Reprint from St. Louis Medical Review, May 5-12, 1894.

Rest in Gunshot Wounds of the Chest.

Importance of a Quick Application of the Plaster Jacket in Cases where the Pleura has been Penetrated—The Labor Involved in Breathing Should at Once be Transferred to the Diaphragm—Method of Dressing and Histories of Twenty Cases Treated at the St. Louis City Hospital.

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[Notes of cases Collated by H. S. Crossen, M.D., First Assistant Physician].

In presenting a resume of the treatment followed by myself in the following twenty cases of gunshot wounds of the thorax, I feel that any but the shortest explanatory remarks would be superfluous. All cases cited are those of patients in the St. Louis City Hospital, and their histories form a part of the official records of that institution. My object is not to theorize (for I present but the carrying out of an old idea), but rather to show by the record of actual facts the almost universal success which followed the use of the plaster-of-paris jacket in the treatment of such cases.

In all the cases mentioned, the methods used were

practically the same,and the results uniformly successful. Of all the patients whom I have treated in this manner (and there were many from the police department of this city, brought to the hospital), in not a single instance was there a fatal termination. The object sought was to produce, as early as possible, as complete a state of rest as might be obtainable by a strict immobilization of the parts injured, which, I claim, can be best attained by using a plaster-of-paris jacket. A complete synopsis of the entire treatment of each case might be given as follows:

1. Treat the patient for shock and nervous prostration by strychnia, hypodermically, application of hot-water bottles, and an enema of hot whisky and water.

2. Cleanse the chest and wound, removing all pieces of splintered bone, etc. Never attempt to extract the bullet, or use a probe under any circumstances. On this matter I shall have more to say later.

3. Apply the dressing.

4. Place on the jacket in the prescribed manner, with all possible rapidity and accuracy.

In order to prevent any possible misunderstanding, I wish to state most emphatically that I make no claim to being the originator of the plaster jacket, which I have used for over fifteen years in cases of fractured ribs, injured joints, etc. Neither is the simple, but most important, idea of securing rest in cases of gunshot wounds of the chest, pleura and lungs a new one, or original with me. I, in common with other surgeons, have used it, and merely give my experience.

I wish to acknowledge my great indebtedness to

the researches of that eminent English surgeon, John Hilton, F.R.S., F.R C.S., etc., whose views, as set forth so clearly in his work on "Rest and Pain," first conveyed the nucleus of this great idea to the world. While he does not even suggest the use of the plaster-of-paris jacket, or of any other mechanical device, for securing the rest which he advocates in inflammatory conditions of the thoracic cavity, he does say: "If a joint be inflamed, we put a splint upon it to keep it at rest. Why not strap or bandage the chest in cases of pleurisy? Surely, it would have the tendency to subdue the inflammatory condition by preventing friction between the two opposite pleural surfaces."

Continuing, he says further: "All surgeons must have observed in cases of pleurisy that if the patient be asked to take a full breath, to raise the ribs and expand the lungs, he cannot do so without suffering great pain. This is surely very suggestive of the importance of rest, and points to the value of strapping the chest in cases of acute or chronic pleurisy, with or without fracture of the ribs (I have no doubt about its great utility in the latter complication); for it not only keeps the ribs quiet, but prevents any friction of the pleura upon the inflamed pleura costalis."

Surely, it is carrying out the simple idea, so plainly embodied in his words, to secure even more perfect immobilization of the parts by a plaster-of-paris jacket than could be obtained by any bandage, no matter how carefully applied. It is most clearly applicable to the treatment of gunshot wounds of the chest, for do not much the same inflammatory symptoms prevail in such

cases? Here we at once get an acute traumatic condi-

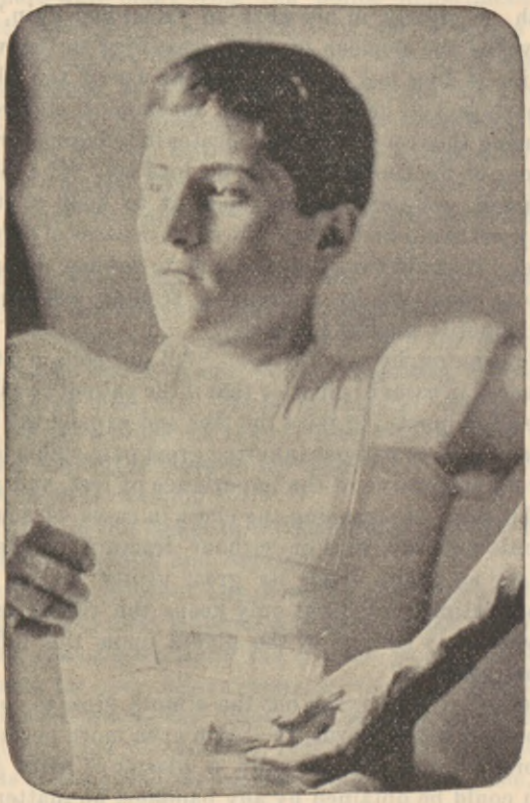


FIG. I.—APPLICATION.

tion, caused by the bullet passing through the pleura

and lung, and setting up an irritation of that membrane and organ.

When a bullet, or any similar foreign substance, enters the lung it produces a hemorrhage, followed by an extravasation of blood into the surrounding tissues. Now, it is only necessary to remember that the serous membranes (pleura) are not only secreting, but are rapidly absorbing. In giving them rest as quickly as possible, they almost as quickly recover their power of absorption. Post-mortem examinations, when death has resulted from such wounds, show that in extravasations of serum and blood every drop of such serum is absorbed.

In theory, let us follow a hypothetical case through the proper course of treatment. On entering the hospital, a patient suffering from a gunshot wound of the chest—suffering, as they usually do, more from the shock than from the wound—should be immediately treated for this shock. The usual restoratives may be administered, but the method which I have inaugurated at the hospital I find most nearly perfect, viz.: Give $^1/_{30}$ of a grain of sulphate of strychnia hypodermically every half hour until three doses have been administered; then continue the same dose every four hours until the patient has bridged over the shock. This treatment I find most efficacious in cases where vaso motor and heart stimulants are required. Hot water bags or bottles should be applied, and the chest next rendered thoroughly aseptic by being scrubbed and cleansed. The wound of entrance, and of exit (if any), is syringed with an antiseptic solution and dried. A dry dressing

in the form of a powder is then applied, either of iodoform, or preferably, one composed of boracic acid and phenol—Sennine—which I have been in the habit of using in all cases of gunshot or incised wounds, and, in general, when a dry dressing is needed. This product, 5 parts, is perfectly soluble in 100 parts of water, making a reliable antiseptic solution.

I would advise every surgeon to adopt as an axiom my invariable rule: Never probe a gunshot wound of the chest, or any that is produced by a bullet. I cannot too earnestly urge this point upon the attention of the profession. In my opinion, the probe is merely an instrument of useless torture, and of positive danger when used in cases of accidental surgery. It does more harm than good. This thing of probing for bullets is out of date. It is a "back number," and belongs to the age of the lancet and the bolus. Its use in some cases of gunshot wounds is positively criminal, and in all such cases is the worst possible practice. The bullet will nearly always take care of itself, and, in the cases herewith reported, has remained in the chest, become encysted, and caused the patient no inconvenience whatever. Where you must use a probe, use the finger, making a clean incision if necessary to introduce it. Do not perforate or tear the delicate membranes. I believe that the metal probe has caused almost as many deaths as have been due to bullets.

Where there is emphysema, the plaster jacket causes a rapid absorption of air from the tissues and hermetically seals the wound, thus preventing further escape of air into the tissues—a thing of recognized importance, even in the early days of surgery. It prevents various complications generally to be met with in cases of this character.

No special skill is required in placing the plaster

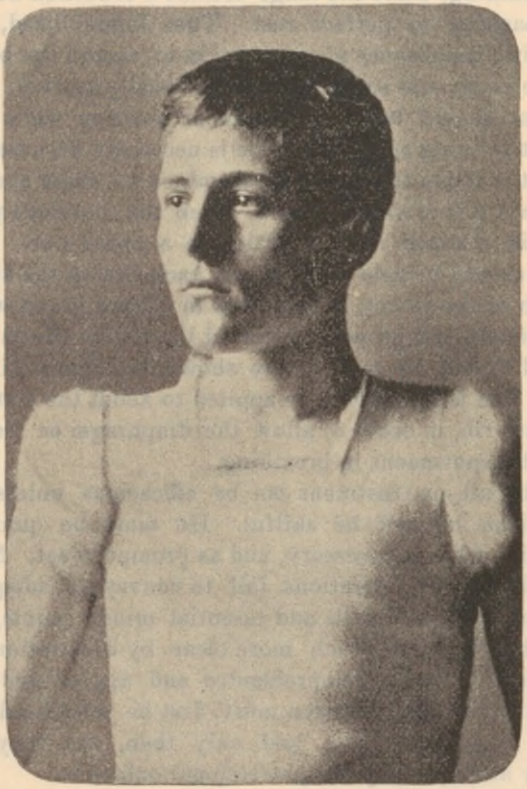


FIG. II.—ANTERIOR VIEW, JACKET APPLIED.

jacket, the only requisite being to adjust it as quickly and tightly as possible, so as to immobilize the chest

and make the diaphragm do most of the labor involved in breathing, while the lungs assume a condition nearly approaching to perfect rest. Thus immobilized, the pleuritic membranes at once begin to absorb the blood in the chest, and complications are usually averted. The patient should be in a recumbent position while the jacket is being applied. This is necessary because the jacket is liable to become loosened, or to cause avoidable pain if it is already rigid, when the patient's position is changed from a sitting to a prone one. The arms should be held well up and back during the application of the jacket, as indicated in Figure I, and when completely and properly adjusted the visible effects produced should be such as are shown in Figures II and III. The jacket should be applied to about the sixth or seventh rib, in order to allow the diaphragm as free as possible movement in breathing.

After all, no treatment can be efficacious unless the physician himself be skilful. He must be quick to perceive what is necessary, and as prompt to act. Mere descriptions of operations fail to convey an adequate idea of the nice details and essential minor points, nor can they be made much more clear by illustrations or diagrams. To be comprehended and appreciated, the technique of an operation must first be witnessed and then practiced. Then, and only then, can they be safely attempted by the professional onlooker.

Nothing I have said, I believe, can be looked upon as too radical an innovation. Above all, I advocate conservatism. Nothing is new, and the system is in constant use among the best surgeons in the country. I

write with the sole idea of gaining for the method more

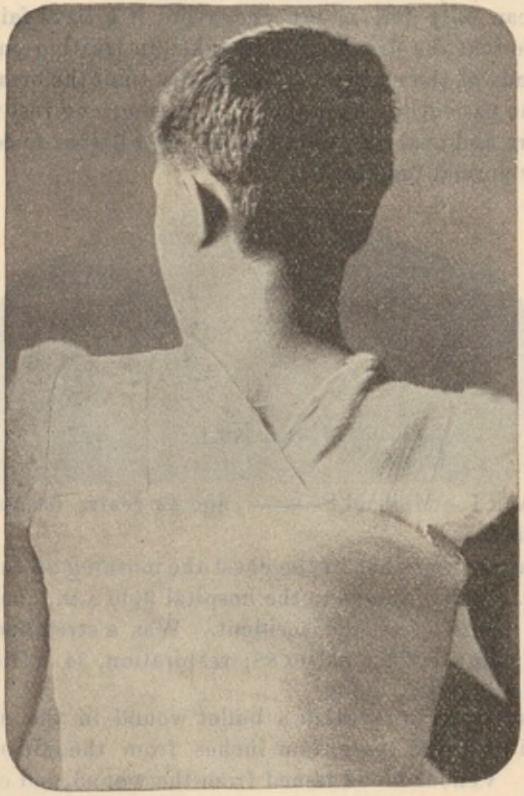
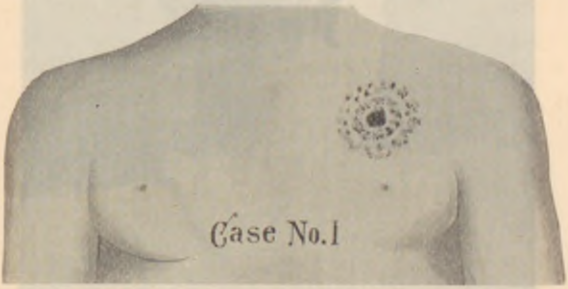


FIG. III.—POSTERIOR VIEW, JACKET APPLIED.

general practice and attention. My friend Dr. A. C.

Bernays has tested its value for many years, and bears me out fully as to its uniform success.

I can only fail in my endeavors if I have failed to prove that the first step to be taken in treating gunshot wounds of the chest is to practically limit the breathing of the patient to the diaphragm, thus giving rest to the pleura and enabling the adjacent membranes to resume their normal functions.



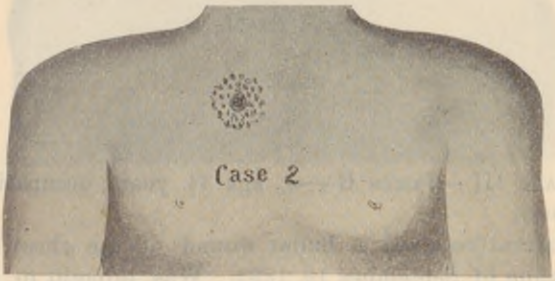
CASE I.—Michael S———, age 42 years; occupation, shoemaker.

Patient was shot in the chest the morning of June 13, 1892. Was brought to the hospital 9:30 A.M., one and a half hours after the accident. Was a stretcher case. Temperature, 99°; pulse, 88; respiration, 34. Did not expectorate any blood.

Examination revealed a bullet wound in the second left intercostal space, four inches from the mid sternal line. Venous blood issued from the wound, and coughing increased the flow of blood. Slight subcutaneous emphysema about the wound. No wound of exit was found. Bullet not located. Complained of pain in back on raising left arm.

At 11:30 A M., two hours after entering the hospital, he complained of dyspnœa and began to expectorate a small quantity of blood. Moist rales posteriorly in each lung; no dullness. The wound had been dressed antiseptically, and the next morning a plaster-of-paris dressing was applied to the chest. Patient continued to expectorate a small quantity of blood occasionally for two days. Case progressed favorably. Highest temperature was 100.2°, which was reached the day he entered the hospital. Pulse did not go above 90, nor respiration above 34.

Was discharged, recovered, June 29, 1892, sixteen days after entering hospital. Wound was healed and he felt well. Caliber, 38.



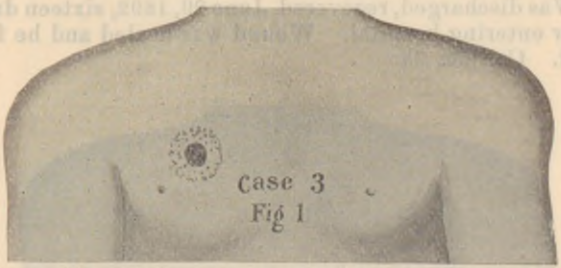
CASE II.—Amster J—— (colored), age 35 years; occupation, roustabout.

Patient was shot June 26, 1892. Admitted to the hospital 8:00 P.M., about one hour after the injury. The bullet had entered near the third right chondro-sternal articulation and passed backward and outward, coming out in the posterior axillary line about on the level of the fourth rib. General disturbance was slight. There

was no direct evidence of visceral injury, but from the direction of the ball it was supposed that the thoracic cavity had been entered.

The wounds were immediately cleansed and dressed antiseptically and the chest encased in a plaster-of-paris dressing. No complications appeared. Temperature did not go above 99.3°. Pulse ranged from 50 to 64, and respiration 15 to 27.

Discharged, recovered, July 4, 1892, having been in the hospital eight days. Caliber, 38.



CASE III.—James R——, age 44 years; occupation, laborer.

Patient received a bullet wound of the chest the morning of September 19, 1892. Was brought to the hospital 5:30 A.M., two and a half hours after the injury. Temperature, 100°; pulse, fair; respiration, short and jerky. Had expectorated no blood. The ball had entered anteriorly in the fourth right intercostal space and passed through the chest, coming out near the inferior angle of the scapula of the same side. There was dullness in the right side posteriorly, indicating hemorrhage into the pleural cavity.

Respiration hurried. An antiseptic dressing was applied to the wounds and the chest encased in a plaster jacket.

Patient continued in a fairly comfortable condition, with the exception of pain in the right side. Temperature ranged from near normal to 101°; pulse from 80 to 105; respiration from 18 to 26.

Case 3
Fig 2

The fifth day the patient's temperature rose to 102°. Complained of pain in right side. Was aspirated, and about one ounce of blood removed from pleural cavity. Pain diminished. Temperature varied from normal to 101° for ten days, and then gradually subsided.

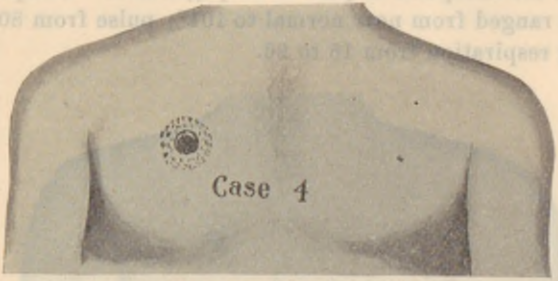
Patient was discharged October 9, 1892. Had been in hospital twenty days. Wound was almost healed. He returned occasionally for dressing, and wound healed in a week. Caliber, 38.

Case IV.—Harry H——, age 20 years; occupation, clerk.

Patient was shot in the chest February 17, 1893. Brought to the hospital at 7:50 P.M., one and a half hours after the injury.

Examination revealed a bullet wound at the site of

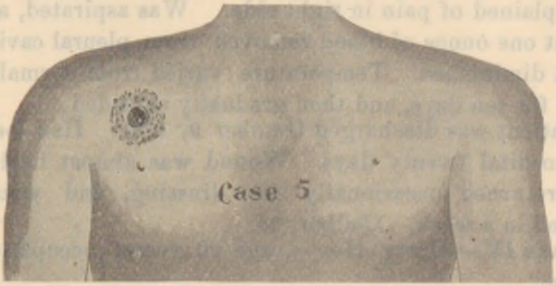
the right nipple. No wound of exit was found, nor was there any indication as to where the ball was situated. General disturbance was slight and there was no decided evidence of visceral injury, but it was supposed that the thoracic cavity had been entered.



Treatment—Antisepsis and plaster dressing.

Case progressed favorably. Had no decided fever.

Was discharged March 1, 1893, twelve days after entering hospital. Wound was almost healed. Caliber, 38.



Case V.—Barney McI—— (colored), age 22 years; occupation, teamster.

Patient was shot in the chest March 5, 1893, about 8:00 P.M. Was admitted to the hospital three and a half hours later. He had walked three blocks after the

accident. When admitted he was rather weak and had some dyspnœa. Pulse regular and of fair volume and tension; respiration, 28; temperature about normal.

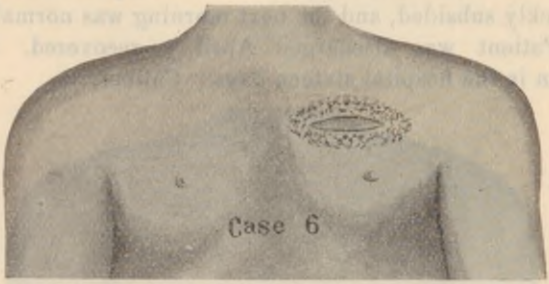
Examination revealed a bullet wound of the anterior surface of the right side of chest, midway between the clavicle and the nipple, and just without the mammillary line. No wound of exit was found. The location of the bullet could not be determined. Patient had not expectorated any blood. In the right infra scapular and axillary regions there was dullness, with absence of vesicular murmur and vocal fremitus.

Treatment—Antisepsis and plaster-of-paris jacket.

The next morning he had some pain, but the dyspnœa was diminished.

Patient improved. Had no decided fever.

Was discharged, recovered, March 20, 1893, having been in the hospital fifteen days. Caliber, 38.



Case VI.—Earnest C—— (colored), age 19 years; occupation, laborer.

Patient received a gunshot wound of the left side of chest, March 19, 1893. He was taken immediately to a physician's office, where an incision was made over the entrance wound.

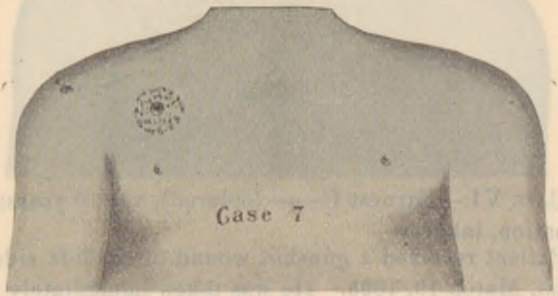
Patient reached the hospital 3:25 P.M., one and a half hours after the shooting.

Examination revealed an incised wound (made by the physician) about two inches long, extending through the greater part of the soft tissues of the chest wall. It was situated in the left side of chest, midway between the mammillary line and the edge of the sternum, and above the heart's area. In the incision could be seen the wound caused by the bullet, which had apparently entered the thoracic cavity. No wound of exit was found. Patient expectorated some blood. No fluid was found in pleural cavity.

Wound was dressed antiseptically and a plaster-of-paris jacket applied to chest.

The case progressed fairly well. Only twice did the temperature go above 100°. The third day it rose to 100.8°. The twelfth day it rose suddenly to 103 7°, but quickly subsided, and the next morning was normal.

Patient was discharged April 4, recovered. Had been in the hospital sixteen days. Caliber, 32.

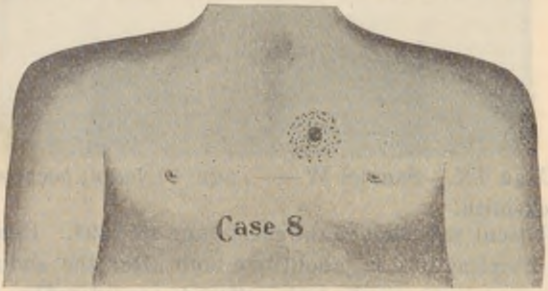


CASE VII.—Frederick W——, age 53 years; occupation, fireman.

Patient was shot in the right side of chest May 30, 1893. Reached the hospital 9 P.M., two hours after injury.

Examination revealed a small bullet wound in the second right intercostal space, just within the mammillary line. No wound of exit was found. Patient did not expectorate blood. Auscultation and percussion failed to reveal anything abnormal within the chest; neither did his general condition indicate serious visceral injury.

Treatment—Antisepsis and plaster dressing. Patient was discharged June 15, 1893, sixteen days after entering the hospital. Wound almost healed. Caliber, 22.



CASE VIII.—Wm. R—— (colored), age 29 years; occupation, laborer.

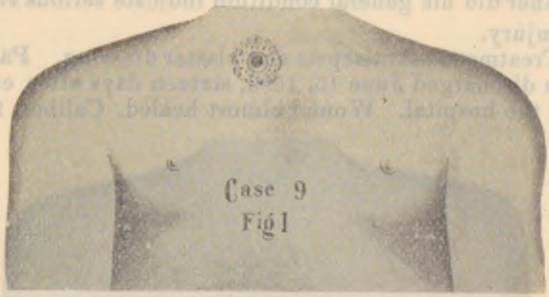
Patient was admitted to the hospital June 17, 1893, 1 A.M., about half an hour after the accident, suffering from a gunshot wound of chest. The bullet passed through the soft tissues of the left upper arm, about two and a half inches below the shoulder joints, and then entered the thorax, perforating the lung, passing inward and forward, and lodging under the skin in the third intercostal space, near the margin of the sternum.

Patient coughed repeatedly, expectorating blood.

Parts were cleansed, the bullet extracted through a small incision, wounds dressed antiseptically, and plaster-of-paris jacket applied to the chest.

Patient made a good recovery. Had no decided fever, or other evidence of complication.

Was discharged, recovered, June 26, 1893, having been in the hospital ten days. Caliber, 38.

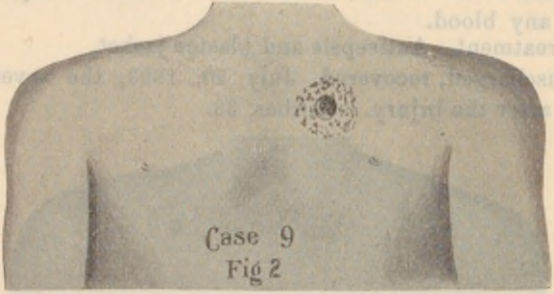


CASE IX.—Samuel W——, age 40 years; occupation, blacksmith.

Patient was shot in the chest June 28, 1893. Reached the hospital 10 P.M., about one hour after the shooting. He was very weak and suffered considerably from shock.

Examination revealed a bullet wound a short distance below and external to the right sterno clavicular articulation. The ball had passed backward, downward and outward, and lodged beneath the skin, near the inferior angle of the scapula of the same side. There was subcutaneous emphysema about the bullet. The parts were cleansed, the ball extracted through a small incision, the wounds dressed antiseptically, and the chest

encased in a plaster of paris dressing. Patient expectorated blood.

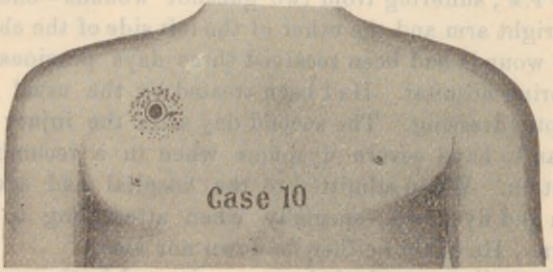


Case 9
Fig 2

The case progressed favorably. Patient had no decided fever. Was discharged July 10, 1893, external wounds not entirely healed. Had been in hospital twelve days.

Patient returned occasionally for dressing, and wounds healed in about two weeks. Caliber, 38.

Case X.—Henry T——, age 26 years; occupation, boiler-maker.



Case 10

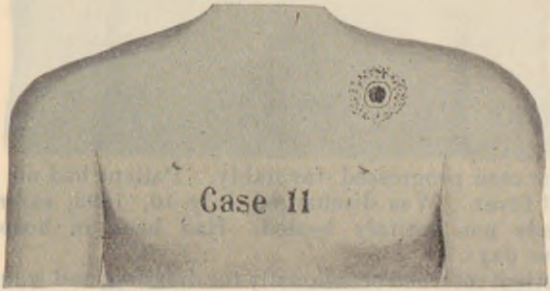
Patient was admitted to the hospital July 24, 1893, at 12:25 A.M., having been brought from the scene of a shooting affair.

Examination revealed a bullet wound in the third

right intercostal space, three inches from the sternum. No exit of bullet was found. Patient did not expectorate any blood.

Treatment—Antisepsis and plaster jacket.

Discharged, recovered, July 30, 1893, the seventh day after the injury. Caliber, 38.



Case XI.—Chas. D——, age 23 years; occupation, laborer.

Patient was admitted to the hospital Nov. 5, 1893, at 4:30 P.M, suffering from two gunshot wounds—one of the right arm and the other of the left side of the chest. The wounds had been received three days previous to entering hospital. Had been treated by the usual antiseptic dressing. The second day after the injury he began to have severe dyspnœa when in a recumbent position. When admitted to the hospital had severe pain and dyspnœa, especially when attempting to lie down. He could neither lie down nor sleep.

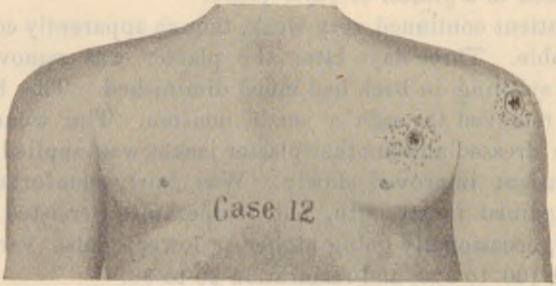
The bullet wound of chest was situated in the second left intercostal space, about in the mammillary line. No wound of exit was found. There was dullness, with diminished respiratory murmur, over the posterior in-

ferior portion of the *right* side of the chest—indicating fluid in the pleural cavity. The exact location of the bullet could not be determined, but its course was evidently diagonal, passing from the wound of entrance through a portion of the left side of the chest, and then entering the right side.

The wounds were dressed antiseptically and a plaster-of-paris jacket was applied. The patient passed a fairly comfortable night *in a recumbent position.*

The case progressed favorably. The sixth day after the plaster was applied it was removed and wounds examined. No evidence of suppuration. Plaster jacket reapplied. Highest temperature recorded was 100.6°; pulse ranged from 70 to 100; respiration from 22 to 32.

Patient was discharged Nov. 15, 1893, ten days after entering hospital. Wound was almost healed. He returned for dressing, and the wound healed in about one week. Caliber, 38.



Case XII.—A F. E——, age 31 years; occupation, laborer.

Patient was shot in the chest the night of Dec. 21, 1893. He was taken immediately to the city dispensary

and from there sent to the city hospital, where he arrived at 1:40 A.M., Dec. 22, 1893. Patient was extremely weak. He was very pale, almost pulseless and quite drowsy.

Examination revealed three bullet wounds—one, a superficial wound of the scalp; the second, a wound of the left shoulder; and the third, in the left side of the chest. The last was situated in the fourth left intercostal space, one and a half inches external to the nipple. The ball had ranged backward and inward, and lodged beneath the skin posteriorly, midway between the spine and the inferior angle of the left scapula. There was hæmatoma about the bullet, and subcutaneous emphysema about the entrance wound. Patient expectorated blood. He was too weak to stand much manipulation.

An antiseptic dressing was put on, and patient placed in bed and external warmth applied. The next morning he was considerably improved. The chest was then encased in a plaster-of-paris jacket.

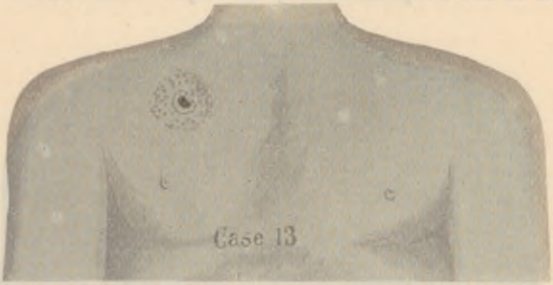
Patient continued very weak, though apparently comfortable. Three days later the plaster was removed. The swelling in back had much diminished. The ball was removed through a small incision. The wounds were dressed and another plaster jacket was applied.

Patient improved slowly. Was fairly comfortable and gained in strength, but temperature persisted at 101°, occasionally going higher or lower; pulse varied from 100 to 120, and respiration 20 to 38.

The eighth day the plaster was removed. An examination of the chest elicited signs of consolidation of the lower lobe of the left lung with some fluid

in the pleural cavity. Plaster jacket was reapplied. Patient gained in strength, but temperature persisted as before and pulse respirations increased in frequency, for a time. A small abscess on the right arm will perhaps account for part of the fever.

Patient was discharged, recovered, Jan. 22, 1894, having been in the hospital 31 days. Caliber, 38.



CASE XIII.—James L——, age 32 years; occupation, barkeeper.

Patient was shot in the chest early Dec. 26, 1893. He was taken immediately to the city dispensary and from there sent to the hospital, where he arrived at 5:10 A.M. He was suffering somewhat from shock, but not to a great extent.

Examination revealed a bullet wound in the second right intercostal space, just without the mammillary line. No wound of exit was found. The ball seemed to have ranged backward and downward, as there were signs of consolidation (hemorrhage into the lung) near the inferior angle of the scapula of the same side. He expectorated blood quite freely.

The wound was cleansed and dressed antiseptically

and a plaster-of-paris jacket immediately applied. The case progressed exceedingly well.

The second day patient's temperature reached 101°, and then gradually subsided. Pulse gradually diminished in frequency. The eighth day the plaster was removed and a tight crinoline bandage applied.

Patient discharged, recovered, Jan. 21, 1894, having been in the hospital twenty-six days. Caliber, 38.

Case XIV.—Fred P—— (colored), age 25 years; occupation, laborer.

Patient was shot in the back Feb. 28, 1893. He was brought immediately to the hospital, where he arrived at 10:50 P.M.

Examination revealed a bullet wound just below the level of the inferior angle of right scapula, and two inches posterior to the axillary line. No wound of exit was found. Patient expectorated bloody sputum.

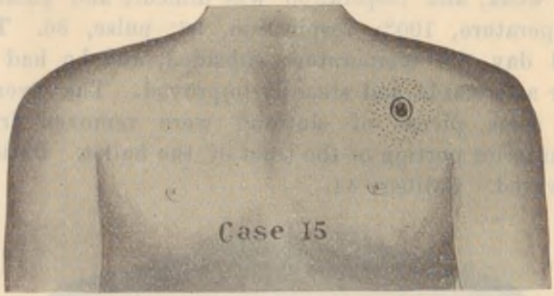
Wound was dressed antiseptically and a plaster-of-paris jacket applied.

Case apparently progressed favorably. Patient had no fever. Was discharged March 14, feeling well, having been in hospital fourteen days.

Soon after leaving the hospital he began to feel weak. Had a cough, with some fever, and general malaise. Returned to the hospital April 1, 1893, presenting symptoms of limited empyema of right eye.

A portion of the ninth rib was removed, and the pleural cavity drained. A considerable quantity of thick, creamy pus came out, and, with the pus, a piece of clothing.

Patient improved; became able to be up and about; felt comfortable and comparatively strong. Was discharged April 18, 1893. Wound not entirely healed. He returned for dressing, and wound closed in about one month. Caliber, 38.



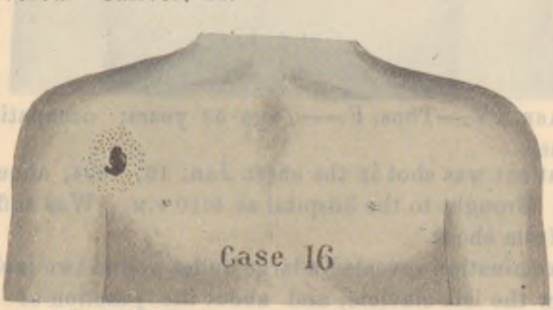
Case XV.—Thos. F——, age 53 years; occupation, farmer.

Patient was shot in the chest Jan. 16, 1894, about 5 P.M Brought to the hospital at 9:10 P.M. Was suffering from shock.

Examination revealed a large bullet wound two inches below the left clavicle, and about the junction of the outer with the middle third. The ball ranged backward, downward and inward, and lodged beneath the

skin two inches to the left of the spinal column, and one inch above the level of the inferior angle of scapula. There was subcutaneous emphysema about the bullet. Patient had not yet noticed any bloody expectoration. The ball was removed posteriorly through a small incision, and with it some small pieces of clothing. The ball was of large size, and one end was flattened and rough, and there were some shreds of clothing firmly adherent to it.

Wounds were dressed antiseptically and the chest was encased in a plaster of-paris jacket. The next day the patient's sputum was bloody, and this continued for several days. The second day after the injury he was very weak, and respiration was difficult and painful. Temperature, 100°; respiration, 36; pulse, 86. The third day the temperature subsided, and he had no fever afterwards, and steadily improved. The seventh day some pieces of clothing were removed from the anterior portion of the tract of the bullet. Patient recovered. Caliber, 44.



Case XVI.—Wm. K——, age 29 years; occupation, railroad employee.

Patient was shot in the right side of the chest Feb. 1, 1893. The bullet entered in the anterior axillary line near the third rib, passed through the lung, and lodged posteriorly in the soft tissues of the chest wall, midway between the spine and the inferior angle of the right scapula.

He expectorated some blood (small quantity). The wound was dressed four hours later by a physician, and he continued under a physician's care. He was troubled somewhat in respiration all the time after the injury, but there was no marked change in his condition until about February 16, when he began to have chills, with moderate evening fever, accompanied by weakness, loss of appetite and emaciation.

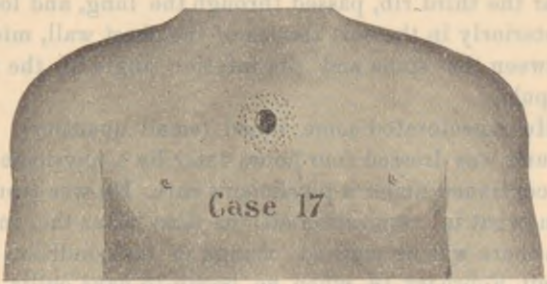
Was admitted to the city hospital a week later. He then presented symptoms of empyema of the right side, with only a moderate amount of fluid. The bullet wound was surrounded by a zone of inflammation, and a small quantity of pus was escaping from it. There was a small swelling posteriorly, where the ball was still situated.

The twenty-fifth day after the injury patient underwent an operation, the right pleural cavity being opened and drained.

Patient improved, became able to be up and about, and felt fairly well. But a sinus persisted at the site of the anterior operation wound for a long time.

Patient was discharged May 10, 1893, sinus not yet entirely healed. Returned occasionally for dressing, and sinus closed in about three weeks. Caliber, 38.

Case XVII.—Jno. W ——, (colored) age 23 years; occupation, laborer.



Patient was shot in the chest about Aug. 21, 1893. The bullet entered the sternum, near the junction of the maunbruim with the gladiolus. There was no wound of exit. He expectorated some blood that day and the next, but none afterwards. He went to a physician, who, he said, probed the wound and then gave him some ointment to apply to it and some medicine to take internally. He suffered considerably from dyspnœa, and respiratory movements caused pain all through the chest.

Was admitted to the city hospital Aug. 26, 1893, the sixth day after the injury. The bullet wound was healing. On the left side of the chest there was bulging of the intercostal space, with dullness on percussion up to the fourth rib, and absence of respiratory sounds over the same area. The upper limit of dullness changed with change of position of the patient. An aspirating needle was introduced posteriorly, and about 400 c.c. of thin blood removed. Six days later 300 c.c. more of bloody fluid was drawn off. Patient seemed to be im-

proving, but the next day—that is, about two weeks after the receipt of the injury—he was prostrated with pneumonia. Temperature rose suddenly to 104.7°, and respiration to 48. Consolidation was made out in the inferior lobe of the lung of the affected side.

In six days he had apparently recovered from the pneumonia. Temperature subsided to 100°, and respiration to 24. He was very weak, however, and continued to grow weaker. Temperature rose somewhat again, varying from 100° to 102°, once going to 102.5°. September 12 (about three weeks after the injury was received) it was thought best to drain the left pleural cavity. Patient was too weak to be anæstheticized and a re-section of a rib was made without a general anesthetic. A large amount of bloody fluid escaped. The general weakness and prostration continued to a marked degree. Temperature ranged from 100° to 102° for about two weeks longer, and from 100° to near 101° for three more weeks, and then gradually subsided. He improved very slowly, the discharge diminishing gradually.

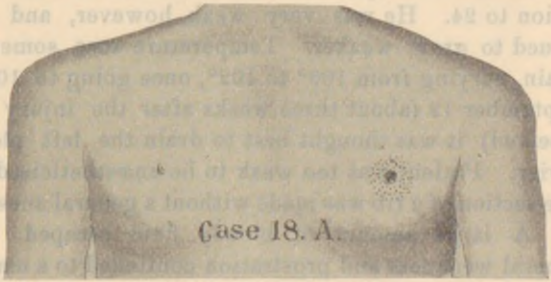
He is now up and about and feels fairly comfortable, and is gaining in weight and strength. But a sinus is still present at the site of the operation. Caliber, 32.

Case XVIII.—Fred. Y——, age 26 years; occupation, butcher; social condition, single.

Patient entered hospital Monday, Feb. 19, 1894, at 2 P.M., one hour after the accident.

An examination revealed a gunshot wound of the chest (point of entrance) about ¼ inch below left nipple, passing through left lung and making its point of exit posteriorly about 2 inches below angle of scapula.

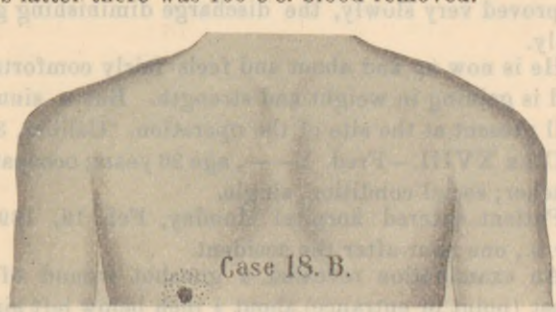
Blood flowed freely from the wound. Physical signs indicated blood in the chest. Patient complained of a great deal of pain and dyspnœa. Spat up large quantities of blood. He became cyanosed and fainted upon the table. Strychnia $^1/_{20}$ gr. every half hour was administered. Within an hour and a half patient recovered from shock, and plaster jacket was applied.



Case 18. A.

February 20, patient somewhat improved.

February 21, patient complained of a great deal of pain. About 1500 c.c. of blood was aspirated. Four days latter there was 100 c c. blood removed.



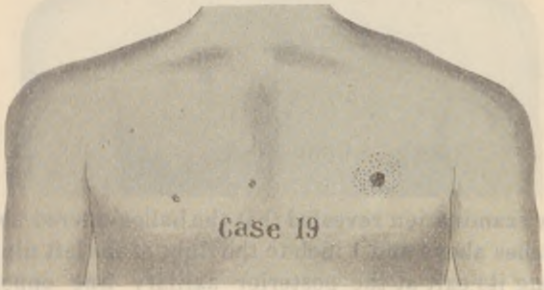
Case 18. B.

February 26, patient developed traumatic pneumonia. Complained of a great deal of pain, and severe cough.

March 28, third and fourth ribs were re-sected for the

purpose of drainage, patient having had empyema. Large quantities of pus escaped. The diaphragm was found to be adherent up to about the lower margin of the fifth rib.

He was discharged, improved, May 3, 1894, having been in the hospital 43 days. Caliber, 38.



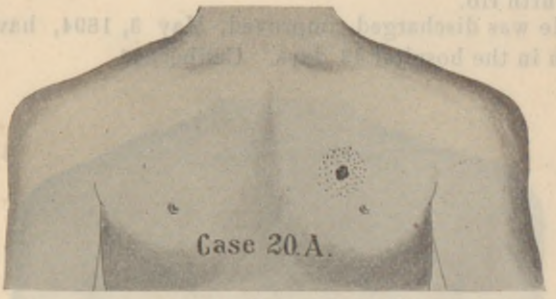
Case XIX.—Edward C——, age 40 years; occupation, veterinary surgeon; social condition, married.

March 20, 1894, Tuesday about 10 A.M., this patient shot himself for the purpose of suicide. He entered the hospital 11:55 A.M., suffering with a gunshot wound upon the left side, the bullet penetrating region of the left nipple. There was a hæmatoma on the posterior axillary line, about the ninth intercostal space. The bullet could be felt superficially. The chest contained blood. Patient spat up large quantities of blood. Complained of a great deal of pain. A hypodermic of strychnia was administered, and plaster jacket applied.

Patient entirely recovered, May 4, 1894. Caliber, 38.

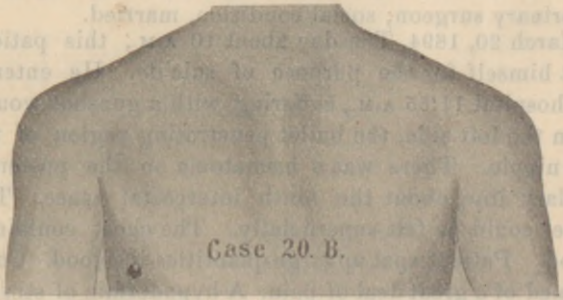
Case XX.—Louis W——, age 34 years; occupation, artist; social condition, married.

Patient shot himself with suicidal intent March 16, 1894, Tuesday, about 9 A.M;. he entered the hospital 10:45 A.M.



Case 20.A.

An examination revealed that the bullet entered about 1½ inches above and 1 inch to the right of the left nipple, making its exit at the posterior axillary line opposite angle of scapula. Chest contained some blood.



Case 20. B.

Chest rendered aseptic in the usual manner; plaster jacket applied.

Patient remained in the hospital 21 days; discharged, improved, April 6, 1894. Caliber, 38.