

advisable. Carbon filaments do not stand the concussion of gunfire and shell explosions. When not in use, the bulb is carried in the central compartment.

*Lamp-standard* is fixed to a hinged block, so that it shuts down into the box when not in use; when in use, fixed by a button.

*Flexible Lamp Attachment*.—Ordinary twin flexible wire with lamp holder; nine metres of wire is sufficient in most cases.

*Switch*.—A double switch, one side connected with the lamp standard, the other to the flexible attachment. The inside is wired so that no short circuit can occur.

*Weight complete* = 20 lb. This could be much reduced by using thinner wood.

*Cost*.—32 fr. This does not include cost of wood or labour. The cost might be much reduced by buying at wholesale prices at home, instead of at retail war prices.

This lamp was used during operations and was successful; but owing to the number of amperes required by the only lamps that could be purchased, the battery did not work more than twelve hours. But even then, a perfect light was obtained by changing the bulb. The voltage had fallen to  $9\frac{1}{2}$  volts at the end of a night's use. The absence of external fittings which could be broken off was found to be a great advantage. One of these boxes was trodden on in the trenches without being damaged.

This pattern of lamp was built at my suggestion by No. 2018 Private W. J. Mills, R.A.M.C.(T.). The excellent scale drawings were prepared by No. 1645 Private H. J. Osborne, R.A.M.C.(T.).

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#### REPORT ON NINE CASES OF SEPTIC WOUNDS TREATED BY EQUAL PARTS OF ICHTHYOL AND GLYCERINE.

BY MAJOR C. W. DUGGAN.

*Royal Army Medical Corps.*

THESE cases were the most septic out of about eight hundred sick and wounded in the Fourth Northern General Hospital. They were transferred on May 29, 1915, for special treatment at the Military Hospital, Lincoln.

(1) No. 1601 R. T. B., 5th Battalion King's Liverpool Regiment, was wounded at Festubert on May 16 at 2 a.m. He lay till 10 p.m., when he was dressed. He was admitted to Fourth Northern General Hospital on May 19, 1915. The wounds were dressed twice daily with Wright's solution.

On admission, there were three abdominal wounds, extending from the upper part of epigastrium to the pubes; all were septic; the upper one measured 1 inch by  $\frac{1}{2}$  inch, the middle 4 inches by 2 inches, and the lower 5 inches across. The wounds were dressed once daily with equal parts of

ichthyol and glycerine; latterly the ichthyol was reduced to 20 per cent. There was no sepsis after the third day. The upper wound healed on June 5, 1915, the middle wound on June 28, 1915, and the lower on July 10, 1915. When first seen, this wound looked hopeless without skin-grafting. The wounds were occasionally touched with *sp. vini rect.* on cotton-wool.

(2) No. 17687 Private B. J. F., 1st Battalion Suffolk Regiment. Gunshot wound of left thigh, received on May 5 at Ypres. He had been under treatment at the Fourth Northern General Hospital for three weeks with Wright's solution, and fomentations were changed three to six times in the twenty-four hours.

On admission, the wound, which involved the outer and upper part of the left thigh, measured  $5\frac{1}{2}$  inches by 5 inches in depth; it did not quite involve the muscle. Equal parts of ichthyol and glycerine were applied once daily. This case also appeared hopeless without skin-grafting. There was no sepsis after the third day. The wound filled up and contracted very rapidly. It healed over on July 14, 1915. The discontinuance of frequent dressing of the wound was very much appreciated by the patient.

(3) No. 7678 Private J. S., 1st Battalion Stafford Regiment. Gunshot wound of back of neck. He was wounded on May 16, 1915. A piece of shell-casing was removed at Boulogne; he was transferred to Fourth Northern General Hospital on May 26, treated with hot fomentations changed thrice in the twenty-four hours.

On admission, there were two wounds in the back of the neck about four inches apart, communicating, and with a drainage-tube extending from one wound to the other. The back of the neck was very much swollen, and the wound was discharging very freely. The drainage-tube was removed on the second day and not replaced. The sinus was syringed out once daily with pure *sp. vini rect.*, and the wounds dressed once daily with equal parts of ichthyol and glycerine. Sinus and wounds had healed completely on the twelfth day.

(4) No. 8812 Private W., 1st Battalion Highland Light Infantry, was wounded at Richebourg on May 16, 1915. He was transferred to the Fourth Northern General Hospital on May 27, 1915. He was treated with fomentations changed twice daily and once during the night.

On admission, there were bullet wounds of left upper arm and left thigh, both septic. The sinuses were syringed out with pure *sp. vini rect.*, and the wounds dressed with equal parts of ichthyol and glycerine. The wounds of the upper arm healed three weeks after admission, and those of the thigh one week later.

(5) No. 6016 Private H., 3rd Battalion Somerset Light Infantry, was wounded in left suprascapular region with shrapnel on May 2, 1915, at Ypres. He was transferred to the Fourth Northern General Hospital on May 8, and the wound dressed with hot fomentations, changed twice daily and once at night.

On admission, the wound was septic, and there was a sinus extending

along left side of neck for six inches containing a drainage-tube. A probe passed along the sinus could be felt immediately under the skin. There was a short sinus on each side connected with the main sinus. The wound was dressed once daily with equal parts of ichthylol and glycerine after the sinus had been syringed out with pure sp. vini rect. On the fourth day the wound was clean; the anterior half of the sinus soon healed up, but a pocket of pus formed half-way along the sinus, and this had to be opened. The drainage-tube was discarded a few days after admission. Had a counter-opening been made at the beginning, the result would have been better.

(6) No. 8135 Private P., 1st Leinster Regiment, was wounded at Ypres on May 11, 1915. His arm was amputated just below the right shoulder-joint for a gunshot wound on May 14. He was transferred to the Fourth Northern General Hospital on May 29, 1915.

On admission, the wound was very septic. There was extensive supuration along the track of the sutures. The whole stump was very much swollen and exceedingly painful. The various sinuses were syringed out with pure sp. vini rect., and later on with an alcoholic solution of methylene blue (four grains to one ounce), as he complained of irritation from the spirit. The stump was dressed once daily with equal parts of ichthylol and glycerine. In three days it was clean, and on July 7 it had completely healed over, and was about half the original size.

(7) No. 915 Serjeant F. H. J., 3rd Battalion South Lancashire Regiment, was wounded near Hill 60 in the right suprascapular region with a piece of shell on May 9, 1915. This was removed on May 11 at Boulogne, and a large incision was made in the back of the right upper arm on the fourteenth day. He was transferred to the Fourth Northern General Hospital on May 16, and three incisions were made in the forearm on May 20. The wounds were dressed with hot boric fomentations changed three times in the twenty-four hours.

On admission, all the wounds were septic and suppurating freely. The arm was very much swollen and exceedingly tender. His general condition was bad. The various sinuses were syringed out with pure sp. vini rect., and equal parts of ichthylol and glycerine applied once daily to the wounds. On June 19 another incision five inches long was necessary above and behind the elbow-joint, making altogether six wounds. The sinuses closed up quickly, the swelling of the arm subsided, and all the wounds healed completely on July 12.

(8) No. 8699 Private J. S., 3rd Battalion Royal Irish Rifles, was wounded in the left inner ankle by shrapnel on May 3, 1915, at Kemel. He was taken to Boulogne, where the wound was dressed with hot boric fomentations. He was transferred to the Fourth Northern General Hospital on May 8, where three incisions were made in the calf and the wounds were dressed with hot boric fomentations, changed three times in the twenty-four hours.

On admission, the leg was very much swollen and exceedingly tender. All the wounds were septic and suppurating freely. His general condition was extremely bad, as he was suffering from hectic fever due to septic absorption. The wounds were washed with pure sp. vini rect. and dressed once daily with equal parts of ichthyol and glycerine. A fourth incision, six inches long, in the calf was made on June 10, to lay open a fresh collection of pus, and a fifth incision over the outer ankle. The patient's general condition improved rapidly, the wounds soon took on a healing action, and the temperature fell to normal. The back splint which he had on admission is no longer necessary. The wounds healed up by July 12, and the patient is now convalescent. The lower end of the tibia, a small portion of which was necrosed, remains somewhat thickened.

(9) No. 7946 Private J. H., 1st Battalion Scottish Rifles, was wounded on May 12, 1915, at Armentières by a rifle grenade. He was taken to the field ambulance for the night and on the following day sent in a motor-car to the train. He was landed at Dover the next day and transferred to the Fourth Northern General Hospital, where he was found to have a small wound in the upper and outer part of the left thigh. The wound was dressed with hot boric fomentations changed twice daily. It was X-rayed and a bullet located below the great trochanter, close up to outer surface of the femur.

On admission the sinus was septic and suppurating freely. It extended for a distance of three inches down to the femur—no bullet could be felt. The sinus was syringed out with pure sp. vini rect. and equal parts of ichthyol and glycerine applied once daily. On June 10, as there was still suppuration, I enlarged sinus but could feel no bullet, only some necrosed bone on the anterior surface of the femur. The sinus was packed with antiseptic gauze, and the effect was rather disastrous, as although on the following day the gauze was removed and not again replaced, the whole lower extremity began to swell and the temperature went up. Some necrosis of the lips of wound occurred, and matters were brought to a crisis by the use of peroxide of hydrogen. I had to perform an emergency operation at 7.30 p.m. on July 1. The incision was made over the sinus and embraced fully two-thirds of the thigh. Several pieces of necrosed bone were removed, but no bullet could be felt after careful examination. On July 3 the temperature had fallen from 103.6° F. to normal and has remained so. The necrosis of the lips of wound appeared to melt away after two applications of ichthyol and glycerine. Its action on this diseased tissue was little short of marvellous, and in three days there was a healthy granulating surface, the discharge from the sinus closed, and on July 13 the wound had almost entirely healed over. This was the only case in which I considered it advisable to dress the wound twice daily.

The results obtained by the treatment of septic wounds with equal

parts of ichthyol and glycerine are infinitely better than any other method. Several years ago I used pure ichthyol in a case of ulceration of the leg which resisted every other means of treatment—even a fifty per cent ointment of ichthyol aggravated the condition, and I now advocate combination with glycerine, as it is a more satisfactory base than lanoline or vaseline, and lessens the expense. Twenty per cent ichthyol in glycerine is sufficiently strong when the wound has taken on a healing action. I only change the dressing once in twenty-four hours, twice in very exceptional cases. There is thus a considerable saving in the amount of cotton-wool, lint, etc., used. The patient is no longer disturbed by frequent changing of the dressing, and the time in hospital is reduced to half or even less than is the case with other methods of treatment. I paint the ichthyol on boric lint by means of a camel-hair brush and then apply it. It does not irritate the wound; the lint, as it does not adhere, can be readily removed, and a healthy granulating surface results in three days. I avoid washing the wound with lotion, and use instead pure *sp. vini rect.* applied once or twice weekly. I have almost discarded drainage-tubes. The results are better without them and the patients always experience great relief when their use has been discontinued. I syringe out the sinuses with pure *sp. vini recti.* In some cases where the patients have complained of irritation after the sinus had been syringed out with spirit I used an alcoholic solution of methylene blue (four grains to one ounce) with very good effect.

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#### SECONDARY HÆMORRHAGE AND PEROXIDE OF HYDROGEN.

BY MAJOR CARLINE.

*Royal Army Medical Corps.*

A PATIENT was admitted to Ward 2A, on May 31, 1915, with gunshot wound in the buttock. On June 11, Captain Purves opened up and drained the wound. On June 28, he was transferred to the Convalescent Home at Woodhall Spa. On July 15, patient had some hæmorrhage followed by a more severe loss during the night. On July 16, the patient presented the appearance of having lost much blood. He was stated to have a copious discharge of pus from deep down in the left buttock, and this had been treated by injections of peroxide of hydrogen.

An incision was made which passed through the narrow opening of the sinus, which soon widened out, and the finger was at once passed into the great sciatic foramen, the gluteal muscles being much wasted and destroyed; the gluteal artery was felt to be pulsating on the edge of the sciatic notch, and with some difficulty secured in forceps, the vessel being in a friable condition. Five pairs of forceps were used before the hæmorrhage was completely stopped; these were left *in situ*, the wound being