speed reducing effect directly proportional to the height of the hump. Humps are permitted along single and dual carriageway roads providing there is a maximum 30 mph speed limit in operation and the road is not a trunk, special, or principal road. Unless the road is within a 20 mph zone there must be an adequate lighting source in the surrounding area. Road humps must be located so that they are always preceded by a speed reducing feature (another road hump, road markings). In addition, traffic signs are required to warn of the presence of a road hump or series of road humps.1,2

Road humps are intended for use in areas where the traffic consists mostly of cars. Owing to their different dynamic responses and larger and wider wheelbase, larger sized vehicles, in particular buses, are affected to a greater extent.3 The potential dangers to passengers arise from their ability to move about the bus while it is in motion.3 In the two cases cited there is evidence that the buses were travelling at speeds greater than recommended for crossing the road humps.

Zaidel et al3 propose two approaches to the situation. They cite the view taken in the United States, Australia, and New Zealand, where the placement of road humps on bus routes is avoided. They contrast this with the view held in the United Kingdom, Sweden, Israel, Norway, and The Netherlands, where it is felt that buses should be subjected to, rather than exempt from, speed restrictions. These two cases show that there are real dangers to passengers travelling on buses that use roads with road humps.

Case 2
A 34 year old female sitting on the back seat of the lower tier of a double decker public transport bus sustained a flexion/extension injury to her neck, and a soft tissue injury to her right shoulder after the vehicle traversed a road hump. She was thrown forwards striking the back of the seat in front of her. She had no prior history of either shoulder or neck problems. Treatment comprised a soft cervical collar and analgesia. Fifteen months after the injury she continues to suffer from intermittent neck pain.

Discussion
In the United Kingdom the height of road humps ranges from 50 to 100 mm, with the

Spontaneous splenic rupture: an unusual cause of hypovolaemia

R Birkinshaw, M Saab, A Gray

Abstract
Splenic rupture in infectious mononucleosis is an extremely rare but often fatal complication. A case presented to the accident and emergency department in ventricular fibrillation seconds after losing signs of any cardiac output. The underlying cause of cardiorespiratory arrest always be sought irrespective of the presenting rhythm. (J Accid Emerg Med 1996;13:289–291)

Key terms: hypovolaemia; infectious mononucleosis; ruptured spleen; ventricular fibrillation
Splenic rupture is a dramatic complication of infectious mononucleosis. Lymphocytic infiltration of the capsule, trabeculae, and vascular walls coupled with rapid splenic enlargement predisposes the organ to rupture. The incidence of rupture is highest in the second and third week of the illness but may be the first sign of infectious mononucleosis. A history of trauma may be elicited in about 50% of cases of splenic rupture. Pathological examination of some of the ruptured spleens has revealed subcapsular haematomas that suggest rupture may be preceded by intermittent subcapsular bleeding.

Case report
A 15 year old female attended her general practitioner with a one week history of sore throat and feeling generally unwell. She was found to be pyrexial with cervical lymphadenopathy and enlarged tonsils. A differential diagnosis of simple tonsillitis or infectious mononucleosis was made. She was started on regular paracetamol and penicillin V. A monospot test was taken at the same time and subsequently found to be positive.

Four days later she complained of abdominal pain in addition to the sore throat. She was seen again by her general practitioner and no change in treatment was made. The following day she began vomiting and had attacks of sweating. She also fainted twice and complained that the abdominal pain was becoming more severe. The general practitioner was called again. On his arrival the patient’s condition deteriorated dramatically. She was now clinically shocked with pallor, tachycardia, and hypotension.

The ambulance paramedic was unable to obtain intravenous access and rapidly transported her to hospital. In transit her vital signs were measured as systolic blood pressure 30 mm Hg, pulse 172/min, capillary refill above 2 seconds, oxygen saturation 97%, and Glasgow coma score 3.

On arrival in the accident and emergency (A&E) department, and while being transferred from the ambulance to the resuscitation room, the patient had a cardiorespiratory arrest. In the resuscitation room she was found to be in ventricular fibrillation. Advanced cardiopulmonary resuscitation was begun. She was intubated, and a right subclavian CVP line and a cut down to the left saphenous vein were sited. Simultaneously she was given two units of O negative blood followed by seven units of Haemaccel and three litres of 0-9% saline. Despite volume replacement and 30 minutes of advanced cardiac life support with 12 dc shocks, 7 mg of adrenaline, and 250 mg bretylium the patient’s prolonged ventricular fibrillation eventually changed to asystole which failed to respond to 3 mg of atropine. She was declared dead after 45 minutes of advanced cardiac life support.

At necropsy the peritoneal cavity contained three litres of fresh blood and blood clot. The spleen was six times its normal size and was very soft and friable. It had ruptured spontaneously at its inferior pole, resulting in massive intraperitoneal haemorrhage. Areas of subcapsular haemorrhage were also identified over several other areas of the spleen. Within the retroperitoneum and hilar regions there were multiple lymph nodes which were enlarged. The cause of death was recorded as 1(a) spontaneous splenic rupture; (b) splenomegaly; (c) infectious mononucleosis.

Discussion
Knowledge of the clinical picture of uncomplicated infectious mononucleosis will enable physicians to understand the significance of unusual features which may indicate the onset of splenic rupture. Patients may have symptoms pointing toward this complication hours or days before the most serious intra-abdominal bleeding occurs. Abdominal pain is very uncommon in infectious mononucleosis and splenic rupture must be strongly considered whenever abdominal pain occurs. If time permits, abdominal ultrasound should be performed, looking for splenic enlargement and free fluid. The onset of pain may be insidious or abrupt and may radiate to the left scapular area. Left upper quadrant tenderness to palpation, with or without rebound tenderness, is usually present. Only in rare cases is splenic rupture unaccompanied by pain and manifested as hypovolaemia.

The degree of hypovolaemia can be estimated by noting the patient’s skin colour, pulse, pulse volume, and blood pressure. Our patient was extremely pale with a tachycardia and hypotension for 30 minutes before having a cardiac arrest. Pallor reflects the increased sympathetic output and this simple observation is significantly related to mortality.

Hypovolaemia causing cardiac arrest classically presents with electromechanical dissociation (EMD). This girl had lost 60% to 70% of her blood volume, causing cardiac arrest. There is no mention in the European Resuscitation Council Guidelines of the treatment of ventricular fibrillation in the presence of hypovolaemia. We would recommend that the underlying cause of cardiorespiratory arrest is always sought, irrespective of the presenting rhythm.

In adults the usual underlying cause for ventricular fibrillation is ischaemic heart disease. This requires early dc shock and although antiarrhythmic drugs are given as specific therapy there is probably no benefit in doing so. In children the presence of ventricular fibrillation may more commonly indicate an underlying cause that does require specific treatment over and above dc shock at the time of cardiorespiratory arrest – for example, hypothermia, electrolyte disturbance, and arrhythmia inducing drugs such as the tricyclic antidepressants.

A search for and treatment of hypovolaemia in EMD is generally undertaken and recommended. In this patient, rapid defibrillation had to be combined with volume replacement. Group specific blood would have probably been the ideal fluid replacement in this case. However, the blood bank is situated two and a half miles away at another hospital and this incident occurred during the traffic peak.
There would have been an inevitable delay before grouped blood arrived. The correction of hypovolaemia was paramount if this girl's chance of survival were to be maximised.


Aspiration pneumonia in a mentally handicapped patient due to a foreign body impacted in the pharynx: a near fatal outcome

S Asgarali, V Nandapalan, D Phillips, O Osunuga

Abstract
A case is reported of a mentally handicapped woman with dysphagia caused by a foreign body impacted in the pharynx. The case illustrates a potential pitfall in the management of patients who are unable to communicate either verbally or in writing and who present with acute dysphagia.


Key terms: dysphagia; pharyngeal foreign body; mental handicap

We report a potential pitfall in the management of patients who are unable to communicate either verbally or in writing and who present with acute dysphagia.

Case report
An 18 year old mentally handicapped and epileptic female presented to the accident and emergency (A&E) department with a one day history of dysphagia. She was unable to communicate any of her symptoms. There was no drooling of saliva. Examination of her mouth and oropharynx did not reveal any foreign body. Indirect laryngoscopy was not possible and a lateral soft tissue neck x ray showed a significant increase in the width of the prevertebral space. Under general anaesthesia, a piece of wooden jigsaw puzzle measuring 55 x 48 mm was removed from the hypopharynx.

Despite intravenous antibiotics and oxygen, her condition deteriorated over the following 24 hours. An ENT opinion was requested. A fibroptic nasoendoscope was not tolerated, but a repeat lateral soft tissue neck x ray showed a significant increase in the width of the prevertebral space. Under general anaesthesia, a piece of wooden jigsaw puzzle measuring 55 x 48 mm was removed from the hypopharynx.

The patient's condition improved on intravenous antibiotics and chest physiotherapy and she was discharged home one week later.

Discussion
In patients who are able to give a history and communicate symptoms, and who are able to cooperate with a full examination, the diagnosis of a foreign body impacted in the throat is seldom difficult. However, in patients unable to communicate and who present with dysphagia or aspiration, doctors working in A&E and ENT departments need to maintain a high index of suspicion of a possible foreign body impacted in the pharynx or upper oesophagus.1-3