

Preface

It is recognized that the following recommendations for treating injuries and illness at sea are presented with knowledge of the peculiarities of a Whitbread racer.

It is assumed that no professional health care provider will be present at any time.

It is recognized that cleanliness will be difficult, lighting poor and storage space at a premium.

It is with these parameters that we endeavor to give the best advice possible.

The conditions listed below are considered to be life threatening or will require evacuation.

1. Severe head injury
2. Penetrating eye injury
3. Continual abdominal pain (over 8 hours)
4. Strangulated hernia, if not reducible
5. Uncontrolled infection
6. Compound fracture of a major bone
7. Severe chest pain with shortness of breath
8. Progressive deterioration following chest or abdominal injury
9. Body burns over 10% of body surface

1. Head Injury

Any head injury with resultant unconsciousness for over 30 seconds must be assumed to be serious and demands close observation. If coma persists or a lapse into coma occurs, the victim must be evacuated. It is important that one assigned person assume the position of watch and assess. This person should note blood pressure and pulse, recording deterioration of these vital signs as well as degree of alertness. He should be able to insert an airway if necessary. There is no treatment for severe brain injury available on a yacht. Airway protection and evacuation are the only steps possible.

2. Eye Injury

Cuts and penetration of the eye (cornea) are true emergencies requiring evacuation as soon as possible. The only hope for saving eyesight is with professional care, not available on board. Emergency care can only be ophthalmic ointment and application of a patch to cover the eye and giving medication for pain relief.

3. Abdominal Pain

Abdominal pain may be an indicator of intra abdominal emergency. If pain persists and increases in severity for over 8 hours the situation then becomes serious.

a. Gall bladder

An individual having upper abdominal pain usually associated with vomiting, may be having an acute gall bladder attack due to gall stones. If the right upper abdomen becomes increasingly rigid and tender to the touch, likely accompanied with fever, an antibiotic may be given and arrangements must be made to evacuate the patient.

b. Appendicitis

The typical bout of appendicitis begins with loss of appetite progressing to nausea and vomiting. There may be a generalized mid-abdominal pain for several hours, later becoming persistent in the lower right abdomen. Abdominal exams done frequently will reveal an increased involuntary resistance to pressure as well as pain in the lower right abdomen. If no relief occurs in 8 hours, rather worsening of symptoms, it may be assumed that appendicitis is present, demanding surgery now possible on board.

c. Perforating peptic (duodenal) ulcer

This is a true intra abdominal crisis and is almost always of sudden onset with near instantaneous severe upper abdominal pain, quickly diffusing throughout the entire abdomen, associated with an abdominal wall described as "board like" with extreme rigidity. Vomiting is almost always present, possibly with blood. There is no treatment available afloat.

4. Hernia

The most likely location of a hernia is in the groin, far less possible at the umbilicus or an old operative incision. The fear of hernia is strangulation, meaning a segment of bowel may be trapped outside the abdominal cavity. If this condition continues, dead bowel may result or at the least an intestinal obstruction may occur. It is reasonable that an attempt at reduction be made. Many times this is successful with firm flat pressure on a relaxed individual. If there is failure to reduce the situation will worsen and demand surgery ashore.

The above are the most common life threatening conditions encountered in young healthy people. There are many far less common causes for an abdominal catastrophe. All progressive and persistent abdominal pain over 8 hours duration requires outside help.

5. Infection

The most common infection site at sea is skin or soft tissue. Early infection can be suspected with the presence of redness, swelling, tenderness and fever. The first line of treatment is penicillin except for the patient who is allergic to penicillin (this should be determined before the start). In this case Cipro is a good alternative. If abscesses form (this can be determined by feeling for fluctuation, a sensation of fluid under the skin with localized swelling and discoloration) a small cut for drainage may be warranted. If the situation deteriorates despite moist heat, Antibiotics and possible drainage, professional care is mandatory. Such changes may be a wider area of involvement, increased temperature and pulse and worsening of pain. They may also complain of feeling generally worse. An overwhelming infection demands a medical facility.

6. Compound Fracture

A broken bone with open flesh and skin wound should be cleaned and stabilized. Evacuation may be delayed several days assuming there appears to be good circulation beyond the fracture site, no extensive bleeding and reasonable stability of the limb involved, however-the prospect of complications such as blood clotting and infection of soft tissue and bone makes removal from the boat prudent if not mandatory.

7. Chest Injury with deterioration

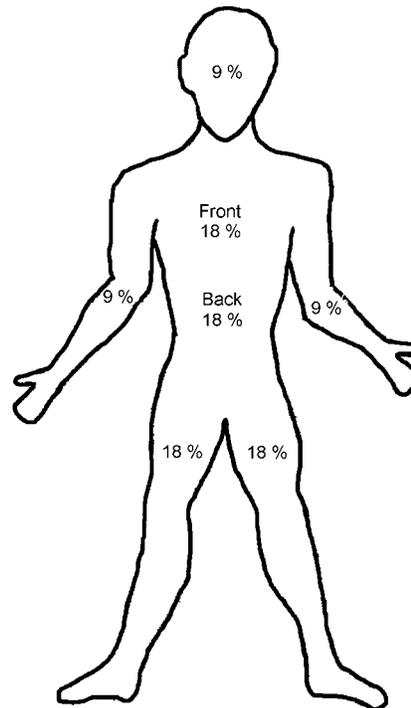
A rib fracture on occasion may tear lung tissue causing air leak, which may collapse a lung causing pneumo-thorax. If air pressure outside of the lung tissue is great enough, collapse of the lung may occur preventing adequate oxygen transfer. This sequence should be suspected with chest pain at the site of the fracture, yet increasing pain of the entire chest, a lack of expansion on deep breathing and increased rate of respiration. By careful listening a decrease in breath sounds indicating lung collapse can be discerned. Additionally there may be bleeding from lung tissue, the diaphragm or vessels between the ribs. This situation is termed hemothorax, a collection of blood between the lung and the chest wall. The patient, in addition to shortened breath and a rapid pulse rate, may have a lower blood pressure and pallor, indicating shock. Unfortunately little can be done in such severe injury short of evacuation.

8. Abdominal Injury

The organs most often affected by blunt blows to the abdomen are the spleen, liver and kidney. The spleen located in the left upper abdomen, liver in the right upper abdomen and the kidneys in either right or left flank, all have the potential for tear and hemorrhage. This should be suspected if moderate to severe pain occurs at the injury site, later spreading throughout the abdomen. Blood in the abdomen is extremely irritating to the abdominal wall inner lining causing increased pain on any motion, even breathing. The victims pulse will rise and blood pressure fall, particularly when placed in a sitting or upright position. Blood replacement and the surgery required are only available in a hospital setting.

9. Burns

Rope burns, electrical burns and small skin burns less than 10% of the body surface may be treated on board safely. An extensive burn, one over 10% of the body surface, 20 with blistering, a 30 with total destruction of the skin with loss of sensation or actual charring are considered true emergencies. Burns of the face may quickly result in enough swelling to obstruct breathing. An airway may be required for relief. Burns destroy the natural skin barrier against bacteria with inevitable infection. Major burns (over 10% of body) create massive fluid and blood loss with resultant shock and kidney shut down. Severe burns should not be handled on the boat.



Common injuries and how to treat them

Lacerations

It is recommended that most cuts occurring at sea are best not sutured. The reasons for this statement are several. It is recognized that the technique for proper suturing is difficult to learn and many times impossible with the poor lighting, active boat motion and limited space available for developing a sterile field.

It is well known that all wounds heal without suture and by leaving wounds open infection is far less of a problem. Wound care should be cleansing with Betadine, antibiotic ointment and a firm but not tight gauze bandage. Generally speaking wounds of the lower extremities are a higher risk for infection due to a much lessened blood supply. These should be left open. Exceptions may be seen in extensive scalp wounds not responding to initial pressure for control of bleeding.

Small cuts of the scalp, face and hands after initial wound care and when bleeding has stopped may be coated with super glue, a technique, which seals the wound well and maintains skin alignment. Jagged and irregular wound edges may be molded in place very nicely allowing healing often with good long-term cosmetic results. The goal should always be to stop hemorrhage, thorough wound cleansing, good firm bandaging with inspection every 3 days for possible infection. Cosmesis is secondary and can be considered months later if necessary.

Burns

Diffuse skin burns are best treated by painting the area with antiseptic (povidone iodine recommended) coated with Silvodene ointment and covered with loose but bulky sterile gauze. An exception to bandaging is the face where swelling is likely and may be extensive and the genital and rectal areas where bacteria and infection become a problem.

Hand burns including rope burns require extra care in meticulous bandaging and padding with the hand and fingers in a natural relaxed position. These bandages if remain dry may be left alone for 3 to 5 days. Often the depth of burn may not be obvious with initial care but become more apparent with subsequent changes. Repeat bandaging may require lesser area coverage. Silvodene ointment should be reapplied with each dressing change.

Hypothermia

Hypothermia or drop in body temperature becomes dangerous at levels less than can be measured by a normal thermometer. Hypothermia can be assumed after immersion in seawater dependent, on its temperature and duration of exposure. A fifty minute exposure in 50° seawater, as an example, carries a risk of 50° mortality. This formula obviously can be altered by protection such as a survival suit.

Hypothermia is also seen due to exposure to cold and moving air, but at a much slower and more subtle rate, again modified by proper clothing and head gear. Symptoms may start with chilling, the bodies natural means of increasing body core heat, at a cost of considerable energy. The protective effect of chilling is soon lost and unless other sources of warming are used, the body core temperature then drops to levels that become dangerous. The victim progressively becomes lethargic, weak, confused and eventually unresponsive. During profound hypothermia it is often difficult to determine whether the stricken person is still alive, as pulse rate may be very slow and weak, best felt in the groin or neck, and respiration extremely shallow while in a comatose state. Warming as rapidly as possible is the only remedy available on the boat. In milder situations, dry clothing, blankets or sleeping bag in a bunk may be adequate. An excellent source of heat in extreme cases is another warm body. Remember, beyond chilling a hypothermic person has little ability to raise his core temperature, which if allowed to drop further will result in cardiac arrest and death.

Anal and Rectal Problems Occurring at sea

In an otherwise, healthy person with no prior history, anal and rectal difficulties are almost entirely related to improperly hygiene and constipation.

A constantly moist and unclean peri anal area can lead to yeast or fungal infections, secondary bacterial growth and abscess formation. The best treatment is preventive. If a debilitating rash occurs, thorough cleansing with soap and water, followed by Dakacort cream twice daily should resolve the problem.

The most common source of rectal pain and bleeding is a rectal fissure. This is a simple tear of the rectal lining related to passage of a large hard stool. Proper hydration and regular bowel habits are important in avoiding the problem. A stool softener such as Senokot as provided in the medical kit is an aid in healing.

A thrombosed hemorrhoid, quite painful but not serious, results from hemorrhage under the skin of the rectum when straining in exertion or with passage of a constipated stool This will appear as a painful lump, approximately pea size and tender to the touch. This condition, although uncomfortable is not serious and will eventually absorb or spontaneously drain old blood with relief.

Rectal abscess, a far more serious problem will begin a a throbbing rectal pain, later associated with increased swelling, fever and the appearance of redness in the anal area. Rectal abscesses may be aborted with early use of antibiotics, however they may progress to a serious infection requiring professional care for drainage, not available at sea.

Hygiene

Proper hygiene is a subject seldom discussed in ocean racing, but must be stressed as to its importance.. Most rashes, abscesses, cellulitis and conjunctivitis are very common among ocean racers and can be avoided by cleanliness. A simple sponge bath with minimal time required and little water usage cannot be emphasized enough to avoid a host of debilitating and potentially serious infections.