Operation and Result.—An operation was performed by Major James F. Percy, chief of the surgical service, and Major T. E. Bailey. A median line incision was first made through the abdomen, but it was found impossible to reduce the stomach through this route. The stomach was adherent to the diaphragm and to surrounding structures. A second incision was made into the thorax, and the sixth and seventh ribs were resected. Two thirds of the stomach was found to be in the thoracic cavity, and was adherent to the pericardium. The adhesions were quickly separated, and the stomach reduced with considerable difficulty through a large opening in the posterior part of the diaphragm to which the stomach was adherent. The hole in the diaphragm was then closed, and the stomach now occupied a normal position in the abdomen. Forty-eight hours later the patient was smoking a cigaret and apparently comfortable.

Three weeks later the patient's condition was so improved that he was again sent to the roentgen-ray department. The stomach was apparently normal in position and outline. Peristalsis was regular and the pyloric cap visualized (Fig. 6.) The prognosis for a complete recovery is excellent.

PUNCTURED WOUND OF THE EXTERNAL ILIAC ARTERY WITH SUCCESSFUL TYING OF THE VESSEL

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History.—L. S., aged 15, white, schoolboy, was thrown, Feb. 22, 1919, from a load of straw and fell on a three-prong pitchfork. His father, aged 40, was living and healthy. His mother died at the age of 35 of pulmonary tuberculosis. There were two brothers living, 6 and 10 years old, respectively, both healthy. One brother died in infancy. There were no sisters. He had not had any diseases except scarlet fever. He had always been healthy.

I reached the patient twenty minutes after the accident. He was entirely pulseless at the radial and temporal arteries. The heart sounds were indistinct. Respiration was 8; the skin was cold and covered with clammy sweat. The pupils were dilated and responded slowly to light. His mind was clear and he was thoroughly conscious. There was one lacerated wound over the pubic bones 3 inches long, through the skin to the bones. There was a punctured wound half way between the symphysis pubis and the anterior superior spine of the ilium. There was another punctured wound on the outside of the right anterior superior spine of the ilium through the skin to the bone and down along the outside of the bone 1 inch deep.

Preoperative Treatment.—The feet of the patient were elevated. Hot coffee enemas were given, one twelfth grain of morphin was given hypodermically, and 30 drops of aromatic spirit of ammonia in water were given every fifteen minutes for four doses. Absolute quiet was instituted. In two hours he said he felt better. The temporal pulse was 140; the radial pulse was wanting. He was then brought to the emergency hospital on the cot on which he was found and one-twelfth grain of morphin and $\frac{1}{150}$ grain of atropin were given hypodermically. The patient was carried to the operating room half an hour later. Anesthesia was begun at 3:10 p. m. The temporal pulse was 140. The operative area was washed with alcohol followed by ether and painted with iodin.

Operation.—This was begun at 3:25 p. m. The temporal pulse was 110. The operation was completed at 4:15 p. m. The radial pulse was 146. The lacerated wound over the pubic bone was sutured. The punctured wound on the outside of the pelvis was opened at the lower end, and a gauze through and through drain was put in. Incision was made at the edge of the right rectus. As soon as the rectus muscle was pushed aside, it was seen that black, clotted blood had infiltrated the peritoneum and all the tissues. Black, clotted blood was between the serous and the muscular coats of the bladder and the intestine, particularly the cecum, which was as black as the bladder. There was free clotted blood at the lower point of the right kidney. At least a pint of clots was removed from this point. There was no free blood within the peritoneal cavity. No perforation in the intestine could be found. After the intestine was pushed aside, there was a gush of bright red blood into the field. I seized the right common iliac artery with the thumb and forefinger of the left hand. The anesthetist said: "One more like that and he will be dead." The incision was enlarged. The field was packed off and the external iliac artery was brought into view. I lessened the pressure on the common iliac and bright red blood rushed from a little hole not larger than the lead in an ordinary lead pencil in the front and about the middle of the external iliac. I tightened my grasp on the common iliac. All the blood was sponged out and the hole was plainly visible in the external iliac. Hemostatic forceps were put on the external iliac artery, one on each side of the hole, and the grasp on the common iliac was released. The hemorrhage was controlled. It was just 4 o'clock when the clamps were applied. The clamp on the cardiac side moved on each pulsation of the heart. A silk ligature was put around the artery on the cardiac side of the clamp and one on the distal side of the other clamp. A cigaret drain was put at the lower end of the right kidney, one down in the pelvis behind the bladder, and one under the cecum. These were brought out of the abdominal incision and the wounds closed to the drains and the two hemostatic forceps that were left in situ. It was impossible to close the peritoneum because it was so infiltrated with blood as to make it so friable that the stitches would not hold. The aponeuroses were drawn together with twenty-day chromicized No. 3 catgut and the skin was sutured with silkworm gut. The patient left the operating table at 4:15. During the operation Dr. W. T. Hammond, with the assistance of a nurse, gave by infusion 1,000 c.c. of physiologic sodium chlorid solution and constantly administered oxygen with ether. He gave the anesthetic and conducted that part of the operation that kept the patient alive during the operating work.

Clinical Course.—The patient was sent to his room with a radial pulse of 146 and a respiration of 30. An immunizing dose of tetanus antitoxin was given as soon as he became conscious after the anesthesia. The right leg became purple and enlarged in size. Pulsations were first felt in the posterior tibial artery at 6:10, two hours and ten minutes after the external iliac was fastened with the hemostatic forceps. The right leg immediately commenced to become normal and in a few hours was the same color and the same size as before the accident. When the patient was first sent to his room, his head was lowered and proctoclysis with physiologic sodium chlorid solution by the drip method was begun. After regaining consciousness the patient complained of great thirst and was given water. The next day he took and retained broths, soft eggs and milk. The hemostatic forceps were removed on the fourth day and the drains were started on the fifth day and were entirely removed on the eighth day, to be replaced by smaller ones. As soon as his condition allowed it he was placed in Fowler's position. There was very little draining the first three days, but profuse draining after that. Whenever his temperature and pulse would go high, a Kelly clamp passed in the wound would drop down behind the bladder and a profuse discharge of pus would follow the withdrawal of the clamp. The patient made an uneventful recovery and left the hospital, April 5, 1919, still draining but with not retention enough to cause any rise of temperature.

The patient reported to my office May 17 and again June 2, walking well. He said he was all right and felt fine. The abdominal wound was entirely healed at the time of the visit, May 17.

COMMENT

My only other experience in tying the external iliac artery was when I was in von Bergman's clinic. I saw him tie the external iliac for a traumatic aneurysm of the femoral caused by sheep-shears puncturing this vessel. In this case it was one hour and ten minutes before collateral circulation was established, the difference being due to the fact that his patient was in perfect health and my patient was in collapse from hemorrhage.