

First Aid

- Case 1: One day a few years ago as I was going to the hospital, a crowd of people and a motorcycle lying on the asphalt forced me to slow down until I had to stop. In the midst of the gathering, sitting on the curb, was a man bleeding profusely from a leg, and all around him onlookers did nothing but gawk, comment and babble. There was a great deal of blood, and it streamed down the street; the blood was a vivid bright red, and issued forth in gushes. It was an open artery that was bleeding. I made my way to the injured man, and with a handkerchief I made a makeshift tourniquet that, together with the pressure applied, halted the hemorrhage. I put the man in my car and took him immediately to the emergency room, where the first question I was asked was “Did you hit him?”.
- Case 2: Not long ago, the media told the story of a young man who had died following an arterial hemorrhage caused by a shard of glass in a limb: I have since wondered why no one had ever taught him or the person who attempted to save him that such an event is relatively simple to manage, and that it takes just a few elementary - even intuitive - notions to halt a process that can (as in this case) prove fatal (fig. 5).
- Case 3: One of my fellow surgeons found himself one day in a small hospital on the outskirts of Genoa for a second opinion when he was called to report to the local emergency room. He was met by a young doctor on duty, an ophthalmologist, at that moment in charge of the emergency room. The doctor was quite distraught because he wasn't able either to grasp or to handle the case he was faced with. The patient was a man, lying face up on the gurney, cyanotic and polypneic due to serious respiratory failure, and in evident state of shock. The doctor on duty realized that the patient's life was threatened but, overcome by panic, he didn't know what to do, above all because he couldn't understand why the patient was in such conditions. His desperate request for help understandably followed. My colleague at that point began to take those measures that in occasions like this are mandatory, and simply entail undressing the patient for a thorough examination. Doing so, he found a open wound on the man's back (it seems that he had been struck with a pickax) that never could have been noticed with the patient in a face-up position with open pneumothorax and a lacerated lung. He immediately closed the pneumothorax using wads of damp towels, and then endeavored to drain the chest cavity. He did all of this with the makeshift means available to him in the inadequately equipped *emergency room* (for lack of a better term) in the small hospital. The patient's conditions quickly improved thereafter, which allowed his transfer to a better equipped structure where he was treated appropriately and without any further complications. For an ophthalmologist it must have been a truly noteworthy and eye-opening experience.
- Case 4: Some time ago the media devoted a good deal of coverage to an event involving two children. While on the school bus, one of the children was eating a piece of candy when suddenly he began to show signs of suffocation. With an amazing steadiness of nerves, a classmate performed precisely the maneuver prescribed in such cases (fig.6): from behind he embraced the lower part of his friend's thorax, and with a forceful hug the piece of candy was expelled from the child's airways. This lifesaving action was made possible thanks to a series of television programs on first aid techniques that had recently been broadcast; the child, having seen the programs and having learned the technique was able to successfully use it. Clearly, a case of television being used wisely, not to mention of noteworthy resourcefulness and readiness by the young hero!

I've cited these cases to illustrate that, faced with a sudden pathological event, be it a trauma or another form of accident, lifesaving maneuvers and measures are possible with even limited means at one's disposal. Two factors are pivotal: composure and a minimum knowledge. This latter, however, must be taught. I think I've also made it clear with these examples that these actions are easily within the reach of everyone, and that therefore everyone should learn how to practice them. All the more so considering that the first witness to an accident is generally the “man on the street”, neither a physician or a nurse or even someone somehow versed in medicine. And it's often the first few moments immediately following the event that prove to be the most crucial. In fact, if we consider trauma in the broadest sense of the word, which constitutes the principal cause of death in the first 40 years of life in many western countries including ours, we see that the so-called “death curve” has three distinct phases.

- **First peak** - minutes or seconds after the trauma:
Generally, death occurs due to a severe lesion of the brain stem, of the heart or the aorta. Chances of survival are practically nil, even within a properly equipped hospital;

- **Second peak** - minutes or hours
Here is where the “bystander” comes into play: the first who has the real opportunity to do something useful for the injured victim;
- **Third peak** - days to weeks

In cases making up the second group the interval between the traumatic event and death, even if short, can still be exploited to save the life of a victim: it is precisely “*first aid*” or “emergency care of the first hour”.

The time available, i.e., expressed above as minutes or hours, is actually more minutes than hours. This means time can’t be wasted. A would be “hero” needs to possess a few basic traits - or better yet gifts - to be able to alter the detrimental course of a traumatic event: selflessness, a penchant to take the initiative, and common sense, not to mention preparation and skill. Prayer doesn’t hurt, either. In the cases described above, common sense and the spirit of initiative were absent in the first, while in the second and third cases, beyond common sense, preparation, skill and self-control were nowhere to be found: more often than not, in fact, the sheer drama of the circumstances paralyzes the onlooker. Only in the example of the child described above were all of the pre-requisites for success present, above all his proactiveness and preparation.

At this point a few lessons - useful to all and not only to physicians and nurses - can be drawn from what has been said and from the cases presented:

- Don’t panic, and remember that minutes are precious;
- Rapidly and accurately establish the victim’s conditions;
- Revive and stabilize the victim according to a priority basis;
- Decide whether the victim requires more than is readily available;
- Decide how to move the patient.

Admittedly, we have neither the time nor the means to gather the patient’s history or to perform a complete physical examination (as we are accustomed to doing in routine situations); nevertheless, we must be able to locate and recognize the *noxa* (or *noxae*) - the harm - that determine the risk so that our intervention is prompted by a specific cause and so that life-threatening conditions can be identified. That such conditions have to be tackled first is the concept underpinning intervention on a priority basis.

To achieve this, we have to know the time elapsing before the lesion suffered brings about death:

- If the airways are obstructed, e.g., in the larynx or the trachea (see case 4 and the child with the piece of candy caught in his throat), death occurs in approximately **2 - 3 minutes**;
- If the lungs do not perform their function of blood/oxygen exchange, death occurs after approximately **10 - 15 minutes**;
- In circulation failure, e.g., after hemorrhaging (cases 2 and 3), the interval is usually no longer than **15 minutes**; this may vary according to the intensity of the hemorrhage;
- Severe neurological trauma, for instance, to the head, to the upper spinal column, etc., may lead to death in only a **few minutes**.

This sequence provides the grounds to recognize priorities in the management of the trauma patient, bearing in mind that cases are quite often polytraumatic, i.e., a combination of more than one event at the same time. As such, we must be able to define our **priorities**. For the sake of recall, these have been identified using the first five letters of the English alphabet:

- A – airways
- B – breathing
- C – circulation
- D – disability
- E – exposure

Equally important to know are some of the most dangerous actions that must by all means be avoided:

- move the victim into a public gathering place (e.g., a bar, restaurant, etc.);
- Move the victim without first understanding what has happened and what lesions have been suffered;

- Give alcoholic beverages;
- Give anything to drink without reflecting first;
- Move the patient to a poorly-equipped hospital (see case 3).

These notions must be kept squarely in mind, because maneuvers - no matter how well-meaning intentions may be - are able to induce more harm than the injury itself. An emblematic example is seen in the attempt to carry the victim, which may cause serious medullary damage due to the fragmentation of vertebral fractures(see fig. 1). A myriad of other examples could be cited: suffice it to say that, with the above concepts clearly in mind, errors which might ultimately prove fatal can be avoided.

A few illustrations help to demonstrate the above.



fig. 1



Fig. 2

Removal of a helmet must be done by first assuring that the head/neck are immobile (danger of a bulbar lesion).



Fig. 3



Fig. 4

Immobilization of the head/neck with makeshift means.

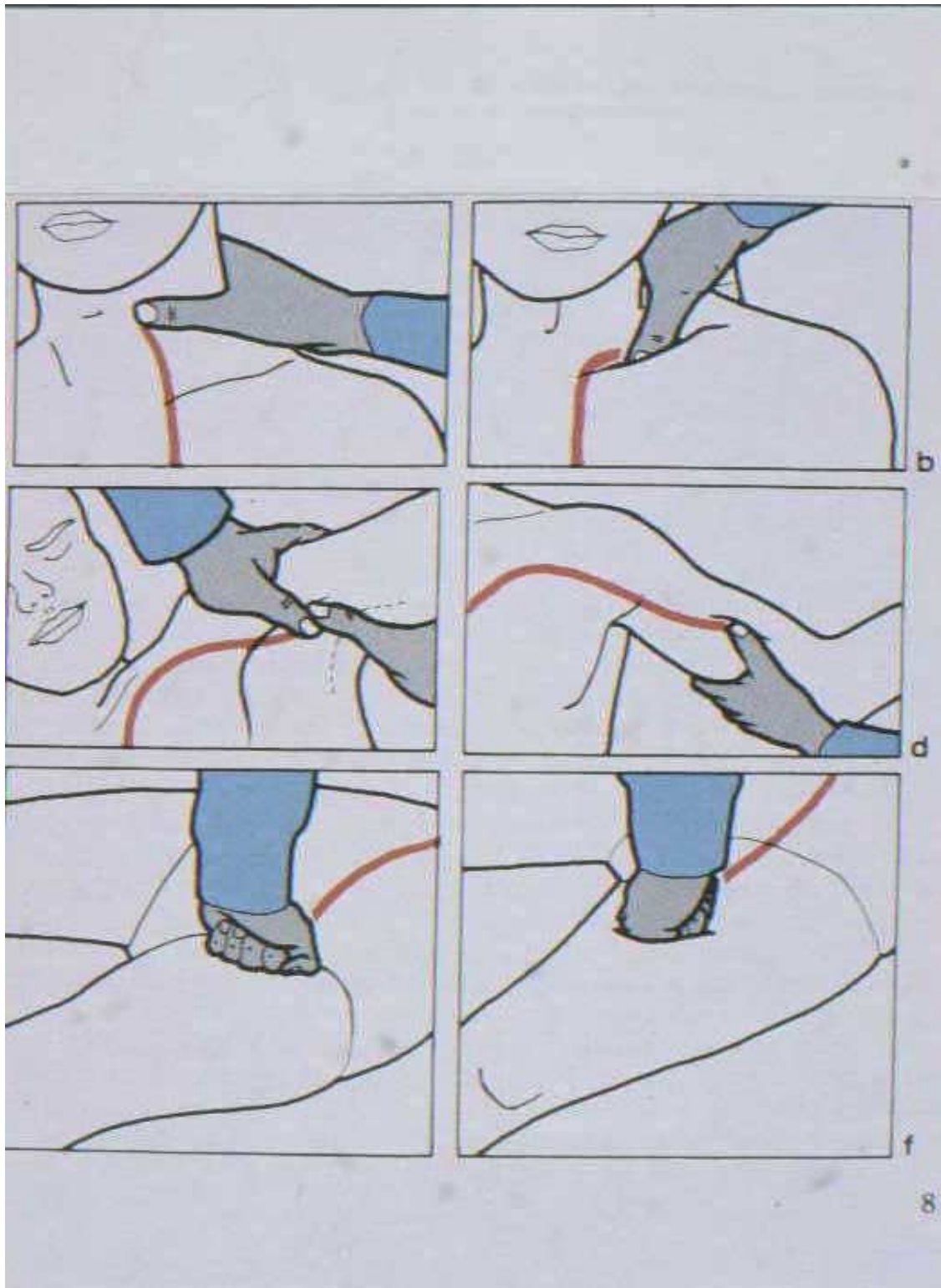


Fig. 5
Temporary arrest of hemorrhage by means of manual pressure on arterial sources.



Fig. 6
Heimlich's maneuver

This lesson is for all practical purposes finished. It must be borne in mind, however, that the few minutes elapsing after an injury, especially if traumatic, can have a lifesaving value. A life may be contained in that brief timeframe and might well be saved if the Samaritan - not only good but also expert - is present at the right time.