# TRANSACTIONS

OF THE

# PHILADELPHIA ACADEMY OF SURGERY

STATED MEETING HELD JANUARY 16, 1928

The President, Dr. Charles F. Mitchell, in the Chair

Calvin M. Smyth, Jr., M.D., Recorder

## REMOVAL OF BRAIN TUMORS

Dr. Francis C. Grant presented two patients from the neuro-surgical clinic of Dr. Charles H. Frazier.

These patients were presented to emphasize the good results which may be obtained following accurate localization and complete extirpation of certain types of these lesions. Encapsulated brain tumors arising from the cerebral envelopes, the meningiomata, present two chief difficulties to the neuro-surgeon: first, an exact determination of the position of the neoplasm from clinical and other evidence, which, as will be seen from a consideration of the following case histories, may be extremely meagre; secondly, proper access to the growth and the control of hemorrhage during its removal.

To properly localize the growth requires a detailed history, the closest search for positive neurological symptoms by the varied means at our disposal, X-ray studies, and finally recourse may often be necessary to ventricular estimation or ventriculography. Whether or not a proper exposure of the tumor can be obtained depends to some extent upon its position, although there are few areas on the surface of the brain which cannot be explored. The degree of hemorrhage encountered varies with the vascularity of the growth, its position and the degree of obstruction it has produced in neighboring blood-vessels. Control of hemorrhage depends upon the skill and preparedness of the individual operator and his experience in handling such problems. Multiple operations may be necessary to remove a very vascular meningioma, progressing a little farther at each attempt until complete removal without too severe hemorrhage has been accomplished. Fresh muscle, silver clips, hot wet cotton tampons, bone-wax, a suction apparatus, and patience will go far in carrying through successfully the extirpation of even very vascular tumors. And if a meningioma is completely extirpated along with its dural attachment, the patient can be assured that no recurrence will occur.

Case I.—*Extirpation of a large right frontal meningioma arising from the falx at the longitudinal sinus and involving the dura over the superior surface of the frontal cortex. Operative recovery.* M. L., a barber, forty-two years of age, white, was referred to the University Hospital on June 23, 1925, by Dr. Clarence Patten. His chief complaint was failing vision. A year previously he first noted failing vision. Ten weeks ago he found he could no longer read. Since that time his vision has continued to decrease

progressively until at present he has barely light perception. There has never been any headache, vomiting, dizziness, or motor or sensory loss noted. He does not believe that his senses of hearing, taste or smell have been in any way disturbed. There have been no dispositional changes. His past medical, family, and social history are unessential. The important points in his neurological examination were slight weakness of left face and hand, a bitemporal hemianopsia with a choking of three diopters in the right eye and two diopters in the left. X-ray studies showed a localized thickening of the frontal bones in the midline, with destruction of the outlines of the sella and the clinoid processes. *Diagnosis.*—Right frontal meningioma arising from the falx low down in front and pressing upon the optic chiasm and sella regions from above.

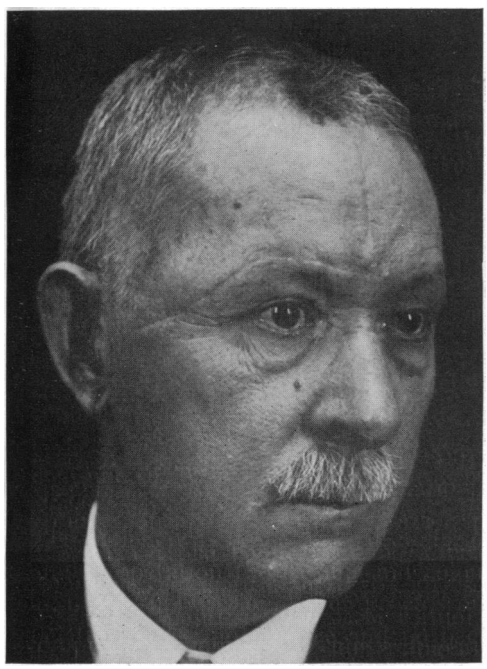

FIG. 1.—Photograph of patient Case I, showing scar.

*Operation.*—Doctor Grant on July 1, 1925, performed a right transfrontal craniotomy under local anæsthesia. Free bleeding occurred from the midline incision. The bone at about the hairline was thick and vascular, corresponding with the X-ray findings. The hemorrhage was controlled with bone-wax and hot wet tampons. Except for this bleeding the flap was reflected without particular difficulty. A steady continuous ooze was encountered from the dura near the midline. To combat this a section of muscle had been removed from the patient's leg. Placing a flat graft of muscle over the bleeding area and sucking a wet cotton compress down over it, plus light compression from an assistant's fingers, controlled this bleeding. On reflecting the dura from below upward, the edge of a large encapsulated nodular growth came into view. By cutting the dura close around its lateral margin its outline could readily be determined. The dura in the lower part of the flap was left intact to protect the cortex during the manipulations necessary to remove the tumor. Many large veins running from the cortex to the tumor were doubly clipped and sectioned. Light pressure with cotton tampons over the brain showed that the growth had been freed from its lateral cortical attachments and could be tilted inward toward the midline. By working inside the pial covering of the tumor it was possible to brush from its surface a number of large vessels which were holding it in place. Several fine sutures were now passed through the lateral dural edge of the tumor and by gentle traction on these threads, plus light pressure on the brain, it was possible to tilt the growth upward and inward toward the midline with little or no hemorrhage. A large wet cotton tampon was placed in the tumor bed. The most difficult part of the extirpation was now commenced; namely, the freeing of the growth from its attachment to the falx. By working carefully from either side and clipping and cutting the vessels running from the sinus and finally the

sinus itself this was finally accomplished. A section of the sinus and a small area of the falx from which the tumor sprang were removed and the growth and its meningeal attachments lifted out. A muscle graft was placed in the tumor bed against the falx, covered with cotton and sucked down solidly against this area. After complete toilet of the outlying wound the cotton and graft was removed. Pressure over the jugulars to raise intracranial tension and reveal bleeding points produced no bleeding and showed that the hæmostasis was complete. But a thin muscle graft was left as a precaution over the sinus area. The dura was closed up to the section removed, the bone flap replaced, and the wound sutured. The patient was entirely conscious and coöperative throughout this procedure. His post-operative condition was good; his recovery uneventful. At present with proper glasses he can read the newspaper and is without symptoms. [Fig. 1.]

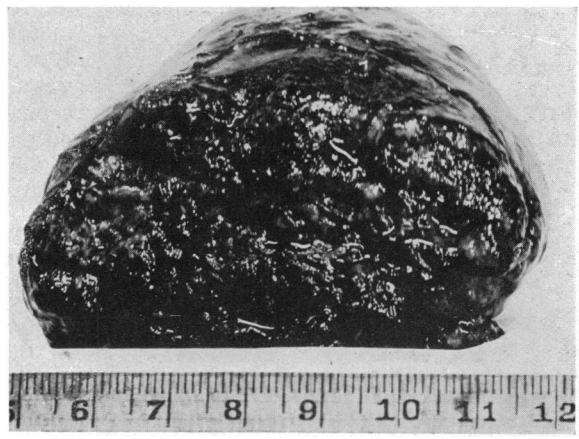


FIG. 2.—Photograph of tumor removed from Case I.

*Pathological Report* by Dr. Albert Bothe.—The tumor is 6.5 x 6.5 x 5 cm. in size and weighs 175 grams. Grossly it is encapsulated, nodular, firm, and attached to the dura and falx. Microscopically it shows the typical structure and cell type of a meningioma. [Fig. 2.]

CASE II.—*Ventricular estimation followed by right fronto-temporal bone flap, revealing a meningioma arising from the dura in this region. Extirpation of tumor. Recovery.* A. F., a white chauffeur, aged twenty-seven, was referred to the University Hospital on November 27, 1926, by Dr. Samuel Leopold and studied first on the Neurological Service of Dr. William G. Spiller. His chief complaint was failing vision. About eight weeks ago he noticed occipital headaches and failing vision. These headaches came on in the middle of the day, and lasted about two hours. They occurred at intervals of from three to five days with increasing frequency and longer duration until now they are continuous. At the same time his vision began to fail. At present he can read only coarse print. He states that he can see better out of the right side of his eyes. He believes that his memory has been failing for the past year or two. He has had especial difficulty in remembering and grasping the meaning of written matter. There has been a tendency to fall asleep easily. Past medical, family, and social history unessential.

*Neurological Examination.*—On the first examination the essential features were suboccipital tenderness and headache, suggestively cerebellar gait, ataxia with the left hand in the finger to nose test and coarse tremor in the movements of this hand. No pathological reflexes. A choked disc of four diopters in each eye with concentric contraction of the visual fields was recorded. X-ray studies were negative. An immediate ventriculogram was suggested, but Doctor Spiller thought that he should be kept under further observation. Dehydration by magnesium sulphate was instituted to relieve the pressure upon the optic nerves. After two weeks the following additional

symptoms made their appearance. The headache localized definitely over the right ear, weakness in the left face and hand developed and the memory defect became more pronounced. Impression: Right frontal lobe tumor

*Operation.*—November 29, 1926, Doctor Grant. As the operator was not entirely convinced that the symptoms could not be due to a cerebellar lesion, it was determined to carry through a ventricular estimation before reflecting a right temporo-frontal flap. Accordingly under local anæsthesia a midline incision which could be used later in forming such a flap was made. It was impossible to reach either ventricle. Since an internal hydrocephalus did not exist, the presence of a cerebellar tumor seemed highly improbable. The right fronto-temporal flap was, therefore, reflected without difficulty other than rather severe bleeding from the bone in the midline anteriorly. On raising the flap the dura was tight and tense with two or three points of furious bleeding in the upper anterior area of the incision. These were controlled with muscle grafts taken from the patient's leg. The dura was then opened and the edge of a vascular well-encapsulated tumor lying just in front of the Rolandic vein in the upper antero-median part of the wound was exposed. By careful clipping of vessels running from the cortex to the tumor it was possible to completely free that part of the dura to which the tumor was attached and to sever all vascular connections between the tumor and the cortex. Fortunately the tumor arose from the dura involving the flax so that it was not necessary to ligate the sinus. By making gentle pressure with cotton tampons against the brain about the edge of the tumor, and by brushing off the pia and its vessels from the tumor it was possible to commence its enucleation with very little bleeding. However, since the anæsthetist reported a marked fall in blood pressure he was given an immediate transfusion of 500 c.c. of blood. In the meantime having passed traction sutures through the tumor, gentle tension on them plus light pressure on the brain was continued and the delivery of the mass slowly completed. Several blood-vessels running from the depths of the brain to the tumor required clipping but the growth was finally freed and lifted from its bed without difficulty. A little sharp bleeding accompanied its final removal which was controlled by muscle and cotton placed in the cavity and sucked tight against the bleeding points. Following the transfusion the patient's condition greatly improved. After toilet of the wound, the cotton and muscle were removed from the tumor bed and two small bleeding points picked up in the sucker nozzle and clipped. This completed the hæmostasis in the cavity. Pressure over the jugulars by the anæsthetist caused no further bleeding. The tumor bed was filled with salt solution, and the dura reflected from the posterior part of the flap to cover in the area from which the mass had been removed. After inspection and assurance that the wound was dry, the bone

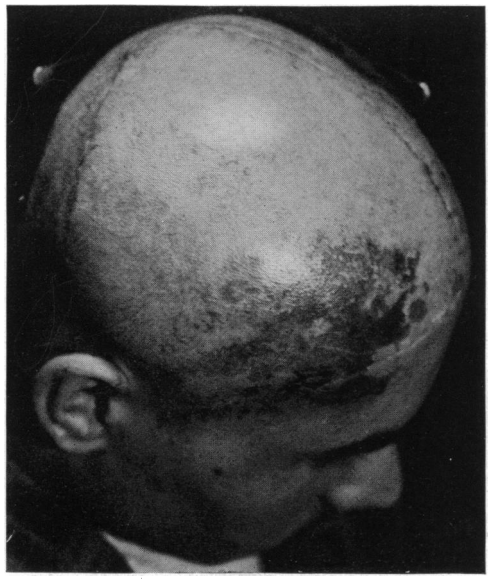

FIG. 3.—Photograph post-operatively of patient Case II.

flap was replaced. Grossly there was no evidence of involvement of the bone by the tumor so that this was considered proper. The galea and skin were sutured as usual in layers. The patient's condition on leaving the table was satisfactory. He received no ether at any time. The post-operative convalescence was uneventful. He is at present, January 20, 1928, in perfect health and working at his trade. [Fig. 3.]

*Pathological Report.*—Dr. N. Winkelman, Philadelphia General Hospital. On removal the tumor weighed 150–160 grams. The dimensions were 5.5 x 5.5 x 4.5 cm. It is encapsulated firm, nodular and reddish in color. A section of dura 4 x 3.5 cm. is firmly attached to the tumor. Microscopically, in cell type, arrangement, and staining reactions, the tumor shows all the characteristics of a meningioma. [Fig. 4.]

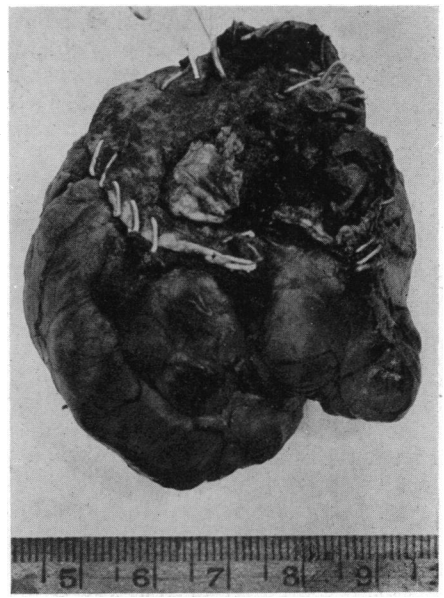

FIG. 4.—View of tumor removed from Case II.

## CHANCRE COMPLICATING LACERATION OF HAND

DR. HUBLEY R. OWEN presented a patient, a police officer, who had been bitten on the hand by a prisoner. The wound proved unusually intractable and dark field examination demonstrated the spirochæta pallida. The blood Wassermann was plus four. The patient received vigorous antiluetic treatment and at present shows only a scar. Doctor Owen remarked that while chancre was undoubtedly an uncommon complication of such injuries, it had occurred in the experience of many surgeons.

## ACUTE SIGMOIDITIS

DR. E. L. ELIASON presented a patient, a man, age sixty-one, admitted to the University Hospital, May 5, 1927, with the chief complaint of pain in the lower abdomen. This pain was increased on defecation and urination. The present illness began forty-eight hours before admission with pain in the abdomen, followed by nausea and vomiting. There was pain in the rectum on defecation and pain and tenesmus on urination. Physical examination revealed tenderness in the right lower quadrant of the abdomen. There was no rigidity nor palpable masses. The anterior wall of the rectum was tender by digital examination. The white cell count was 24,000 and the urine was negative. On admission the temperature was 100, the pulse was 96 and the respirations were 20.

A diagnosis of acute appendicitis was made, and the patient was operated upon immediately. The abdomen was filled with cloudy fluid and an acutely inflamed appendix was found lying in the pelvis and was removed through a right gridiron incision. The appendix, though inflamed and covered with lymph, was not the picture of a primary appendicitis of sufficient severity to be responsible for the peritoneal condition. Search was further made for the trouble. Through this opening, a mass could be palpated in the pelvis, and

an exploratory midline incision was made revealing a sausage-shaped mass, involving about three inches of the sigmoid colon. The walls of the gut were thick, beefy and œdematous and covered with lymph. The mass was evidently inflammatory in character, possibly secondary to a diverticulitis, obstructing the lumen of the gut. The mesosigmoid was œdematous and so thickened as to prevent a satisfactory delivery of the mass. In view of the obstructive nature of the condition, a left inguinal colostomy was done and the lesion left *in situ*. A colostomy was performed through a left gridiron incision.

Six months after operation, a proctoscopic examination was made and a view of the sigmoid colon was obtained through both the anal and colostomy openings. The inflamed area had subsided and the gut appeared to be normal in every respect. Following this examination, the colostomy opening was closed and the abdominal wall was repaired. The patient is now perfectly well.

## CHOLEDOCHODUODENOSTOMY

DR. E. L. ELIASON also presented a man, age sixty-four, who had been admitted to the University Hospital, service of Dr. O. H. P. Pepper. The chief complaint on admission was jaundice. For a year prior to admission the patient had noticed malaise, loss of weight and occasionally nausea and vomiting. For two months before admission, the patient had noticed jaundice, clay-colored stools and darkly colored urine. There was intense itching of the skin, but no pain. Physical examination revealed deep jaundice. A hard mass was palpated in the upper right quadrant of the abdomen. The urine contained bilirubin 4 plus. The Van den Bergh direct reaction was immediate and the indirect reaction was 9.0 units. The blood calcium was 10.1 mg. per 100 c.c. The pre-operative diagnosis was common duct obstruction. The gall-bladder was found to be greatly atrophied and fibrosed, being scarcely the size of the little finger. It contained no stones and practically no lumen. The common duct was dilated, containing clear fluid and no stones. The obstruction of the common duct was found to be due to a hard swollen head of the pancreas. The lesion of the pancreas was diagnosed as probably carcinoma. A T-tube was used for the anastomosis and a choledochoduodenostomy was performed. The gall-bladder was too fibrosed and insignificant to be available for anastomosis. The patient is perfectly well at the end of six months.

## REPAIR OF COMMON DUCT

DR. E. L. ELIASON presented a third patient, a man, age thirty, who was admitted to the surgical service at the Philadelphia General Hospital, suffering with an external biliary fistula, following a cholecystectomy four months previously. During this period his stools were entirely free from bile. On January 7, 1927, the reporter, through a paramedian incision, dissected out the biliary fistula until the upper end of the divided common duct was exposed, the fistula leading directly into it. After a prolonged search and mobilizing the duodenum, the stump of the lower section of the common duct was found. This had healed over and was closed by a knob of scar tissue. Either at the previous operation a section three-quarters of an inch long had been inadvertently excised or retraction had resulted to that extent, as there was that length gap between the two portions of the duct. The short upper portion of the duct was not sufficiently long to reach either the portion of duct below or the duodenum. The gap was bridged by a piece of rubber tubing about 6 cm. long and of a calibre to fit snugly in the duct lumen. Four catgut sutures were then passed through both ends of the ducts and an attempt made to thus draw the two divided ends together. The sutures had to be tied, however,

leaving fully a half inch gap bridged by the tube. A catgut ligature left long was placed around the exposed portion of the tube and the ends brought up and tied to the abdominal wound edge, thus anchoring the tube to prevent it slipping beyond the defect. The wound was closed with a cigarette drain leading down to the repaired area. In spite of imperfect wound healing there was no escape of bile and the patient has had a complete recovery. The tube is shown by the X-ray to be still in the upper abdomen one year later.

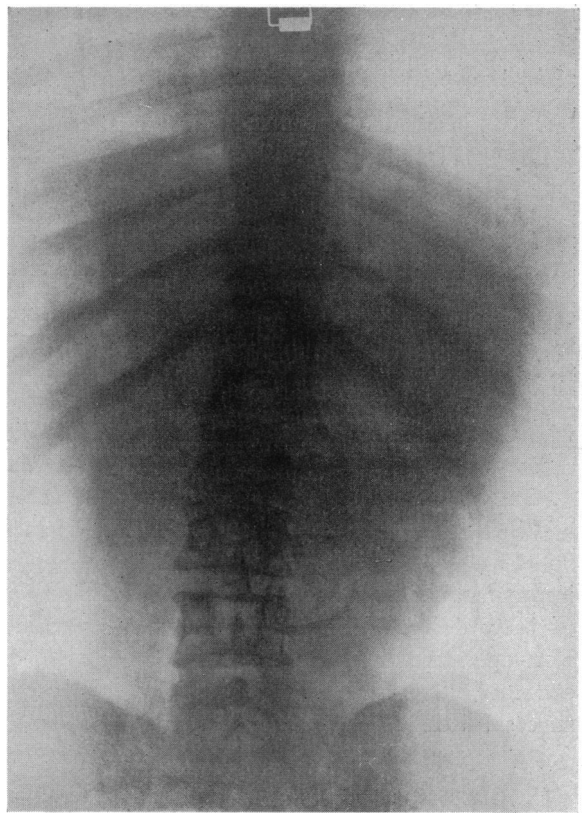

FIG. 1.—Tube in common duct six months after operation.

## PROSTATIC MIDDLE LOBE HYPERTROPHY

DR. ALEXANDER RANDALL read a paper entitled The Genesis, Morphology and Surgery of Prostatic Middle Lobe Hypertrophy.

DR. A. P. C. ASHHURST said that Doctor Randall had done notable work in the preparation of the specimens upon a study of which his paper was based. It is very interesting that he has found out a reasonable explanation for the different way in which the prostate may be enucleated: sometimes in one piece, sometimes in three pieces. All surgeons have had such experiences and they often thought their failure to enucleate the prostate in one mass in certain cases, was the fault of their particular way of operating on that individual patient. The speaker was sorry that Doctor Randall had not discovered just what an "enlarged" prostate is: whether it is an hypertrophy, an hyperplasia or a tumor. He saw no reason why it should not be tumor; this would be a very satisfactory solution, for then we would have no reason to look for a special cause until the general question of the cause of tumors can be settled.

## SPINA BIFIDA AND CRANIAL MENINGOCELE

DR. THOMAS A. SHALLOW read a paper with the above title.

DR. FRANCIS C. GRANT said that he had not operated upon a case of meningocele for three or four years; the difficulty with such cases being that

most of them are brought in the first few months of life with large sacs, frequently with sacs that have ulceration and with large bony defects in the spinal canal as shown in the X-ray; *i.e.*, the spinal cases; the cranial cases have brain protruding into the sac and the speaker regards this as a contra-indication to operative procedure. Regarding the post-operative development of hydrocephalus Doctor Grant believes that the spina bifida acts as a safety valve for the internal hydrocephalus and, in a large majority of cases, removal of the meningocele results in a secondary hydrocephalus. A large series of cases is reported by Cutler of Boston (*Archives of Neurology and Psychiatry*) in which he had 50 cases, 39 of which were operated upon; 16 of these died, the deaths being distributed as follows: 4 hydrocephalus; 4 hydrocephalus plus meningitis; 4 meningitis; 4 to pneumonia and other causes. Of the 39, 8 were alive after the five-year period and in good condition. It would seem therefore that if one has the courage to attempt this type of surgery, and its limitations are understood, a good deal can be done for the patient. From a sociologic point of view, it is a matter of prolonging life of children who will be burdens on society or who may show mental defects. Favorable cases should be given the benefit of the doubt.

Dr. Thomas C. Shallow said that of the ten cases operated upon 3 died within three days; 1 died in sixteen days of meningitis, and the other 6 are still living. There has been no return of the spina bifida and there has been improvement in 3 of the cases. The speaker does not regard the correction of bony defects in the spine as any more difficult than those in the head. Post-operative hydrocephalus is an important factor but as its occurrence can not be foreseen, it should not stand in the way. Two of Doctor Shallow's successful cases had ulceration of the sac when first seen.