total attendance rate for 21 June of eight. All patients had an audible wheeze and the mean peak expiratory flow rate for the group was 132 l/min (range: 60–240 l/min). Interestingly, nine of the total of 19 patients with wheezing only gave a past history of hayfever and no history of asthma while the remaining 10 had previously been diagnosed as having asthma.

The relationship between changes in the weather and acute asthma attacks has been noted previously (Lopez & Salvagio, 1983). The reason for this is unclear, but suggested aetiological factors have included changes in atmospheric pollutants (Morrow-Brown & Jackson, 1983) and, in particular, the fungal spore Didymella Excitalis (Harries et al., 1985). During the thunderstorm described, there was no increase in the smoke or sulphur dioxide content of the air. There was, also, no change in the spore counts recorded at the Midlands Asthma and Allergy Research Association’s laboratory situated only 18 km from this hospital. We could not, therefore, identify any obvious cause for the increase in asthma attacks. However, it is known that ‘antigen-rich aerosols’ form as a result of climatic changes (Habernicht et al., 1984) and that this change is not readily detectable. Sporulation of Didymella Excitalis is increased following rainfall (Lancet Editorial, 1985) and we feel that our observations may support the implication of this fungal spore by the mechanism described.

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REFERENCES

Peritoneal lavage in the diagnosis of traumatic duodenal rupture
Sir
We report an unusual clinical sign following negative peritoneal lavage which prompted early diagnosis of a retroperitoneal duodenal tear. A 52-year-old female front-seat passenger of a car, involved in a high-speed collision, was admitted complaining of right-sided abdominal pain. The only visible signs of injury were bruises, clearly in the shape of lap and diagonal seat-belt straps, on her anterior abdominal and left lateral chest walls. The right side of her abdomen was moderately tender and guarded, but bowel sounds were normal. There was no evidence of any other injury. Diagnosis...
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peritoneal lavage was carried out, employing a peritoneal dialysis catheter, inserted through a small sub-umbilical incision in skin and linea alba. Five hundred ml normal saline were run in and returned clear. The catheter was removed and the skin closed with a single nylon stitch. Erect chest and supine abdominal films were normal.

The patient was managed conservatively with intravenous fluids and regular careful observation. Two h after presentation, while her general condition was unchanged, palpation revealed very obvious surgical emphysema in the lower abdominal wall. On a second erect chest X-ray, gas was clearly demonstrated under both hemi-diaphragms and laparotomy was, therefore, undertaken. There was a considerable amount of bile-stained fluid and gas in the retroperitoneal tissues around the duodenum, but only a small amount of free fluid in the peritoneal cavity. The duodenum was mobilised to display a 2 cm tear on the posterior surface of the junction of the second and third parts which was repaired. The patient made an uneventful post-operative recovery.

The detection of surgical emphysema in the anterior abdominal wall clearly heightened suspicion of major intra-abdominal injury. The gas must have come from a perforated or leaking viscus. The possibility of iatrogenic perforation by the dialysis catheter was considered, but seemed unlikely as there was no faecal or bile-staining of the returning irrigant. Since initial X-rays were normal, slow leakage of gas from the retro-duodenal tissues into the lesser sac and eventually into the general peritoneal cavity seems a likely sequence of events. In the supine patient, gas could rise be expelled by contraction of the abdominal musculature through the small slit in the linea and into the subcutaneous tissues. This mechanism produced an unexpected but important clinical finding following initially negative peritoneal lavage which lead to the early detection of traumatic duodenal rupture, an injury in which diagnosis and treatment are commonly delayed for over 24 hours, and complications and mortality are correspondingly high.

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REFERENCES


Catecholamines and the heart

Sir

We read with interest the paper by Little *et al.* (1986, Vol. 3, pp. 20–7) and feel it deserves further comment. The importance of the heart as a catecholamine-producing organ was first suggested by Braunwald. In the normal heart under resting conditions,