

Correspondence

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Not Allowed to Die

SIR,—A doctor aged 68 was admitted to an overseas hospital after a barium meal had shown a large carcinoma of the stomach. He had retired from practice five years earlier, after severe myocardial infarction had left his exercise tolerance considerably reduced. The early symptoms of the carcinoma were mistakenly thought to be due to myocardial ischaemia. By the time when the possibility of carcinoma was first considered the disease was already far advanced; laparotomy showed extensive metastatic involvement of the abdominal lymph nodes and liver. Palliative gastrectomy was performed with the object of preventing perforation of the primary tumour into the peritoneal cavity, which appeared to the surgeon to be imminent. Histological examination showed the growth to be an anaplastic primary adenocarcinoma. There was clinical and radiological evidence of secondary deposits in the lower thoracic and lumbar vertebrae.

The patient was told of the findings and fully understood their import. In spite of increasingly large doses of pethidine, and of morphine at night, he suffered constantly with severe abdominal pain and pain resulting from compression of spinal nerves by tumour deposits.

On the tenth day after the gastrectomy the patient collapsed with classic manifestations of massive pulmonary embolism. Pulmonary embolectomy was successfully performed in the ward by a registrar. When the patient had recovered sufficiently he expressed his appreciation of the good intentions and skill of his young colleague. At the same time he asked that if he had a further cardiovascular collapse no steps should be taken to prolong his life, for the pain of his cancer was now more than he would needlessly continue to endure. He himself wrote a note to this effect in his case records, and the staff of the hospital knew his feelings.

His wish notwithstanding, when the patient collapsed again, two weeks after the embolectomy—this time with acute myocardial infarction and cardiac arrest—he was revived by

the hospital's emergency resuscitation team. His heart stopped on four further occasions during that night and each time was restarted artificially. The body then recovered sufficiently to linger for three more weeks, but in a decerebrate state, punctuated by episodes of projectile vomiting accompanied by generalized convulsions. Intravenous nourishment was carefully combined with blood transfusion and measures necessary to maintain electrolyte and fluid balance. In addition, antibacterial and antifungal antibiotics were given as prophylaxis against infection, particularly pneumonia complicating the tracheotomy that had been performed to ensure a clear airway. On the last day of the illness preparations were being made for

the work of the failing respiratory centre to be given over to an artificial respirator, but the heart finally stopped before this endeavour could be realized.

This case report is submitted for publication without commentary or conclusions, which are left for those who may read it to provide for themselves.

My thanks for encouragement to publish this report are due to the surgeon and physician in whose care the patient was initially admitted to hospital for investigation of his abdominal condition. The identity of those concerned and of their country is beside the point.

—I am, etc.,

W. ST. C. SYMMERS, Sen.
Histopathology Laboratory,
Charing Cross Hospital
and Medical School,
London W.C.2.

Point of Death

SIR,—In the heart transplantation controversy the precise definition of death has caught the medical profession unawares. What is clearly required is a fairly sharp moment in the rather drawn out process of dissolution.

In a paper entitled "Standard Experimental Shock and Postmortem Cardiac Arrest" in which I studied the heart before, during, and for some hours after "death" the sequence of events in the rat was briefly as follows. The blood pressure would gradually decline, respiration would become shallower, and near the end both respiration and the pulse became irregular. Neither of these parameters was therefore a reliable index of life, though respiration was the more accurate of the two. The most accurate parameter, however, was the blood pressure. When this had fallen to very low levels such that the sphygmomanometer cuff would be quite inadequate and only direct monitoring could be used, there came a moment lasting no more than a few seconds when the gradual fall was ended by a pretty abrupt one of

about 3–5 mm. Hg. At low blood pressure levels a mercury manometer becomes inaccurate, and therefore a saline manometer shows this drop much more clearly.

This abrupt fall in the blood pressure was not due to sudden cardiac failure. The heart went on beating for some time, the ventricles eventually failing before the atria owing to increasing heart block, and sludging of the blood, or segmental spasm, becoming evident in the coronary vessels. The fall in the blood pressure must have been due to a sudden release of vasomotor tone mediated through the sympathetic nervous system. It indicated the demise of the vasomotor centres.

In man the common femoral artery is easily accessible for blood pressure recording, and the pressure drop should therefore be demonstrable if other indices of death are contradictory.—I am, etc.,

FELIX E. WEALE.
St. Bartholomew's Hospital,
London E.C.1.

REFERENCE

¹ Weale, F. E. *J. appl. Physiol.*, 1958, 13, 283.