CHOKING ON FOREIGN OBJECTS—THE HEIMLICH MANOEUVRE

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Introduction

In the United States of America some 4,000 healthy individuals die annually from choking on foreign objects (Heimlich 1977). The figure in Britain is considerably less. In 1972 the numbers of deaths under category E 911 of International Classification of Diseases was over 450 men, women and children.

In 1975 Dr. Henry J. Heimlich published details of a procedure for the emergency treatment of choking victims. This article examines that procedure, its teaching to para-medical and lay people, and its success to date.

The inhalation of food is the commonest, but not the only cause of choking. The list of inhaled objects includes beef, chicken, veal, a piece of sausage, lettuce, chewing gum, sweets and cough drops (Heimlich 1975, 1977).

A large number of choking incidents occur in public places such as restaurants and cafés, thus the term café coronaries was born. Recent investigation however would tend to indicate that term is somewhat erroneous. Investigation into 56 deaths in eating establishments showed 55 (98 plus per cent) were due to choking, and 2 (1 plus per cent) were due to coronary thrombosis (Eller and Haugen 1973).

Choking incidents occurring in the home usually do so in the presence of other people, however cases of people choking whilst alone do occur. Choking incidents involving chewing gum are recorded (McLintock 1976). The practice of chewing gum whilst participating in sports is fraught with danger and should be actively discouraged.

In all probability choking occurs during inspiration, the foreign body being sucked against the laryngeal orifice. The lungs are partially inflated. The extent of inflation will be the sum of the expiratory reserve plus whatever tidal volume the victim inhaled up to the moment of respiratory obstruction.

The Heimlich manoeuvre

By pressing the fist upwards into the epigastrium the diaphragm is elevated. This sudden elevation compresses the lungs within the rib cage and increases the air pressure within the tracheobronchial tree (Figs. 1 and 2). This increase in pressure forces the air out through the larynx and will eject the food or foreign body occluding the airway. Measurement of the air flow during the manoeuvre shows an average volume of approximately 940 ml being expressed in .25 seconds at a pressure of 31 mmHg (Heimlich 1975).

Discussion

Choking victims have about five minutes from the moment of respiratory

Fig. 1. Stand behind the victim and wrap your arms around his waist.

Grasp your fist with your other hand and place the thumb side of your fist against the victim's abdomen, slightly above the navel and below the rib cage.

Press your fist into the victim's abdomen with a quick upward thrust.

Repeat several times if necessary.

When the victim is sitting, the rescuer stands behind the victim's chair and performs the manoeuvre in the same manner.

Fig. 2. A variation of the manoeuvre can be performed when the victim has collapsed or the rescuer is unable to lift him.

Victim is lying on his back. Facing victim, kneel astride his hips.

With one of your hands on top of the other, place the heel of your bottom hand on the abdomen slightly above the navel and below the rib cage.

Press into the victim's abdomen with a quick upward thrust. Repeat several times if necessary.

Should the victim vomit, quickly place him on his side and wipe out his mouth to prevent aspiration.

obstruction to death. The victim cannot speak or breathe, he becomes pale then deeply cyanotic and collapses. With the onset of choking the victim becomes panic stricken and may run out of the room. There is need for a universally accepted sign indicating "I am choking". The sign suggested is for the victim to grasp his throat between his finger and thumb to indicate choking.

Because of the emergency of the situation there is usually insufficient time to obtain medical help or summon an ambulance. The need is for immediate life saving action. The action must be:

a. Effective. b. Simple and safe; and c. Capable of being taught to, and practised by, medical and lay people alike.

Heimlich's manoeuvre meets these requirements. Since its introduction two years ago there have been 600 verified reports of lives saved using the procedure. Of this 600, 23 per cent were children and 77 per cent adults. A total of 130 (21 per cent) were saved by medical or para-medical personnel, the remainder were saved by lay people who had received training in the procedure (Heimlich 1977).

Heimlich (1977) reports five cases of drowning victims resuscitated by the manoeuvre after traditional methods of resuscitation had failed. Reports say that the application of the manoeuvre caused water to "gush" from the lungs.

The manoeuvre can be self-administered. There are 23 cases recorded of successful self-administration either by pressing the fist into the abdomen or leaning forcefully against a railing, the back of a chair or the edge of a sink (Heimlich 1977). One patient who successfully self-administered the manoeuvre was an 85 year old woman!

Teaching the Heimlich manoeuvre

An excellent film on the application of the manoeuvre is available. It has been my experience that the best method of teaching the manoeuvre is:

a. An introduction and explanation of the principle underlying the manoeuvre (I have found a compressible plastic bottle with a moistened rubber stopper very useful in demonstrating the principle to non medical personnel).

b. A showing of the film demonstrating the manoeuvre.

c. A practical demonstration emphasising the importance of the position of the hands and the direction of thrust (I have encouraged students to remember "Hands-Up" when applying the manoeuvre).

d. Class practice. A class of 25 students can be taught by two instructors in 45 minutes.

Should this procedure be taught as part of the First Aid Courses? I think it should. I am further of the opinion that all personnel of the Armed Forces Medical Services should know how to apply the manoeuvre, and be encouraged to teach their families and friends.

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(Editor's note: The Heimlich Manoeuvre was considered by the A.M.S. First Aid Training Committee in 1976. It decided that the manoeuvre should be included in the new Manual for Medical Assistants and that it should be taught at the First Aid Training Courses to those personnel who complete all 76 training objectives. The teaching method should be reviewed in 1977 before deciding whether to teach it to less trained First Aiders.

The Committee wishes to point out that this procedure **MUST NOT** be practised fully on healthy persons but must be simulated. This is because there is a risk of visceral rupture which is only acceptable when a real choking incident occurs.)

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Colonel D. M. Roberts, M.D., F.R.C.P.E., Late R.A.M.C., has been Elected a Fellow of the Royal College of Physicians of London.

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Lieutenant-Colonel G. O. Cowan, M.B., Ch.B., M.R.C.P., D.T.M.&H., R.A.M.C., has been elected a Fellow of the Royal College of Physicians of Edinburgh.