different observations may arise from the different techniques used to record the pressures. The reference [4] quoted by Dr Serpell compared intracranial extradural pressure with lumbar extradural pressure in neurosurgical patients and is not relevant to the present study.

Insertion of an extradural catheter in an anaesthetized patient may carry an increased risk of nerve damage. However, many anaesthetists regard it as a safe and acceptable practice. For example, in a recent study [5], extradural catheters were inserted either before or after induction of anaesthesia. To avoid nerve damage, an extradural catheter should only be advanced if there is no resistance to its insertion.

J. L. SHAH
Department of Anaesthesia
City Hospital NHS Trust
Birmingham

Echocardiography and chest trauma

Sir,—We read the letter by Fleyfel and colleagues [1] with interest. They stated that the use of echocardiography in the diagnosis of traumatic intrapericardial diaphragmatic hernia was unhelpful because of extensive surgical emphysema over the left hemithorax. They did not state the mode of echocardiography used but we assume it was transthoracic and not transoesophageal. While accepting that they may not have had access to either a transoesophageal echocardiograph or the availability of an experienced operator, there is no doubt that transoesophageal echocardiography would have clearly demonstrated the presence of a significant intrapericardial lesion despite subcutaneous emphysema. It would also have confirmed the absence of other forms of cardiac or pericardial trauma.

Transoesophageal echocardiography is a minimally invasive investigation which should be considered in all cases of major blunt chest trauma as it reliably identifies the presence of pericardial effusions and tamponades, atrial thrombi, traumatic valvular disease, myocardial contusion and usually ascending pericardial effusions and tamponades, atrial thrombi, traumatic valvular disease, myocardial contusion and usually ascending pericardial effusions and tamponades, atrial thrombi, traumatic valvular disease, myocardial contusion and usually ascending pericardial effusions and tamponades, atrial thrombi, traumatic valvular disease, myocardial contusion and usually ascending pericardial effusions and tamponades, atrial thrombi, traumatic valvular disease, myocardial contusion and usually ascending pericardial effusions and tamponades, atrial thrombi, traumatic valvular disease, myocardial contusion and usually ascending pericardial effusions and tamponades, atrial thrombi, traumatic valvular disease, myocardial contusion and usually ascending pericardial effusions and tamponades, atrial thrombi, traumatic valvular disease, myocardial contusion and usually ascending pericardial effusions and tamponades, atrial thrombi, traumatic valvular disease, myocardial contusion and usually ascending pericardial effusions and tamponades, atrial thrombi, traumatic valvular disease, myocardial contusion and usually ascending pericardial effusions and tamponades, atrial thrombi, traumatic valvular disease, myocardial contusion and usually ascending pericardial effusions and tamponades, atrial thrombi, traumatic valvular disease, myocardial contusion and usually ascending pericardial effusions and tamponades, atrial thrombi, traumatic valvular disease, myocardial contusion and usually ascending pericardial effusions and tamponades, atrial thrombi, traumatic valvular disease, myocardial contusion and usually ascending pericardial effusions and tamponades, atrial thrombi, traumatic valvular disease, myocardial contusion and usually ascending pericardial effusions and tamponades, atrial thrombi, traumatic valvular disease, myocardial contusion and usually ascending pericardial effusions and tamponades, atrial thrombi, traumatic valvular disease, myocardial contusion and usually ascending pericardial effusions and tamponades, atrial thrombi, traumatic valvular disease, myocardial contusion and usually ascending pericardial effusions and tamponades, atrial thrombi, traumatic valvular disease, myocardial contusion and usually ascending pericardial effusions and tamponades, atrial thrombi, traumatic valvular disease, myocardial contusion and usually ascending pericardial effusions and tamponades, atrial thrombi, traumatic valvular disease, myocardial contusion and usually ascending pericardial effusions and tamponades, atrial thrombi, traumatic valvular disease, myocardial contusion and usually ascending pericardial effusions and tamponades, atrial thrombi, traumatic valvular disease, myocardial contusion and usually ascending pericardial effusions and tamponades, atrial thrombi, traumatic valvular disease, myocardial contusion and usually ascending pericardial effusions and tamponades, atrial thrombi, traumatic valvular disease, myocardial contusion and usually ascending pericardial effusions and tamponades, atrial thrombi, traumatic valvular disease, myocardial contusion and usually ascending pericardial effusions and tamponades, atrial thrombi, traumatic valvular disease, myocardial contusion and usually ascending pericardial effusions and tamponades, atrial thrombi, traumatic valvular disease, myocardial contusion and usually ascending pericardial effusions and tamponades, atrial thrombi, traumatic valvular disease, myocardial contusion and usually ascending pericardial effusions and tamponades, atrial thrombi, traumatic valvular disease, myocardial contusion and usually ascending pericardial effusions and tamponades, atrial thrombi, traumatic valvular disease, myocardial contusion and usually ascending pericardial effusions and tamponades, atrial thrombi, traumatic valvular disease, myocardial contusion and usually ascending pericardial effusions and tamponades, atrial thrombi, traumatic valvular disease, myocardial contusion and usually ascending pericardial effusions and tamponades, atrial thrombi, traumatic valvular disease, myocardial contusion and usually ascending pericardial effusions and tamponades, atrial thrombi, traumatic valvular disease, myocardial contusion and usually ascending pericardial effusions and tamponades, atrial thrombi, traumatic valvular disease, myocardial contusion and usually ascending pericardial effusions and tamponades, atrial thrombi, traumatic valvular disease, myocardial contusion and usually ascending pericardial effusions and tamponades, atrial thrombi, traumatic valvular disease, myocardial contusion and usually ascending pericardial effusions and tamponades, atrial thrombi, traumatic valvular disease, myocardial contusion and usually ascending pericardial effusions and tamponades, atrial thrombi, traumatic valvular disease, myocardial contusion and usually ascending pericardial effusions and tamponades, atrial thrombi, traumatic valvular disease, myocardial contusion and usually ascending pericardial effusions and tamponades, atrial thrombi, traumatic valvular disease, myocardial contusion and usually ascending pericardial effusions and tamponades, atrial thrombi, traumatic valvular disease, myocardial contusion and usually ascending pericardial effusions and tamponades, atrial thrombi, traumatic valvular disease, myocardial contusion and usually ascending pericardial effusions and tamponades, atrial thrombi, traumatic valvular disease, myocardial contusion and usually ascending pericardial effusions and tamponades, atrial thrombi, traumatic valvular disease, myocardial contusion and usually ascending pericardial effusions and tamponades, atrial thrombi, traumatic valvular disease, myocardial contusion and usually ascending pericardial effusions and tamponades, atrial thrombi, traumatic valvular disease, myocardial contusion and usually ascending pericardial effusions and tamponades, atrial thrombi, traumatic valvular disease, myocardial contusion and usually ascending pericardial effusions and tamponades, atrial thrombi, traumatic valvular disease, myocardial contusion and usually ascending pericardial effusions and tamponades, atrial thrombi, traumatic valvular disease, myocardial contusion and usually ascending pericardial effusions and tamponades, atrial thrombi, traumatic valvular disease, myocardial contusion and usually ascending pericardial effusions and tamponades, atrial thrombi, traumatic valvular disease, myocardial contusion and usually ascending pericardial effusions and tamponades, atrial thrombi, traumatic valvular disease, myocardial contusion and usually ascending pericardial effusions and tamponades, atrial thrombi, traumatic valvular disease, myocardial contusion and usually ascending pericardial effusions and tamponades, atrial thrombi, traumatic valvular disease, myocardial contusion and usually ascending pericardial effusions and tamponades, atrial thrombi, traumatic valvular disease, myocardial contusion and usually ascending pericardial effusions and tamponades, atrial thrombi, traumatic valvular disease, myocardial contusion and usually ascending pericardial effusions and tamponades, atrial thrombi, traumatic valvular disease, myocardial contusion and usually ascending pericardial effusions and tamponades, atrial thrombi, traumatic valvular disease, myocardial contusion and usually ascending pericardial effusions and tamponades, atrial thrombi, traumatic valvular disease, myocardial contusion and usually ascending pericardial effusions and tamponades, atrial thrombi, traumatic valvular disease, myocardial contusion and usually ascending pericardial effusions and tamponades, atrial thrombi, traumatic valvular disease, myocardial contusion and usually ascending pericardial effusions and tamponades, atrial thrombi, traumatic valvular disease, myocardial contusion and usually ascending pericardial effusions and tamponades, atrial thrombi, traumatic valvular disease, myocardial contusion and usually ascending pericardial effusions and tamponades, atrial thrombi, traumatic valvular disease, myocardial contusion and usually ascending pericardial effusions and tamponades, atrial thrombi, traumatic valvular disease, myocardial contusion and usually ascending pericardial effusions and tamponades, atrial thromb...