Similar deposits are almost always found in the liver, or traces of them.

(2) In another class of cases we may have appearances that simulate those of miliary tuberculosis, but perhaps without the so-called tubercular bacilli.

(3) In another class, which is presumably an advanced stage of the miliary formation, we have the peculiar fibroid induration already spoken of, and which is the most characteristic of the syphilitic lesions, and one whose clinical signs have a certain amount of positiveness about them. At first the indurated fibrous tissue has a pellucid bluish appearance, but later on is white and glistening.

(4) If the miliary deposits aggregate and soften as they will do in case treatment is not successful, cavities will form, and they will be found first in the apices, just as in tubercular phthisis. But the cavities are usually small, and if we are aliphod in our diagnosis, the case will pass for a fibroid phthisis (tuberculosis).

(5) Associated with these intra-pulmonary changes will be an unusual amount of fibrous pleurisy, for this is a natural concomitant of pulmonary syphilis, and may, therefore, be expected. Pleuritic effusions are also comparatively frequent.

Now, while there are none of these lesions except the gummy tumor, that are positively determinable at the post-mortem table; still in conjunction with the patient's history, his physical signs and the microscopic examination of the sputum (or of lung tissue after death), the diagnosis may be made with a remarkable degree of certainty, as I shall show in another place.

There is no doubt that lung syphilis is comparatively uncommon, even in general and visceral syphilis, and my observations agree in the main with those of Greenfield and Goodhart on this point. A fair idea of my experience can be gathered from my private pathological and clinical memoranda. Thus, I have found that where there are full clinical and pathological data, the figures stand as follows: In 95 patients that came to the post-mortem table with supposed tubercular phthisis, 12 had evidences of syphilis in their lungs (13 per cent.). Of these 12 cases, six were selected by me as pure examples of syphilitic phthisis (six per cent.). Of the remaining six cases, it was possible and indeed probable that tubercular phthisis was a concurrent lesion (six per cent.). Hence it would appear that syphilis of the lungs is quite as often associated with tubercular phthisis, as that it is the single lesion.

From my clinical records at the Post-Graduate School, I have also taken the following: Of a first series of 392 cases of all kinds coming to my medical clinic, 31 had pulmonary phthisis in some form or other (eight per cent.). Of this same total of 392, 23 were known to have constitutional syphilis (six per cent.). Of this same total of 392, three had lung syphilis (about one per cent. in round numbers). Again, of a second series of 242 cases in all, there were 21 cases of pulmonary phthisis (nine per cent.). Of this total of 242, eight were known to have constitutional syphilis (about three per cent.) while three had lung syphilis (about one per cent.). In a third series of 288 cases, there were 43 examples of ordinary phthisis (15 per cent.). Of these 288 cases, 15 had constitutional syphilis (five per cent.). Of these 15, eight had lung syphilis (or from two to three per cent., of the whole number).

We see then, from these memoranda that in a New York medical clinic, constitutional syphilis may be detected in from five to six per cent. of all the cases. But owing to the inaccuracy with which records are apt to be kept (even under the most rigid scrutiny), we may assume that these percentages do not fairly represent the actual status, and that constitutional syphilis is a much more frequent disease. In my private records, it represents about ten per cent. of all business, hence it is proper to infer that constitutional syphilis is fairly common, and must form a considerable part of the business of every general practitioner. Now, if we add together all the phthisical cases in my clinical records, we find that the number happens to be 95, and this happens to be the number of phthisical cases of which, as already seen, I have full hospital memoranda.

Let us compare these two sets of cases together, and see how much difference is to be found between ante-mortem and post-mortem diagnoses. Of the 95 phthisical cases that came to the post-mortem table in my hospital practice, 12 had lung syphilis (or 12.6 per cent.), while of the 95 phthisical cases that came to my clinic, 14 were put down as having lung syphilis (or 14.7 per cent.), a difference of only from two to three per cent. I hope subsequent observation will not find that the close similarity in results has not been a mere coincidence.

It is not so easy, however, to determine the part that syphilis of the lungs may play in inherited phthisis, in the matter of clinical history. That it has an important relation I feel assured from personal experience at the bedside; but we have yet to establish the exact relation between the two. Some things are apparent. Thus, take the case of a man suffering from a severe form of progressive syphilis, he becomes greatly deteriorated in health, and therefore a fit subject for the development of tuberculosis, if other conditions favor. In such persons the two diseases may develop side by side, each intensifying the other. Again, from a pathological point of view, in the early stage of both diseases, there are the same catarrhal features, and in the farther progress of the disease the same tendency to thickening and degeneration of vessels, implication of lymphatics and the production (in certain types) of an imperfect form of fibroid tissue, much as in fibroid tuberculosis. As to the microscopic character of the tubercle, so good an observer as Goodhart failed to find any difference between them, and others have sustained this view.

(To be continued.)

PISTOL-SHOT WOUNDS OF THE SKULL.¹

BY E. H. BRADFORD, M.D.,
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THE surgeon in civil life has occasionally presented to him the problem of treatment of pistol-shot wounds of the brain. These, fortunately, are not of very common occurrence, and those who happen to be connected with the large general hospitals of cities, are the surgeons who are more frequently required to face the question of the proper surgical treatment in these cases. If he endeavors to prepare himself by a reference to the standard works on the subject, he will find

¹ Read before the Boston Society for Medical Improvement, March 9, 1891.

but little guidance, as statistics are chiefly taken from military surgery where the missiles are rifle bullets or of comparatively larger calibre than is common in civil life. The question is one of importance and demands judgment, experience and knowledge; and ordinarily the experience of any one man in this class of surgery is necessarily limited. As the majority of these cases are the result of homicidal intent, their importance is great, for the surgeon is aware that two lives are often at stake, or that the future of two persons depend upon his skill and judgment. The following three cases may serve to call attention to the variety of conditions presented in this class of accidents when brought for treatment.

CASE I. Man with suicidal intent shot himself in the right forehead. The patient was thoroughly unconscious, with stertorous breathing, the pupils did not react, and beyond certain voluntary movements the patient seemed entirely paralyzed. No treatment was undertaken, and the patient died in four hours.

CASE II. A healthy man was assaulted by unknown assailants, and found in an unconscious condition, with a pistol-shot wound in the right forehead. He was unconscious. The wound in the head was a small opening, filled with clotted blood, there being no bleeding. The wound was cut down upon, and the scalp dissected off. On removing the scalp a great deal of clotted blood exuded, and there was found to be a copious hæmorrhage. The skull was trephined and the opening in the dura enlarged, and a good deal of hæmorrhage found to proceed from the opening. The wound was irrigated and thorough drainage ensued. The patient died in twenty-four hours.

CASE III. Similar to the above, except that the patient was conscious. A healthy man received a bullet-wound, at short range, on the temporal region. The man was conscious, but there appeared to be evidences of bleeding. The scalp was marked with grains of powder. Examinations with the probe would indicate that the bone was fractured. An incision was made, the flap reflected, and the bone found lying in a wound through the skull, which was penetrated. Singularly, the bullet was found with the butt end toward the inner side of the cranium; in other words, the bullet, as it struck the skull, had fractured it, but the penetrating power was not sufficient to do more than make a hole. It had turned a complete half-revolution, so that its butt lay where the point hit. The bullet was removed, and the patient made a good recovery. The calibre of the pistol was said to be twenty-eight.

In the present state of surgical knowledge on the subject, precise rules of action have not yet been formulated and I venture to suggest a discussion of the subject by the Society, making as a prelude to suggestions for the discussion an attempt at generalization.

In cases where the patients are moribund, it is manifestly useless to intervene, as surgical interference is necessarily meddlesome and unwise. But it is not the part of surgery to regard patients as moribund where there is the slightest chance of recovery, and the question which surgical instinct prompts the true surgeon to consider is whether the chance for life, which every living patient may be presumed to have, is to be injured or is to be improved by any surgical interference; this question involves the consideration of the present modes of treatment; the expectant, the radical (including trephining); probing of the wound; and

attempts to remove the foreign body from the cranial cavity.

Wherever there is a reason to believe that there are fragments of bone pressing upon the cortical surface of the brain, it is manifestly desirable to attempt to remove these; and for that reason, in all cases where the bone seems splintered, especially if the patients are conscious, the indications are that the skin flaps should be dissected up, the cranial injury explored, and loose fragments removed, the wound being cleaned. Where the dura is opened and there are penetrating or perforating pistol-shot wounds of the skull, the question is less simple. The patients are usually unconscious and death is imminent. In a large majority of these cases death occurs. The exact percentage of mortality, it is difficult to determine, as our statistics are taken chiefly from battle-fields and from military practice. The greater proportion of penetrating rifle-shot wounds of the skull causes instant death. Of those, however, who do not die immediately, a certain percentage recover; and a number of instances where complete recovery has taken place after a penetrating rifle-shot wound of the skull, are well authenticated. These cases have been recorded by the older surgeons, and a number of instances are recorded during our war, the histories having been watched carefully by the Pension Department; and it may be taken to be certain that penetrating pistol-shot wounds of the skull are by no means necessarily fatal. Statistics vary as to the value of trephining in these cases. If the statistics are examined, it will be seen that they point to a greater percentage of recovery where trephining has been used than where trephining has not been used; but a moment's consideration would show that this method of using statistics is necessarily fallacious. For in a majority of cases where trephining is not attempted, the patients have been considered too severely injured for the operation, as the cases where trephining was undertaken represent those which in the opinion of the surgeons were able to withstand the shock, and presented some hopes for eventual recovery. Furthermore, the different localization of the pistol-shot wounds will give a different percentage of mortality. And for this reason, unless it is known in our table what portion of the brain was wounded, no figures can be of sufficient value to justify extensive generalization. Under these circumstances and until better and more carefully considered statistics have been collected, treatment must be based upon the general principles of surgery. The opening of the dura is a procedure which should not be undertaken rashly; but if the dura has been penetrated by a bullet, it is certain that the injury to the brain substance which follows, may in a certain number of instances be accompanied by an effusion of blood. Where there is effusion of blood, it is desirable that there should be no increase in pressure in the brain, and for this reason it would be desirable to enlarge the opening of the dura to give a chance of escape to the fluids collected below. It is a pathological fact that the wound in the dura is smaller than the calibre of the bullet, and in many instances this is sealed by a blood clot, so that an effusion of blood may take place under this, causing cerebral compression.

The question, then, is one of surgical judgment, with the possibility of error in a large number of cases. In the present system of imperfect means of localization it is almost impossible to determine

whether the bullet remains in the centre of the cerebral tissues, or whether it lies within reach. It is, therefore, impossible to determine the position of the bullet without the use of the probe, and even with the probe the danger is that greater injury should be done to the brain substance by the examining instrument than good would be accomplished by its discovery. For this reason it would seem to the writer to be advisable to discountenance all probing of the cerebral tissue for bullets, from the fact that it is known that no great harm comes from the simple presence of the bullet alone. The same is true in regard to the presence of hair, or pieces of the cap or hat. Where the wound is a large one and the brain tissue lacerated, careful irrigation with boiled water would seem to be the best way of managing the lesion, and that no attempt to extract foreign bodies imbedded at any depth in the tissue of the brain, is surgical or desirable.

The subject can be summed as follows: In penetrating pistol-shot wounds of the skull, death is to be anticipated in a large majority of cases. Recovery, however, does occur in a certain number of instances. The treatment should be the treatment of a penetrating fracture of the skull (that is, a fracture from any sharp instrument, a nail or spike). The scalp should be dissected away from the injury and the bone thoroughly examined. Loose fragments of bone should be removed. A trephine should be used if it is considered necessary to thoroughly cleanse the wound or to give egress to any collection of fluid or blood that may be below the dura. If the dura is penetrated and if there is any bulging of the dura, the dural opening should be enlarged. The brain substance should be thoroughly irrigated and washed, but not probed or treated with violence. It is unnecessary to state that the strictest asepsis is desirable.

CELIOOTOMY FOR RUPTURE OF THE UTERUS DURING LABOR.¹

BY H. O. COE, M.D., OF NEW YORK.

ALTHOUGH the literature of this subject is quite exhaustive, most authors deal with the etiology and pathology of rupture of the uterus rather than with the treatment; and much of the teaching with regard to the latter antedates the era of modern abdominal surgery. The writer feels some hesitation in writing upon this theme, as it has been already ably presented to the American Medical Association by Dr. William H. Wathen and Dr. C. A. L. Reed, in papers read before the Obstetrical Section. The writer's purpose in reintroducing the subject before the Surgical Section is to have it discussed from the broad stand-point of general surgery. This is entirely proper, since rupture of the uterus is to be considered in the same light as rupture or other lesions of any other of the abdominal viscera. It is pre-eminently a surgical emergency, and should not be studied from its gynecological or obstetrical side alone.

When Lawson Tait feels justified in proposing Porro's operation as the proper treatment for placenta prævia, we may well ask, Is simple expectant treatment applicable to the far more formidable obstetrical complication, rupture of the uterus? Note

that the paper deals with rupture of the *parturient* uterus, and not with injuries of the organ before labor. This is an important distinction to be borne in mind in the discussion. The writer bases his paper entirely upon his personal experience, — that of four cases (seen within a period of eighteen months) in which abdominal section was performed. One case was successful, the patient being now in perfect health.

CASE I. Rupture due to undue interference in the first stage (forceps and attempted version), the child being of unusual size. Operation two hours after the accident, the patient being in collapse from active internal hæmorrhage. The child's head had escaped from the rent, which extended from the cervix through the left broad ligament, half-way to the fundus. Child extracted through the rent, after application of rubber cord. Uterus removed, and pedicle treated by the extra-peritoneal method; on account of extensive laceration the entire stump sloughed out, but the patient made a good recovery.

CASE II. Cause of lesion identical with that in Case I. The injury was not recognized until twenty-four hours after the birth of the child, when the patient was already septic. Cœliotomy was performed. Transverse tear on posterior aspect four inches long, in lower segment, with commencing peritonitis. The rent was sutured, and thorough irrigation and drainage established. Death took place from shock twelve hours later.

CASE III. Moderate contraction of anterior conjugate, with large child. High forceps application was unsuccessful. Delivery was accomplished after difficult version. In removing an adherent placenta the accoucheur withdrew a coil of small intestine, which prolapsed through a rent in the posterior wall of the uterus. It was replaced (as was supposed), and the opening was plugged with iodoform gauze. Abdominal section was then regarded as unjustifiable on account of profound collapse. The writer saw the patient eighteen hours later, and found her in fair condition, the upper portion of the vagina being filled with intestine. He proposed and performed cœliotomy at once. There was a transverse tear posteriorly in the lower segment, extending from between the bases of the broad ligaments. It was too extensive to suture, so both broad ligaments were clamped, and the uterus was extirpated *in toto* in five minutes. It was found that the intestine had not been replaced, but had been nipped in the edges of the rent, so that at least three feet were black and gangrenous. Irrigation and gauze drainage per vaginam. Death from shock ten hours later.

CASE IV. Spontaneous rupture during normal labor, not recognized. Collapse five hours later, but no external hæmorrhage. The writer saw the patient twelve hours after the accident, and diagnosed rupture of the uterus with internal bleeding. A consultation was held, and the unanimous opinion was that there was an extensive laceration into the left broad ligament, and that active hæmorrhage was in progress, which it was necessary to arrest. There was doubt as to whether the rent extended into the peritoneal cavity or not. Exploration advised. This was conducted rapidly. No blood found in the abdominal or pelvic cavity. There was an immense hæmatoma of the left broad ligament, extending upwards into the corresponding iliac fossa. The abdom-

¹ Abstract of a paper presented at the Annual Meeting of the American Medical Association, May 5, 1891.