgent.

At operation the entire stomach except for the



Posteroanterior and lateral chest radiograph taken shortly after admission showing diaphragmatic hernia erroneously diagnosed as a high left diaphragm.

distal 5 cm of antrum was found to have herniated through a 4 cm defect in the left leaf of the diaphragm, and this portion of the stomach (which had not ruptured) was gangrenous. There was a litre of fluid in the pleural cavity. The basal segments of the lower lobe of the lung, to which the infarcted stomach had become adherent, were also gangrenous.

Seven-eighths of the stomach was removed, and intestinal continuity restored by an anastomosis between the oesophagus and the 5 cm gastric remnant. A left lower lobectomy and repair of the rupture of the diaphragm completed the operation.

The patient was ventilated artificially for 48 hours during which time she had a period of pulmonary oedema which responded to a diuretic. She was fed intravenously for eight days and then made an uneventful recovery. A gastrografin swallow on the eighth day showed adequate emptying of the small gastric remnant but some reflux into the oesophagus.

### Discussion

Wounds of the diaphragm rarely heal because the edges of the rupture are held apart by the interposition of omentum or abdominal viscera. Respiratory movements of the diaphragm and the negative intrapleural pressure gradually cause further herniation of the abdominal contents into the chest.

As illustrated clearly in this patient a strangulated diaphragmatic hernia may present with a thoracoabdominal complex (Carter and Brewer, 1971) of symptoms and signs, of which either the

thoracic or abdominal features may predominate. Of the typical radiological signs (Carter *et al*, 1951) this patient showed the arch-like shadow resembling an abnormally high diaphragm.

Reviewing the published cases since Gordon Bryan's surgical classic in 1921 (Bryan, 1921) only 12 cases of strangulated stomach due to traumatic diaphragmatic hernia have been reported by seven authors; four of these patients died. There are only two other reported cases (Carter *et al*, 1951; Gibbons, 1968) in which the entire stomach was gangrenous; one of these patients died. No report of the changes seen in the lung has been found. The pathologist's report on these changes was "an auto-digestion phenomenon, which is the result of the presence of gastric juice in the pleural cavity.

### References

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