

STATED MEETING, HELD MARCH 2, 1908.

The President, DR. WILLIAM J. TAYLOR, in the Chair.

CARIES SICCA.

DR. MORRIS B. MILLER presented a woman, aged 22 years, whose personal history was without interest until five years ago when she suffered from a prolonged and severe attack of typhoid fever complicated with pneumonia. Approximately two months after she got perfectly well her arm became weak at the shoulder and remained that way until something over a year ago when within a few weeks she lost entirely the power to raise it at the shoulder and it commenced to pain. The muscles became shrunken and the fixation grew pronounced over a period of three or four months. From the first she has had severe pains resembling neuralgia but not responding to any form of treatment. These are mainly of the area immediately surrounding the joint, but some pain is referred down the arm. Any effort to move the firmly ankylosed shoulder-joint causes considerable suffering. The clinical phenomena are clearly those of caries sicca. There is no pulmonary lesion perceptible.

Dr. Miller said he believed this condition must occur more frequently than one would gather from the literature, and he thinks it may possibly be that this condition is frequently diagnosed as arthritis. He would like to have raised the question whether, in the light of the disability his patient presented, and particularly the neuralgic pain of which she complained, an excision would be warranted and whether it would result in an improved condition.

RESECTION OF SPINAL ACCESSORY NERVE FOR  
TORTICOLLIS.

DR. ROBERT G. LE CONTE exhibited a boy of eleven upon whom he had operated six months previously for congenital torticollis. The patient's head, from birth, had been drawn to the right side, with the chin towards the right shoulder, and it was

impossible for him to bring his face to the front. The right sternocleidomastoid muscle appeared to be twice as thick and strong as the left. With an anterior incision at the upper portion of the sternocleidomastoid the spinal accessory nerve was exposed before it entered the sternomastoid muscle. It was resected for a distance of half an inch.

The patient made an uneventful recovery, and now has perfect control and freedom of the motions of the head in all directions.

## SUBCUTANEOUS RUPTURE OF THE SPLEEN.

REPORT OF CASES WITH REMARKS.

BY GEORGE G. ROSS, M.D.,

OF PHILADELPHIA,

Assistant Surgeon German Hospital; Surgeon Germantown Hospital.

CASE I.—Robert S. Age 8. History of having fallen 8 feet down a cellar way, striking on left side of abdomen in left hypochondriac region. Accident November 3, 1907.

The first urination after the accident showed evidence of blood. He did not vomit; no marked evidence of shock; bowels moved normally. The next two succeeding days he was not so well and when I saw him two days later he presented the following symptoms:

Expression anxious, indicating some severe abdominal lesion. Some meteorism, but no vomiting. Temperature 102; pulse 20; respiration rapid and shallow. Lips and mucous membrane pale. Rigidity of left rectus muscle; tenderness most marked over splenic area. Complained of pain in left upper abdomen. The kidneys and bowels had acted normally and showed no evidence of blood. The degree of traumatism and its application to the splenic area, followed by the evidence above related, makes the diagnosis of contusion of the spleen, slow hemorrhage and a low grade, more or less localized, peritonitis, most reasonable. He also had a contusion of the left kidney as evidenced by the one hemorrhage. The boy had a slow but satisfactory recovery without operation.

CASE II.—Jacob H. Age 21. Painter. Was admitted to the German Hospital on the afternoon of September 28, 1907, having been referred by Dr. Klemm.

Patient's previous history of no importance or bearing on present condition.

Dr. Klemm kindly furnished the notes of the accident and the condition immediately following:

"Jacob H. came to my office stating that two hours before he had fallen from bay window on a fence, striking on his upper abdomen. He soon recovered sufficiently to walk to his home, a distance of ten squares, then to my office another six squares

and back to his home. He was pale, not able to stand fully erect; his pulse was 96; temperature normal; he referred his pain to the epigastrium, radiating toward the left side and the back. I advised him to go to the German Hospital for observation, to which his mother objected, then I ordered him to bed and to let me know if he got worse. The next day I found him, with abdomen distended, pulse 136, temperature 100, more pale and willing to go to the hospital at once."

On admission he was very pale, expression anxious. Temperature 100; pulse 148; respiration 26. Abdomen showed no ecchymosis, bruise, cut or evidence of traumatism. Lungs clear. Heart action rapid. No murmurs. Pulse rapid, weak and running. Abdomen moderately distended; general rigidity and marked tenderness. Complained of severe abdominal pain, most intense in the left hypochondrium. Hæmoglobin 48 per cent., leucocytes 20,000.

Operation on admission, 24 hours after the injury. Abdomen was opened through right rectus muscle with line of umbilicus as central point. A large amount of very dark unclotted blood escaped. A rapid survey of small and large intestine and their mesenteries, also of the liver, proved them to be intact. As the examination approached the spleen it was noticed that the blood was clotted and an examination discovered a rent in the spleen. The patient by this time was practically pulseless. Intravenous salt solution was started—a total of 2000 c.c. being given. Another incision through the abdominal wall over the spleen and three pieces of gauze were packed around the organ. A stab wound over the pubis was made for the insertion of a glass drainage-tube; the original wound was closed, excepting at the lower angle, where one piece of gauze was placed for drainage. The abdomen was not washed out. The patient made a slow recovery. On the twentieth day the temperature shot up to 104 and the pulse to 138 without a known cause, and stayed up until the thirty-fifth day, when it again reached normal. The leucocyte count at this time was 9700. Widal negative.

Subcutaneous injuries of the spleen vary from simple contusion to complete pulpification, the extent of the injury being governed by the amount and direction of the applied force and the condition of the organ. An abnormal spleen either enlarged or unduly friable will be more readily and more severely

injured by minor degrees of traumatism. That the normal spleen is liable to severe injury is proven by the number of cases on record. At the height of its functional activity, the spleen is engorged with blood and is at this time more liable to injury. This condition occurs some hours after digestion. The two cases herewith reported illustrate rupture in two degrees of severity, in normal or presumably normal organs. Both were in males.

In Berger's collection, 300 cases were in men and 60 in women.

Subcutaneous injuries are more common than through open wounds. Edler's 160 cases show 51.8 per cent. as subcutaneous to 48 per cent. from gun shot and stab wounds.

Berger, *Archiv für Klin. Chirurgie*, 1902, vol. 68, pp. 768-817, gives a review of all cases up to 1902, from which the following facts have been deduced:

Frequency of rupture of the spleen compared with same injury to the other solid viscera due to traumatism he gives as follows: rupture of spleen, 20 per cent.; rupture of kidney, 22 per cent.; rupture of liver, 37.5 per cent.

Contusion of the spleen regarded as an authentic diagnosis, is in many cases hard to diagnose from rupture. The symptoms are pain and tenderness in region of the spleen, enlargement of the organ, fever, shock without evidence of hemorrhage.

*Age of Cases.*—Report of German cases: age from 0 to 10, 38 cases; 11 to 20, 33 cases; 21 to 30, 42 cases; 31 to 40, 32 cases; 41 to 50, 15 cases; 51 to 60, 15 cases; over 60, 9 cases. Report of English cases: age from 1 to 10, 11 cases; 11 to 20, 18 cases; 21 to 30, 15 cases; 31 to 40, 15 cases; 41 to 50, 6 cases; 51 to 60, 11 cases; over 60, 11 cases.

NOTE.—One case in a new-born infant, which was dropped on floor in precipitate labor.

*Pathology.*—Somewhat less than half of the ruptures affected a diseased spleen, in most cases malarial. It was especially common also during acute infections with splenic enlargement.

Of 132 pathological ruptured spleens: 93 were malarial, 15 only enlarged, no cause stated, 5 in typhoid, 1 in typhus, 1 in pneumonia, 3 in leukæmia, 1 in hereditary syphilis and alcoholism with liver cirrhosis, 9 in pregnancy, 1 in tuberculosis, 1 in other diseases.

*Spontaneous Rupture.*—Referred to by Berger. He gives over 30 examples, some with slight trauma, as bending or in labor. He reports one case in a man lying absolutely still.

*Prognosis of Ruptured Spleen.*—*Unoperated:* of 220 cases, 17 recovered—mortality, 92.3 per cent. *Operative results:* splenectomy, 67 cases, 38 recovered, 29 died—mortality, 56.7 per cent.; splenorrhaphy, 2 cases, 1 recovered, 1 died—mortality, 50 per cent.; tamponade, 6 cases, 5 recovered 1 died—mortality, 83.3 per cent.

In the above splenectomies 13 had complicating injuries, of which 9 died. In two of the recovered ones the complications were very slight.

#### LATER REPORTS OF RUPTURE OF SPLEEN.

1. BEAUMONT. *Trans. Clin. Soc. London*, 1902-3, xxvi, 261. Reports case of man hit by wagon tongue; spleen was ruptured. Operated. Splenectomy. Developed a left pleurisy and empyema. Had enlarged lymphatics one month after operation. No pathology of spleen.

2. FREUND. *St. Louis Med. Cour.*, 1906, xxiv, 135-137. Reports one case of splenectomy for rupture with recovery. Operation within 24 hours. Noted leucocytosis of 9000 on admission, 18,000 on third day.

3. KIRCHNER. *Ibid.* Mentions 5 or 6 cases with 3 or 4 recoveries. No exact data.

4. BREWSTER. *Boston M. and S. Journ.*, 1904, cl, 211. Reports a case of rupture of the spleen on a female of 6. Operated evening of the second day, with diagnosis of probable rupture of intestines. Wound in spleen packed, a drain was brought out by counter opening in flank.

5. SIMPSON. *Lancet London*, 1906, II, 364. Case of splenectomy for ruptured spleen. Operated in 5¾ hours.

6. NOETZEL. *W. Beitr. z. klin. Chirurgie*, 1906, xlvi, 309. Reports five cases of splenectomy for rupture. Two recovered. One operated in 24 hours. One on third day. Of the three that died (no pathological report), 1 died apparently of shock, 1 of rupture of liver and heart complicating splenic condition, 1 of rupture of intestine (not found at operation). He calls attention to need of examination for associated lesions of viscera when doubtful.

7. FRANK. *Munch. med. Wchnschr.*, 1906, liii, 189. Reports two cases of splenectomy for rupture. One operated within 24 hours and one

on second day. The latter worked 2 days after accident—had subcapsular hemorrhage which broke second day and necessitated operation. Complicated by pneumonia and pleuritis. No pathological report.

8. FONTOYNONT. Bull. et Mem. Soc. de Chir. de Paris, 1905, us. xxxi. Reports a case of splenectomy for rupture in a woman of Madagascar, who had malaria and syphilis. Operated in 2 hours. Spleen removed as was also an injured portion of tail of pancreas. Clamps left on vessels. Spleen free of blood weighed 500 grams. It was hypertrophied and malarial.

9. SCHLUETHER. R. E. J. Missouri Med. Ass., 1905-6, 11, 23-26. Reports splenectomy in boy of 14, for rupture. Spleen entirely broken in half. Operated in 18 hours. Bleeding had spontaneously ceased. He notes hypertrophy of lymphatics in second week after operation.

10. ANORAY. Bull. et Mem. Soc. de Chir. de Paris, 1904, xxx, 900-911. Reports two cases of splenectomy for rupture, with recovery. He advises resection of ribs to expose the field of operation. He refers to several other cases and to 3 cases of spontaneous cure.

11. SHERWOOD. Brooklyn Med. Journ., 1906, xx, 62. Reports case of rupture of spleen. Operation in 3 or 4 hours. Hemorrhage all back of peritoneum and no free blood in peritoneal cavity. Spleen and clot left undisturbed and wound closed. Patient recovered.

12. DAVYS. Indian Med. Mag. Calcutta, 1904, xxxix, 219. Reports spontaneous rupture of spleen in native while lying down. No accident. Died in ½ hour. Postmortem: Spleen has rent in anterior angle; is soft and enlarged to double its size. No pathological report.

13. THURSTON. Ibid. p. 379. Reports operation for peritonitis. Ruptured spleen. Spleen not enlarged. The blood had become encysted, the breaking of which caused the peritonitis. No free blood in abdominal cavity.

The evidence upon which a diagnosis can be established is the history of traumatism to the upper abdomen and especially when applied to the left side; shock, pain, tenderness over the spleen, rigidity of the recti muscles, more marked of the left; later signs of hemorrhage and meteorism. The abdominal wall rarely shows the evidence of force, although it be sufficient to rupture any one or several of the abdominal organs. The absence of ecchymosis or bruising should not mislead one.

As we see these cases in the hospital the impression one receives is that the patient has a serious hurt and urgently requires operation, and it is my opinion that the time spent in making a fine differential diagnosis would be better spent in opening the abdomen on the evidence of a ruptured viscus and repairing the condition or conditions found.

If the diagnosis of injury to the spleen can be established an incision through the left rectus muscle offers the best route for handling the conditions. Unfortunately the signs of hemorrhage into the peritoneal cavity and the meteorism so often obscure the symptoms that we must make a compromise incision, that through the right rectus muscle being the best. The umbilicus should be on a line with the middle of the incision. One can readily and rapidly enlarge upward and downward. Injuries to other organs will be more readily seen and recognized by this route.

DR. JOHN H. GIBBON referred to a case of rupture of the spleen which he had reported before the Academy some years previous. He believed that localized tenderness and rigidity were the most valuable symptoms we have for locating the injured viscus. In nearly all of the cases of rupture of the spleen which have been reported there has been marked localized tenderness and rigidity. Dr. Gibbon believed that if the spleen were not so easily removed fewer splenectomies for rupture would be reported, since in the majority of these cases hemorrhage can be controlled by judicious packing. In order to control bleeding from large wounds of the spleen it may be necessary to crowd the spleen firmly up against the diaphragm. Dr. Gibbon believed that any case that lived for four or five days after the rupture had occurred could be saved without splenectomy.

#### END-TO-END ANASTOMOSIS OF THE BRACHIAL ARTERY.

DR. FRANCIS T. STEWART reported the following cases:

CASE I.—A. L., aged 42 years, was admitted to the Pennsylvania Hospital June 14, 1905, in the service of Dr. Le Conte, to whom the author is indebted for the privilege of operating upon and reporting this case. The patient had been struck on the inner side of the arm just above the elbow with a piece of flying steel. The profuse bleeding which followed was readily controlled by pressure. Subsequently the arm became greatly swollen, the skin tense, and a number of large blisters appeared over the forearm. The radial pulse was absent. The X-ray showed the piece of steel,  $\frac{3}{8} \times \frac{1}{8}$  inch in size, just beneath the skin. Two days after the injury a 5 inch incision was made along the inner side of the biceps, and the brachial artery exposed at the upper angle of the

wound and compressed between the fingers of an assistant. The vessel was then traced downwards until the wound in its walls was found. The piece of steel was removed with the mass of clots which surrounded the artery. The wound in the artery was transverse and involved half of its circumference. One of the brachial veins had been severed, but was closed by agglutination of its walls the result of compression. After ligating the vein the arterial wound was sutured with through and through sutures of fine silk, which controlled the bleeding but also dangerously narrowed the lumen of the artery. The injured segment of the artery was therefore resected and an end-to-end anastomosis performed by the Murphy method. This necessitated flexion of the elbow, in which position the arm was dressed on an internal angular splint. The radial pulse had disappeared the following day, although very feeble. The wound was not drained, and primary union occurred. Two months after operation the forearm could be almost completely extended, the radial pulse was as strong as on the sound side, and there was some neuralgic pain along the course of the median nerve.

CASE 2.—J. M., aged 32 years, was admitted to the Germantown Hospital, May 22, 1906, with a bullet wound on the inner side of the right arm just below the axilla. The following day the arm was greatly swollen and the radial pulse absent. The artery was exposed and compressed as in the preceding case, and a lacerated wound involving three-fourths of the circumference of the vessel found. As approximation of this wound obliterated the lumen of the vessel, the injured portion was resected, and the ends united with silk sutures passing through all the coats. After turning on the circulation a few additional sutures were applied to control the oozing. The wound was closed without drainage and healed by first intention. A feeble radial pulse could be felt immediately after the operation and this increased in strength from day to day. The bullet could not be found at the operation nor could it be shown by an X-ray plate.

Dr. Stewart said further that in addition to the above cases 8 others had been reported in which circular arteriorrhaphy had been performed for accidental wounds (1897, Murphy, Djemil Pacha, two cases; 1899, Kümmel, Krause; 1902, Fergusson; 1904, Delanglade; 1906, Brougham), not including cases of

aneurysm. Of these 10 cases the axillary artery was involved in 3, the brachial in 2, the radial and ulnar (same patient) in 1, the femoral in 3, and the popliteal in 1. In 3 the wound was caused by a bullet, in 1 by a piece of steel, in 1 by a stab wound, and in 5 the vessel was accidentally opened during a surgical operation. The largest amount of vessel resected was 2 inches (femoral). In 7 cases the vessel was united with silk; in 3 the suture material was not mentioned. The Murphy method was employed in 8 cases and simple approximation in 2. In 5 cases the peripheral pulse could be felt at the close of the operation and in 5 it was absent immediately after the operation. Infection occurred in at least 3 cases and gangrene in 2 (femoral and popliteal). In no case was secondary hemorrhage or aneurysm reported.

At the present day ligation is contraindicated for a clean wound of a large artery. Unfortunately in the very cases in which arteriorrhaphy for wounds is most strongly indicated, *i.e.*, in those with chronic arteritis, in whom the danger of gangrene after ligation is much increased, the sutures are apt to tear out during the operation or thrombosis is likely to occur subsequently. Even in these cases, however, he believed arteriorrhaphy should be tried, since when one considers the probability of section of the vessel by a ligature, the dangers of suture are at least no greater than ligation, and in the event of thrombosis the patient is no worse off than after the application of a ligature; indeed if the thrombus forms slowly the collateral vessels may sufficiently dilate to prevent gangrene in the affected part.

DR. JOHN H. GIBBON thought that in Dr. Stewart's first case a prompt clot had formed at the site of anastomosis. This is indicated by the disappearance of the radial pulse before the patient left the operating table, and its gradual reappearance would indicate the establishment of collateral circulation. In this case the invagination method was employed which is now recognized as being faulty, because there is not a close contact between the intima of the two portions of the divided vessel. In Dr. Stewart's second case he did an end-to-end anastomosis with a close approximation of intima, and there was evidently no obstruction after the operation. Dr. Gibbon believes with Dr. Stewart that arteriorrhaphy is to be preferred to ligation wherever possible.

DR. STEWART thought Dr. Gibbon's criticism was correct, and that thrombosis must have occurred in the first case. In his

report he simply classed the cases according to whether the pulse was or was not present immediately after operation. Although his report shows that 8 of the 10 cases were done by the Murphy method, Dr. Stewart thinks there can be no doubt that the simple approximation, or the Carrel circular arteriorrhaphy is to be chosen by all means. He was at first going to say that he did his second case by the Carrel method, but was afraid Carrel might object as the edges were slightly inverted instead of everted, and he did not use the guide sutures of that surgeon.

Dr. Stewart thinks that the Murphy method is little used at the present day, although it was the pioneer one and paved the way for the progress which has been made along this line.

#### GUNSHOT INJURY OF THE LEFT HYPOGLOSSAL NERVE.

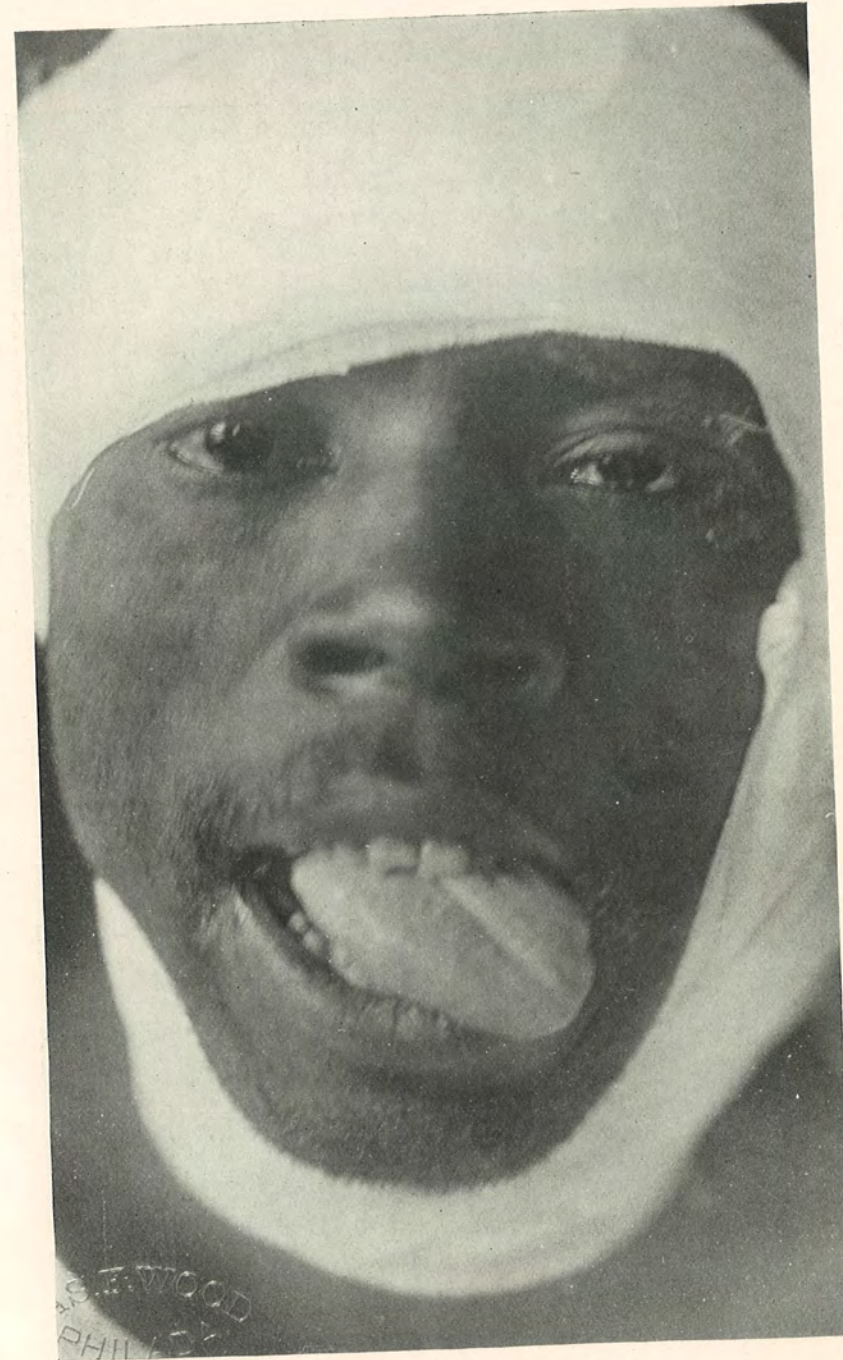
DR. JOHN B. ROBERTS reported this case, as follows:

A man was admitted to the Polyclinic Hospital on the 28th of March, 1907, with a gunshot wound of the left cheek over the ramus of the lower jaw. The point of entrance was about three-quarters of an inch below and about three-quarters of an inch in front of the lower edge of the lobe of the ear. The tongue when protruded pointed very much to the left (Fig. 1), showing that the hypoglossal nerve was paralyzed. The left side of the man's face was covered with sweat, and the left pupil slightly dilated suggesting irritation of the sympathetic nerve.

Dr. William G. Spiller examined the patient two days after his admission and supplied the following notes:

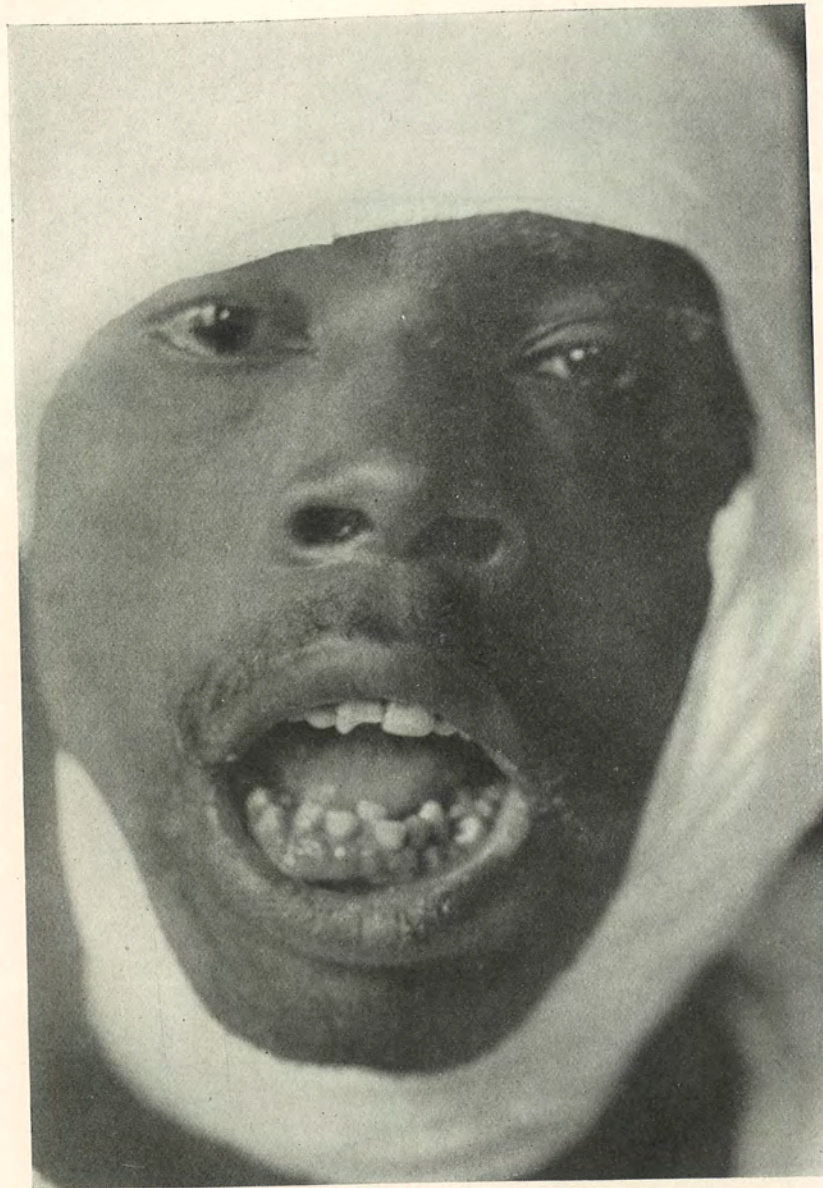
The left facial nerve is very paretic but not completely paralyzed. The upper branch of the nerve has probably escaped injury. The man can nearly close the lids of the left eye. The left side of the tongue is completely paralyzed. The organ while in the mouth deviates to the right, but is greatly deviated to the left when protruded. He is unable to move the tongue to the left, except a very little beyond the median line, unless it is protruded. This shows injury to the hypoglossal nerve. The soft palate is moved well on both sides when he says "Ah!" and is not paralyzed. He swallows fluids without difficulty when he is sitting up. The pneumogastric and glossopharyngeal nerves have probably escaped injury. The sympathetic has been injured.

He sweats profusely on the left side of the face. The sweating also extends down to the upper part of the shoulder and upper



Gunshot section of left hypoglossal nerve.

FIG. 2.



Gunshot injury of left hypoglossal nerve.

part of the left arm. The right side of the face is dry. The jaw is not deviated when his mouth is open (Fig. 2). The masseter muscles contract well on both sides. Sensations of touch and pain are normal on both sides of the face. Salt and sugar are both well tasted on the left side of the tongue. The grasp of the hands and the power of the legs are normal. There are no symptoms of involvement of the brain.

The left pupil is slightly dilated but seems to react to light.

On April 3d, after locating the bullet by means of two X-ray pictures, Dr. Roberts operated for extraction of the missile. The wound in the cheek was suppurating, though it had been packed with iodoform gauze. The probe showed that the bullet had gone through the ramus of the mandible a short distance below the sigmoid notch. An incision was made around the angle of the jaw and the parotid gland pushed forward. By burrowing with a finger he was able to get behind the pharynx and explore the region in front of the first and second cervical vertebræ. He could feel distinctly the transverse portion of the first vertebra and with some manipulation was able to discover what seemed to be a foreign body, which was slightly movable, to the inner side of the mastoid process in front of the second cervical vertebra. A porcelain tipped probe being introduced proved this to be lead. With forceps such as are used for cleft palate operations he was able to extract the ball. He then found that it had lain in a depression in front of the spinal column and that there were some small fragments of bone there. It is possible that these were pieces carried in from the perforation of the mandible. The space in which the ball lay was either the normal space between the first and second transverse processes or was a depression made by the bullet in the body of the second vertebra. The depth of the wound made it impossible to definitely determine whether the hypoglossal nerve at this point was actually divided, though it probably was cut close to the base of the skull. No attempt was made to suture it because of the danger of operating in such a region. The patient's favorable condition and the known rather unimportant results of hypoglossal injury were not such as to warrant interference.

When the man was admitted there was a good deal of difficulty in swallowing from want of control of the saliva; but at the time the operation was done he had gained fair control of

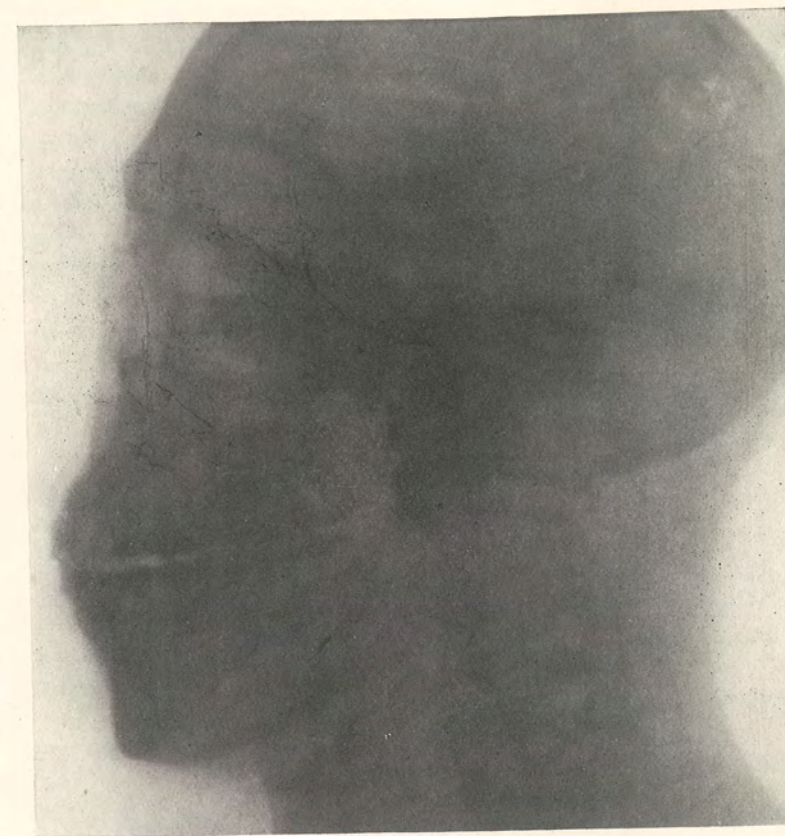
these functions and the removal of the bullet seemed to be all that was indicated. The wound was treated by inserting a drainage-tube and packing.

The patient did well for a number of days. He had practically a normal temperature after a slight rise immediately subsequent to operation. On April 6th his temperature went up a little. On the 8th some moist râles in the upper part of the left lung could be heard. He complained of cough which had bothered him for about a day. The drainage-tube was withdrawn and the wound dilated, which evacuated a little fluid, and orders were given to wash the wound out with sterile salt solution twice a day. The drainage-tube was not returned, but the packing was continued. The next day his respiration was practically normal and the lung condition seemed to be better. His cough had been controlled apparently by occasional doses of five grains of ammonium carbonate and a sixteenth of a grain of codeine sulphate. The patient had been allowed for several days to sit up in bed and was advised to lie particularly on his left side to facilitate drainage.

Later sonorous râles were heard in the posterior part of the right chest. There was some tenderness on percussion of the left chest near the posterior edge of the left scapula, and a loss of resonance at the upper part of the right chest posteriorly. The gums were spongy, though no mercury had been taken to cause it. It was thought that possibly the bloody tinge of the expectoration might have come from this gingival condition. Bacteriological examination of the sputum showed the presence of pneumococcus, staphylococcus pyogenes aureus and bacillus proteus vulgaris. Urinary examination showed nothing abnormal. The temperature for a few days previous to this time and also at this time varied from  $100^{\circ}$  to  $102^{\circ}$ ; the respirations from 24 to 28; the pulse from 90 to 100.

An examination of the chest made later by Dr. David Riesman showed that there was impaired resonance on the right side at the fourth and fifth interspaces over a limited area reaching to the axilla. Here crackling râles were heard with feeble breath-sounds and diminished fremitus. There was some pain in this region. The patient had had no chill and no night sweats, but was rapidly losing flesh. No tubercle bacilli were found in the sputum. His red blood cells were 2,150,000; white blood cells

FIG. 3.



Case of gunshot wound of the left hypoglossal nerve.



26,200; hæmoglobin 85 per cent. The man was emaciated and weak, had a troublesome cough, and his throat seemed a good deal filled up with mucus. There was very little discharge from the original wound or the incision made for the extraction of the bullet. At the end of the month further operation was suggested to explore the wound and to facilitate drainage, but the man declined to submit. By the 7th of May he was very much better and walking around the ward. On the 12th of May he left the hospital without permission, considering himself well enough to go.

In July Dr. Roberts heard that the patient had been admitted to the tuberculosis wards of the Philadelphia General Hospital under the care of Dr. Ward Brinton. Dr. Brinton stated that tubercle bacilli had been found in the feces, but not in the sputum. There was, however, extensive pulmonary involvement. A few days later the patient died. The wounds in the neck and face had become healed. The Resident Physician, Dr. William Shields, had informed him the case was first thought to be one of gangrene of the lungs on account of the odor of the sputum. Tubercle bacilli were not found in the sputum nor was the streptothrix. At the autopsy six slides were taken from a cavity in the right lung and stained for tubercle bacilli but none were found.

The pathological diagnosis made was tuberculous bronchopneumonia. The pathologist was of the opinion that the gunshot wound of the neck involving the hypoglossal nerve had nothing to do with the lung condition.

The further notes of the autopsy, furnished by Dr. Shields, are as follows:

Right pleura firmly adherent from apex to base in midaxillary line. Slight adhesions of the left pleura in the region of the first and second ribs. The pericardium contained 60 c.c. of straw-colored fluid, and extended 7 cm. to right of midsternum. In the right pleural sac there were 300 c.c. of straw-colored fluid. Heart smaller than normal, but otherwise negative. Left lung slightly emphysematous and contained some oedematous fluid. Right lung was covered with thick pleura, both layers of which were firmly attached. Both lobes were firmly attached and showed tuberculous bronchopneumonia. The lower lobe contained three good-sized cavities in which was cheesy material. The two lower cavities communicate with a bronchus. The other organs show

nothing of importance. The diagnosis was tuberculous bronchopneumonia with chronic adhesive pleurisy.

Little doubt exists that in this case the hypoglossal nerve was divided. The dilated pupil and the unilateral sweating lead to the supposition that the sympathetic nerve was the seat of irritation. It is perhaps possible that the lids of the left eye suggested paresis of the facial nerve, when the real cause of their apparent loss of power was a slight protrusion of the eyeball due to sympathetic irritation. Division of the sympathetic would be expected to cause contraction of the pupil and sinking of the eyeball.

The location of the bullet in front of the second cervical vertebra near its transverse process on the left side corresponds with the upper part of the superior cervical ganglion of the sympathetic nerve. It is opposite this vertebra too that the hypoglossal nerve receives communicating branches from this sympathetic ganglion.

A missile dividing or destroying the hypoglossal nerve by pressure would be very likely to cause coincident irritation of the sympathetic ganglion in the same region. Had the patient lived, part of the spinal accessory nerve or the lingual branch of the trifacial nerve might have been transplanted into the distal part of the hypoglossal in order to restore motion to the left side of the tongue.

DR. JOHN H. JOPSON referred to a case of injury of the median nerve of a peculiar type which he had recently encountered. The man had been struck on the inner side of the arm by a piece of steel scale while driving a bolt through a piece of sheet steel. An X-ray photograph showed a very small piece of steel located in the neighborhood of the brachial artery. The patient complained at this time of tingling or electrical sensations in the ring and little finger, on the palmar surface, or in other words, in the distribution of the ulnar nerve. Dr. Jopson saw him several days later and had a second X-ray plate made, and localized this very small foreign body in its relation to the wound of entrance, which was the only localizing point that could be utilized, being situated at about the middle of the arm. By this time the sensory disturbances had disappeared to some extent, although the patient complained of them at times when he attempted to use the arm, and still in the distribution of the ulnar

nerve. There was slight tenderness over the site of the wound. On exposing the region where the foreign body had been localized a large nerve presented itself, and on examining it closely it seemed at one point to be a little swollen and injected. By probing with a pair of fine forceps Dr. Jopson found an opening in the nerve, and was able to remove the foreign body, which was deeply embedded and completely concealed in what proved to be the median nerve and not the ulnar. It was a thin scale, measuring 4 mm. in diameter. After the operation the patient had the same tingling sensations for 24 hours, but now in the distribution of the median nerve, that is, in the thumb, index and middle fingers, and not in the distribution of the ulnar nerve as formerly.

The reference of the pain to the distribution of the ulnar nerve, rather than to that of the median, was difficult to explain. The foreign body could not possibly have injured it, as the wound of entrance lay between the nerves.

DR. GEORGE M. DORRANCE said that he saw the case reported at the Polyclinic Hospital, and that he followed the patient from there to the Philadelphia Hospital, but lost track of him when his body was sent to the University. The report from the man who macerated the body was that the first cervical vertebra and part of the occipital bone was injured, and from his description of it one would imagine that the nerve was injured just as it came out from the anterior condyloid foramen. Therefore an operation would not have been of value, as it would have been impossible to reach the upper end of the nerve.