

ject to accelerate his heart-beat was not due to the calling up to his mind of any emotions or ideas which had a tendency to change his heart-beat (the word of the subject must of necessity be taken for this, as no experiment can prove it), nor to any movement of the regular voluntary muscles, nor to a change in breathing or blood-pressure, but was due simply and purely to an effort of the will directed upon the regulating mechanism of the heart.¹⁵

I here append, as a caution to those who are tempted to investigate for themselves this interesting subject, a translation of a letter which Prof. Tarchanoff wrote to the editor of *Die Archives für die Gesamte Physiologie* a short time after the appearance of his article:—

"It was very pleasant for me to learn that my work on the voluntary acceleration of the heart in man has been of such lively interest to you. This peculiar power is indeed remarkable, but unfortunately is very dangerous for those persons who have this gift, as I was unfortunately convinced in the case of Dr. Schlesinger. He could even double voluntarily the number of his heart-beats. But he now suffers from such a severe palpitation of the heart that he can no longer sleep quietly. Since I fear that the experiments made by me with Dr. Schlesinger may have caused these evil effects, I would ask other investigators to exercise the greatest caution in repeating my experiments.

SIMULTANEOUS LIGATURE OF COMMON CAROTID AND AXILLARY FOR ANEURISM OF INNOMINATE.

BY J. COLLINS WARREN, M.D.

REPORTED BY HARDY PHIPPEN,

Senior House-Officer, Massachusetts General Hospital.

G. S., fifty years of age, entered the Massachusetts General Hospital November 6, 1888. All his life he had been in good health, had had no venereal diseases, and had never been a heavy drinker.

Eight months before entrance he noticed, while at work, sharp pains running down the right arm. These increased rapidly in severity, disabling him from work.

Three months later he began to be troubled by a cough, with a bloody expectoration, soon followed by huskiness of the voice.

A prominence appeared in the region of the right clavicle six weeks before admission. This was at first slight, but soon became tender, and increased rapidly in size.

The patient, on admission to Dr. Whittier's ward, was apparently a healthy, well-nourished man. Physical examination showed nothing except a well-marked, rounded prominence extending from just inside of the right sterno-clavicular articulation, four inches outward, and about two inches above and one inch below the clavicle, which crossed the middle of the tumor. All parts of this swelling, especially the upper, were pulsating.

The right vocal cord on examination was seen to be paralyzed. The right pupil was contracted.

The pulsations in the two radial arteries were apparently synchronous and of equal strength. The cardiac area was somewhat enlarged. Treat-

¹⁵The figures used in this article are reproductions of photographs taken by Dr. H. P. Bowditch from the original tracings.

ment by rest, low diet, and iodide of potassium was tried for some time, but in spite of this no improvement followed.

Owing to the rapid increase in the size of the aneurism in spite of medical treatment, it was thought best to interfere by a surgical operation, which was performed by Dr. Warren on the 6th of December. On account of the situation of the swelling, it was thought impossible to tie the sub-clavian; accordingly an incision was made separating the two divisions of the pectoralis major in order to reach the axillary at its upper end. The pectoralis minor having been drawn down, the vessels were exposed.

A large vessel, supposed to be the axillary artery, was then tied with braided silk. The radial artery, however, continued to beat. Accordingly a second ligature was put on a much larger vessel a short distance higher up, and all pulsation of the radial ceased immediately. The aneurism was now found to be pulsating much less forcibly than before.

A ligature was next placed upon the common carotid, which was pulsating only very feebly.

Pulsation in the aneurism remained about the same as before ligature of the carotid.

Both wounds were dressed antiseptically.

The recovery was uninterrupted, the temperature at no time going above 99.4°.

By the sixth day after the operation the wounds were entirely healed.

A feeble pulse could be felt in the right radial three days after the operation. The aneurism was beating much more vigorously than immediately after the ligature.

In spite of a return to medical treatment all the symptoms rapidly increased, the radial pulse soon becoming as strong as before, and the aneurism becoming much larger.

A distinct independent pulsation in the scar of the axillary incision appeared by the 15th of January.

A month later the prominence was still greater; the pain had become very severe, and was relieved by frequent doses of morphine. The surface soon became reddened, the prominence extending almost to the ear. The swelling in the scar was now much more prominent than ever.

On the 14th of March the aneurism burst near the right ear, with almost immediate death.

At the autopsy it was found that the arch of the aorta was dilated to the size of a lemon, the walls being infiltrated with lime salts and in places thickened and fibrous.

From the anterior wall of the innominate artery, just at its bifurcation, arose an aneurismal sac, nearly as large as the two fists, extending into the cervical region, and lying anteriorly to the sub-clavian. The opening into this sac was not more than three-fourths of an inch in diameter and sharply defined.

A second independent sac was found communicating with the axillary artery just beyond the clavicle. This was about the size of a lemon. The opening into the vessel was small and was evidently at the point of ligature.

The axillary beyond this point was pervious. The right carotid artery was found collapsed and empty below the ligature. Its walls were slightly

adherent to one another, but could be separated by a probe. The ligature was still found upon the wall. The distal portion of the vessel was found occluded by a red thrombus.

The clavicle, first rib, and sternum were intimately connected with the wall of the aneurism, with a moderate degree of erosion of all, especially of the sternum.

REMARKS BY DR. WARREN.

The narrow neck of the aneurism situated at the bifurcation of the subclavian and innominate seemed to offer special advantages for the operation of simultaneous ligature of the carotid and subclavian, but the position of the sac beneath the clavicle would have made it impossible to reach the subclavian at the date of the operation even had it been known that this vessel was not involved. The reappearance of pulsation in the radial a few days after the operation was probably due to collateral circulation, the aneurismal dilatation at the point of ligature of the axillary not showing itself until many weeks later. Unfortunately, the carotid was injured in removal. This artery would otherwise have afforded an admirable specimen of the process of repair three months after ligature. The ligature of this vessel did not materially affect the pulsations in the aneurism, as the sac, pressing firmly against that vessel, had already greatly diminished the circulation in it. Although in this operation asepsis had been complete, it is worth noting that a thrombus of considerable size existed in the distal portion of the vessel. The ligature, a silk one, was still to be seen encircling the vessel, although the thread was very friable. The presence or absence of a callous was not noted, but I saw no sign of one at the point of ligature, absorption of the slight callous which probably existed having taken place some time previously.

CASES OF LAPAROTOMY FOR ACCIDENTS OCCURRING IN THE REDUCTION OF HERNIA.¹

BY A. T. CABOT, A.M., M.D.

In a paper read about a year ago I reported cases illustrating some of the accidents which may attend the return of a strangulated loop of bowel to the abdominal cavity, and pointed out the importance of at once performing laparotomy when serious symptoms follow or persist after the reduction of a hernia.

During the past summer I have had two cases which still further emphasize the importance of this practice, and which I will briefly report.

CASE I. Patrick H., aged about sixty, entered the Massachusetts General Hospital with the following history.

The patient had suffered many years with a right femoral hernia which he had always been able to reduce himself. Two days before entrance at the hospital the hernia came down, and his efforts to reduce it that day were unavailing. During that night he had a good deal of pain, and the following day, after several unsuccessful and rather violent attempts, he finally succeeded in returning the hernia to the abdomen. He was at once seized with

¹ Read before the Boston Society for Medical Improvement, March 25, 1889.

abdominal pain, much more severe than what he had felt previously, and this persisted up to the time of entrance.

When he arrived at the hospital, twenty-four hours after the reduction of the hernia, he was in a much collapsed condition, with pinched, gray face and anxious expression. He had no severe vomiting, but occasionally gulped up a little bitter fluid. He was suffering much general pain through the abdomen, which was considerably distended, tympanitic, and universally sensitive to pressure. His pulse was rapid, irregular, and thready, and his respirations were forty in the minute. There was no tumor at the site of the old hernia.

The diagnosis made was of rupture of the intestine during efforts at reduction, and a consequent general peritonitis. Laparotomy was advised as a last attempt to save his life. This was agreed to and at once carried out.

The incision was made directly upwards from over the sac on to the abdominal wall. The sac was found empty and the peritoneum was quickly opened up. At once there was an escape of much fluid, containing great clumps and masses of purulent fibrin, but having no fecal or unpleasant odor.

The patient did not bear the ether well, and although but a few minutes had been occupied, he was becoming rapidly more and more collapsed.

Under these circumstances it was thought unwise to prolong the operation by hunting for a perforation, which, from the absence of fecal constituents or odor in the effused fluid, was presumably small.

The abdomen was irrigated with hot water, which washed up several handfuls of clotted and purulent fibrin from the pelvic cavity. A large drainage tube was introduced to the bottom of the pelvis, and the wound was closed.

In spite of every effort to overcome the condition of collapse, the patient did not rally, and died about three hours after the operation.

A partial autopsy was allowed. After a long search a minute perforation was found in a little congested coil of small intestine which lay at the bottom of the pelvis. The purple color of this bit of intestine showed that it was the part which had lain in the hernial sac, and the opening was so placed that the drainage-tube might have been expected to have furnished a sufficient outlet for any intestinal contents subsequently escaping, had the patient rallied from the collapsed state into which he had fallen.

This case is a good illustration of the rapidity with which a fatal issue may follow peritoneal injury and inflammation. The intestinal lesion was of a kind that could have probably been remedied, had the operation been reached at a time when the patient still retained a fair degree of strength. The result shows that in these cases a delay even of a few hours may change a remediable condition into a fatal one.

This patient is also an example of the bad effects of violent and ill-advised efforts at taxis even in a reducible hernia.

CASE II. Undescended testicle with left inguinal hernia: reduction *en bloc*; laparotomy; recovery.

Charles R., aged twenty-seven, entered the Mas-