

BRITISH MEDICAL JOURNAL

SATURDAY 23 APRIL 1983

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Correction: Medical effects of nuclear war (Carroll)

We may return unduly long letters to the author for shortening so that we can offer readers as wide a selection as possible.

We receive so many letters each week that we have to omit some of them. Letters should be typed with double spacing between lines and must be signed personally by all their authors, who should include their degrees. Letters critical of a paper may be sent to the authors of the paper so that their reply may appear in the same issue.

*Correspondents should present their references in the Vancouver style (see examples in these columns). In particular, the names and initials of all authors must be given unless there are more than six, when only the first three should be given, followed by *et al*; and the first and last page numbers of articles and chapters should be included.*

The Heimlich manoeuvre

SIR,—Dr D P Addy (12 February, p 536) has described the confusion regarding recommendations as to whether backslaps or the Heimlich manoeuvre should be used to treat choking children. He asks: "What should we advise parents and others to do when faced with a choking child?" The answer can be found in references in the published work going back to 1854. I would like to take this opportunity to cite some of these references in the hope of clarifying the most effective treatment for saving the life of a choking person.

From the time of the brilliant study by Gross¹ in 1854 to the present, medical reports and textbooks on the subject of airway obstruction by foreign bodies warn that only when a choking patient is in extremis should blows between the shoulder blades be used.²⁻¹⁹ The reason given for this recommendation is the clinical observation that a back blow causes a foreign body in the throat to be propelled downward and backward, either impacting it in the glottis or driving it into the lung. Several of these articles warning against the use of backslaps are from the Chevalier Jackson Clinic in Philadelphia and are based on that institution's experience beginning with a series of 612 cases of airway obstruction by foreign bodies in 1917 and including more than 6000 by 1979.^{3 12 13 16-19}

Similarly, the official textbooks of the American Red Cross from 1973 to 1978 state: "Do not allow anyone to slap you on your back if you choke and do not try to dislodge an object from another person's throat by this means, except as a last, desperate effort to save his life."² New scientific confirmation of the earlier clinical observations was recently reported by Day *et al*⁴ at the Yale University School of Medicine. The Yale group, using an accelerometer, plethysmograph, and specially designed instrumentation, found that back blows propel a foreign body downward and backward into the throat or larynx in a direction towards the lung at a force of 3 g. They attributed this finding to Newton's third law of motion: "To every action there is always opposed an equal reaction." They concluded that in a choking person "in the case of a partial obstruction, a back blow could transform the situation into one of complete blockage."

In 1977 Gordon *et al*²⁰ experimented on anaesthetised human volunteers, inserting a piece of meat into the throat to which a string had been tied in order to pull it out in an emergency. Dr Addy's article notes that Gordon also looked into the throat of anaesthetised baboons while slapping the back. From the observations on baboons Gordon con-

cluded that backslaps would not expel a foreign body but loosened it, which might make a subsequent Heimlich manoeuvre more effective. It was solely on the basis of that study by Gordon, adviser to the American Red Cross and the American Heart Association, that those organisations decided that back blows must be the first treatment for choking rather than "a last desperate effort." Recently, the American Red Cross and Heart Association changed their recommendations a third time, now stating that a rescuer can choose whether to slap the back before or after performing the Heimlich manoeuvre.²¹

Dr Addy points out that according to one American organisation compression of the chest is a treatment for choking children, whereas the British associations recommend upper abdominal compression (Heimlich manoeuvre), as do most American public health authorities. A study at Johns Hopkins University has shown that chest compression is not an effective means of increasing intrathoracic pressure.²² The pressure developed in the chest with chest thrusts is dissipated because the diaphragm is pushed downward. It is unlikely, therefore, that chest thrusts are as effective as subdiaphragmatic pressure for expelling a foreign body obstructing the airway.