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Principles of traumatic surgery

Notes on post graduate lecture series given by John J Moorhead MD, Professor of Clinical Surgery, NY Post Graduate Medical School, Columbia University (Ret)

Traumatic surgery

December 4, 1941

Traumatic surgery is part, and a very large part, of general surgery. It has no selective action and may involve several parts at the same time. I shall speak of certain outstanding symptoms and methods of treatment in common injuries.

A very good starting point is that very difficult and important hand infection group. Next to the eye, the hand is of greatest importance. It is my belief that infection of the hand is treated more poorly than any other type of traumatic surgery.

Any break in the skin should never be disregarded. There is no such thing as a clean accidental wound. Every wound that is not made with surgical intent is already infected and should be so regarded. Our problem then is the treatment of infected wounds.

Golden period

What are the essential things in regard to repair and recovery? What are the determining elements? Is it the source — a razor, a piece of glass, a nail? All these play a part, but the time element intervening between receipt of the injury and the time of institution of adequate treatment is probably the most important thing. There is in traumatic surgery what I call the "Golden Period" — the first 6 hours elapsing between the injury and the institution of care. I was a general surgeon before I became a bone setter, and I know what happened after going more than 6 hours with a ruptured appendix or duodenal ulcer. If I got in before, then most of them got well; after that most of them died. Before 6 hours, I was treating the rupture; after 6 hours I was treating the peritonitis.

Suppose before you get the case, somebody has done something else for it. That brings up the first aid situation. I wish they did not do anything. They think that if they put in something very nicely colored, that is enough. Those antiseptics are very colorful, but to use them is not good traumatic surgery — it is chromatic surgery.

Cleansing

There are only 2 ways of treating a wound; only 2 ways to clean a wound — mechanical sterilization and chemical sterilization. Mechanical is by debridement and chemical is by drugs. If a patient is seen by us within the first 6 hours, we give one type of treatment; if after 6 hours, another type of treatment. We are not going to do anything to an already infected wound that we do to a non-infected wound. If we go into infected territory and do what we would like to do to a non-infected wound, we will spread the infection.

First of all, within the first 6 hours, we cleanse. With what? Soap and water. What next? More soap and water. What next? More soap and water. Rub it gently, but don't scrub. If it is a ragged wound and the edges are brown, we debride them. What does debridement mean? To remove the debris? No. It is a French word and it means unbridling. It means to sparingly excise all the damaged tissue. Organisms cannot live on anything healthy, they die. We excise until 3 criteria are attained: (a) it bleeds; (b) it looks healthy; (c) if it is muscle, it contracts. In some cases, it may mean 1/32 of an inch, it may be half an inch, but we do it until those 3 criteria are fulfilled. Then we stop the hemorrhage.

Sutures

Shall we do primary suture? I am going to be very radical and say don't sew anything that requires debridement. Put in your sutures of some non-absorbable material, place a dressing over it, and don't tie those sutures until the end of the third day. That is a primo-secondary suture. At the end of the third day, take the dressing off, bring the sutures together and you will be surprised to find how nearly you have attained perfect coaptation.

I think an excellent dressing is sulfanilamide, 15 grains to the ounce, in mineral oil or sterile vaseline as a wet dressing. Use a large dressing to immobilize the injury and keep it quiet. Hand cases should be well splinted because motion has

THE TEN COMMANDMENTS OF TRAUMATIC SURGERY

I. Thou shalt have no god of trauma other than the welfare of thy patient.

II. Thou shalt not bow down to any graven image except knowledge and experience.

III. Thou shalt not take in vain the names of those who diligently seek the welfare of thy patient.

IV. Remember to give thy patient rest on the days following surgery.

V. Honour the parents of traumatic surgeons who gave birth to and practiced the branch of general surgery.

VI. Thou shalt not kill thy patient by neglect nor by the practice of alien doctrines.

VII. Thou shalt not commit adultery by condoning clinic crimes designed to conceal such offspring as infection, deformity and disability.

VIII. Thou shalt not steal the ideas of thy brother practitioners without due recognition.

IX. Thou shalt not bear false witness against thy brother practitioners who proudly did as you would have done.

X. Thou shalt not covet thy fellow practitioner's skill, his equipment, his hospitality, anything else that is his, except his reputation, his knowledge and his experience.

a capacity to cause infection to spread. The kind of splint does not matter.

Infected wounds

I am a great believer in hot wet dressings in an infected wound. I like a saturated solution of mag sulph, several layers of gauze, with the solution dripping through. Use an electric light to keep it hot. I use it until I get indications for incision and drainage. Don't cut except for one of these 3 if you would not metastasize your infection: (a) localized fluctuation; (b) localized tenderness; (c) localized induration. When you cut, cut until the wound is gaping; ordinarily that means going through the fascia. For drainage, use the end of a rubber glove, or an ordinary pipe cleaner. Use gauze only in 2 places (a) to stop hemorrhage and (b) to keep wound edges apart. And if you have to use gauze, oil it with vaseline or mineral oil.

Follow through

The follow through is more important often than anything except the initial treatment. Function is the end in view. Let us start reasonable motion early. Don't put the hand into a hyperextended, hyperflexed position. Put it in a position of ease, ordinarily that is in a partially flexed position in any and every joint. To promote function have the individual try to make motions almost from the beginning. Get the bad side to imitate the good side. Physiotherapy is regarded as a sovereign method in helping to restore function. I am a great believer in physiotherapy if the person who is directing the treatment does the physiotherapy. Long wave, short wave, diathermy, all have their place, but my reliance mainly is on what I can get the patient himself to do.

Summary

Traumatic surgery is emergency surgery and the fundamental thing is "to do it now." The 6-hour period is the Golden Period. If we can take care of our wounds during that time we are very much less likely to get infections. After the 6-hour period there is a different type of treatment because the situation is different. Let us debride our wounds; let us use the sulfa drug on the outside as well as internally; but do not regard them as substitutes for the ordinary surgery asepsis of years back. In the infected cases, sulfa drugs are invaluable, but don't rely on sulfa drugs to carry you through; the sulfa drugs won't do it without giving the wound ordinary cleansing; and don't forget that the sulfa drugs are specific for infections of the erysipelas type and other cellulitis. Do not sew up a debrided case, and above all, do not sew it up in a compound fracture. In infections there are 3 indications for incision: local fluctuation, localized tenderness and local induration. Never for brawny induration; never for adenitis.

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War came to Hawaii

Elizabeth D Bolles

And how did it find us?

Providence could not have been kinder to the boys who had their baptism of fire on that morning of surprise, than by having in Honolulu Dr John J Moorhead, veteran of the last world war, and authority on traumatic surgery.

Only 3 days prior to the 7th, Dr Moorhead arrived to give to the doctors of the islands an intensive postgraduate course in the handling of war injuries. And on the fateful Sunday morning a crowded hall of doctors awaited his lecture on burns. For 3 sessions he had drummed into a record audience of 300 civilian, army and navy doctors the several cardinal points of procedure in the handling of wounds. And they certainly were applied that day, Sunday the 7th, not alone by the Army and Navy surgeons but by the 20-odd civilian surgeons and physicians who all that day and night assisted their military colleagues in caring for the many casualties brought to the hospital. No need for the surgeons to hesitate in the face of the ugly, extensive wounds that came into their hands. Dr Moorhead had told them what to do, simply and with the authority of a man of experience. And he went as eagerly as did the civilian doctors when the call that interrupted and temporarily terminated the lectures came from Headquarters.

"I was greatly pleased to see what a fine job the medical profession of Honolulu did in the recent emergency. The aid which it gave to the military forces of the Island will always be a brilliant chapter in the history of medicine in our country. Dr Arnold and Dr Pinkerton deserve the highest praise, so too do the many civilian surgeons who so splendidly gave of their efforts. The very low mortality was in part due to their cooperation. No one will ever doubt the value of the sulfonamides and of plasma in the treatment of war casualties. The experience has been of enormous help in planning for the future. Greetings to my friends."

Dr I S Ravdin
Philadelphia

And more important, Dr Moorhead and his pupils had the keen satisfaction of seeing the results of their work. Only 22 cases of gas gangrene (all of which recovered) and "not a teaspoonful of pus — not a serious infection" was what he reported weeks later, just before his departure. What greater reward could any physician ask!

Said Dr Moorhead in his farewell to the physi-

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