

skipping over this and again applying it above the seat of lesion, will entirely exsanguinate the member, with the exception of a small quantity of blood which may be contained in the diseased portion.

When, as in an amputation at or near the ankle-joint, a rubber tourniquet is applied to the thigh, care should be taken to use a wide rubber band and not a rubber tube, since the accumulative pressure of the rubber tubing is sometimes great enough to injure the nerve. I have seen paralysis follow in several instances as a result of traumatic neuritis caused by the tourniquet.

In high amputations near the shoulder or hip, this objection does not prevail, since pressure on a nerve is immaterial at that point.

In Symes's amputation, I have modified the incision, and carry it from the tip of the malleolus on either side directly downward, parallel with the axis of the leg. In this way the blood supply to the flap, especially on the inner side, is not interfered with (as demonstrated by myself in 1876), which was often done when the incision carried obliquely backward, as advised by Gross and other older surgeons. Professor Stephen Smith pointed out the clinical fact that sloughing of the inner side of the flap occurred in a considerable proportion of cases, and my dissections demonstrated the fact that the oblique incision divided the posterior tibial at or near its bifurcation, and that the chief blood supply at this part of the flap came from the external plantar branch of that artery and from the posterior tibial at the bifurcation; and that it was important, therefore to leave at least a half or three-quarters of an inch of the external plantar artery intact. The pocketing of the flap is not objectionable and can be in great part remedied by making a much shorter anterior flap, the lines of the incision being well above the level of the ankle-joint. I have discarded in general amputations of the leg or arm, any method looking to obtain a long posterior and short anterior flap (Teale), with the idea of bringing the cicatrix away from the end of the stump. I have always held that a circular skin flap, with or without a lateral incision as the emergency may demand, is the ideal flap, the muscles being dividend a inch or more above the level of the circular incision through the skin, and the bone sawed on a level with the muscle. Dissection of the periosteum from the end of the bone in order to secure the periosteal flap, is entirely unnecessary and should not be done.

In certain cases of amputation, when osteomyelitis has prevailed, it was thought that the surgeon might be called upon to carry his amputation high up, close to the shoulder or hip-joint, in order to get above the disease in the bone. This is not

good surgery, for the longer limb, the more useful to the patient, and bones that are the seat of osteomyelitis can be readily cured, provided the canal is opened even near the knee or elbow-joint, and the bone carefully curetted up to the canal. The insertion of a drainage-tube, through which aseptic irrigation is made every day or two, and the *gradual* withdrawal of the tube, will cure the disease in the bone and leave the stump long and useful. I have, in several instances carried out this plan with invariable success.

One other point has been of great service to me in effecting rapid amputation. When making a hip-joint amputation, or an amputation through large masses of muscular tissue, after tying large arteries, such as the two femorals and the circumflex branches, in order not to lose time that is usually spent in applying forceps to oozing surfaces, I pass deep catgut sutures through great masses of muscle all the way across the whole cut surface, and tie these firmly. In this way the muscles are brought together and compression exercised which prevents bleeding. Ten or fifteen minutes can be saved by this practice in an ordinary amputation. In the last hip-joint amputation I did by the bloodless method, although I made no effort at haste, the operation was done, the vessels tied, and the disarticulation completed in twenty-five minutes, the tourniquet still remaining on until the wound was ready to be closed by sutures. In this amputation I now apply the tourniquet higher than at first advised. Experience has taught me that complete control of hæmorrhage can be obtained by carrying the strong white rubber tubing close in the crotch, where it is held by the inner pin, while the other pin is so inserted that the tube passes in the notch just below the anterior superior spine of the ilium, from which the sartorius muscle originates. In this way the pressure is entirely above the level of the hip-joint, the capsule can be opened, and disarticulation rapidly effected without any attention to the tourniquet. If the tourniquet is not tightly applied when the bone is removed and the rubber tubing is slackened by diminished resistance, there may be some slight dripping from the vessels in the posterior part of the flap, but this is immaterial and can be immediately controlled by pressure with the fingers and the application of artery forceps.

It is not necessary to emphasize to this Society the point that in amputating for malignant disease, it is the better surgery to get just as far from the lesion as possible, shaping the flap to meet this object.—*The International Journal of Surgery.*