The round cell-masses formed by the coalescence of the intralobular growths, or by the new extralobular formations, usually showed little tendency to invade the surrounding tissue. They were often represented in sections by rounded holes, entirely or partly empty of epithelium.

Fig. 10.—Showing a rounded hole from which the epithelial contents had disappeared, lying in connective tissue which was free from infiltration; magnified 14 diameters.

These rounded cell-masses grew larger by the accretion of a new layer of cells on the periphery. This new cell-formation was foreshadowed by a change in the surrounding connective tissue; in stained preparations, a deeply tinged curve of fibrous tissue being sometimes found in a position corresponding to the new layer of cells observed in other sections.

Fig. 11.—Showing two rounded cell-masses, in one of which (at a) a deeply stained curve of connective tissue foreshadowed the formation of new epithelial cells around the mass; magnified 14 diameters.

The cancerous formation in the axillary glands was found as rounded cell-columns having a distinct contour. The outlines of the individual cells could be seldom made out.

Fig. 12.—Showing the cancerous infiltration in an axillary gland; magnified 260 diameters.

[To be continued.]

THE KILLARNEY DISTRICT LUNATIC ASYLUM.—Dr. Oscar Woods, in his report for 1880, again remarks on the objectionable practice prevalent in Ireland of committing lunatics to asylums as dangerous and criminal when they are neither the one nor the other. Because the ordinary mode of securing the admission of an insane patient to a public asylum provided by law is tedious and involves trouble, the officials taking advantage of the special clause intended to meet exceptional cases, secure his speedy and convenient committal as a criminal. In the year 1879, 1277 patients were committed to Irish asylums as criminals, of whom probably not 2 per cent. had in any way broken the law, unless indeed insanity be itself regarded as a crime. The evils of such a system are sufficiently obvious. It brands as gaol-birds those who are merely the victims of disease; it produces agitation and alarm by entailing the interference of the police with those who regard them with repugnance and fear, and who are already probably nervous and apprehensive; and it deprives the medical officers of the asylum of that information which is so essential to successful treatment, for the police who convey the patients to the asylum as a rule know nothing of their previous history, and are at no pains to inquire. Surely in Ireland nothing should be done to obscure in the popular mind the distinction between crime and affliction, and yet this must be the effect of the method of dealing with lunatics that is now tolerated. Stringent orders should be at once issued securing a more faithful observance of the spirit of the Irish Lunacy Law.

NOTE ON THE APPLICATION OF THE ANTISEPTIC METHOD OF DRESSING TO CRANIO-CEREBRAL SURGERY.*

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THE object of this note is to give the results of experiments on the applicability of the antiseptic method of dressing to the brain and meninges, which were undertaken under the auspices of the Scientific Grants Committee of this Association.

The dangers which accompany operative procedure on the skull of man are too well known to require comment; and, in the lower animals, operations involving the meninges generally set up inflammation, which it is almost impossible to check.

The use of the trephine has been gradually falling into discredit since the beginning of this century, because the admission of air into the cranial cavity proved to be nearly as fatal as the irritation which the operation sought to remove.

As our knowledge of the important part played by septic agencies in exciting inflammation increases, and our power of excluding them from wounds becomes more perfect, there is every reason to hope that operations on the cranium may be stripped of their terror, and its serous cavity opened with impunity. The greater insight given to intracranial affections, by the localisation of cerebral functions, seems to suggest that surgical aid may be sought in many cases which have hitherto been looked upon as quite beyond its reach. Thus, M. Broca was able to localise the situation of an abscess in the brain, and give exit to the pus; and M. Lucas-Championnière, in an able work, shows how cerebral localisation may greatly help cranial surgery.

In performing these experiments, I had the great advantage of the advice and assistance of Dr. Ferrier, whose knowledge of the function of the cortical centres is so well known.

Assuming—that all who have experience in the matter must admit—that Lister's method, when accurately carried out, excludes the septic vicissitudes to which wounds are liable, the following questions remain to be determined.

First: Is the inflammation, which very constantly follows exposure of the cranial contents, caused by septic agencies? and is it prevented by their exclusion? Or, can we assign other causes for this inflammation, such as the so-called general infection?

Secondly: What is the effect of strong carbolic solution (1 in 20) on the meninges?

The uncomplicated cases, where antiseptic dressings were applied in man, are very few; and, in traumatic cases, so many complications exist, that it appears difficult to answer these questions from the experience gained from the human subject. Hence it appeared advisable to investigate the matter in the lower animals, where one might, at the same time, search for physiological truth. For this purpose, monkeys were chosen—being the animals which, in septic receptivity, as well as their behaviour under chloroform and operation, most resemble man. As far as possible, the animals were treated in the same way as human subjects.

The great difficulty of fixing the dressing was overcome by painting the outside layers of the gauze with flexible collodion. Finding nothing to lay hold of on the smooth surface, the animals soon became used to their cap, and, after the first day, hardly meddled with it.

Before the operation, the scalp was purified with strong (1 in 5) solution of absolute phenol in oil or glycerine. The spray was used in all but four cases, where it was omitted to see if it could be safely dispensed with, because it was difficult to prevent it cooling the animal. The edges of the wound were accurately brought together with sutures—horse-hair being found the best. It was found that the discharge was so slight that drainage was unnecessary, and in the later cases it was omitted. Protective, which was not used at first, was found absolutely necessary to prevent irritation of the edges of the wound. Several layers of loose gauze, damped in a solution of 1 in 40, were placed over the wound, and these were held in position by about twenty turns of a narrow gauze roller, and the entire enclosed in three or four caps of gauze painted with collodion. The trephine was used in all cases for opening the skull, and a small bone-forceps was then applied to shape the aperture to the required size.

In drawing conclusions as to the efficacy of any one method of treatment, its results should be compared with those of other methods. Unfortunately, no statistical comparison can be made in the present research, as there are no records of the clinical history of any complete set of experiments performed without antiseptic precautions. This

* Towards the expenses of this research, a grant was made by the British Medical Association, on the recommendation of the Scientific Grants Committee.

paucity of records of the results of operations on the brain depends on the fact that the animals generally die, or have to be killed, owing to the extensive inflammation.

Many methods of producing a lesion of the brain have been used; but all appear to cause extension of the injury, by setting up inflammation. In the former experiments of Dr. Ferrier, not one animal escaped intracranial inflammation and suppuration of the scalp (except those which died before these changes could take place), and only one recovered from the effects of these changes. As far as can be gathered from the descriptions of Luciani, Tamborini, and Munck, the animals operated on by them were generally attacked with encephalitis, which commonly necessitated their destruction.

Of our twenty-six cases, only seven deaths occurred from all causes; and, if we examine these, we find that four at least may be omitted, because they depended on causes other than the operation or the method of dressing. The intense cold of the winter session, 1879-80, may be blamed for the deaths of three of the animals; one of which survived the operation thirteen days without inflammation, and therefore may fairly be reckoned as a successful case, as far as the antiseptic method is concerned. One death may be assigned to chloroform. This cannot be wondered at, since it is necessary to keep the animals in a state of profound anaesthesia during the entire time of the operation; and, when the bone is being cut, respiration becomes very feeble, and often the respiratory movements cease, so as to make it necessary to suspend the operation, and resuscitate the animal. Of the remaining three fatal cases, one was caused by hæmorrhage six days after the operation. Here, also, as no trace of inflammation could be made out, we may claim the case as an antiseptic success. Another animal died from the shock of the operation, and one only from inflammation.

Hence, in fact, twenty-one of the animals lived long enough for the full development of inflammation. Of these, twenty were treated successfully with antiseptic dressings; and one animal removed the dressing, and had to be treated in an ordinary way (modified antiseptics). Among the cases treated antiseptically, there was not one case of inflammation; and, where this method could not be used, there was intense encephalitis. Or, if these numbers be reduced to a percentage, we find that 100 per cent., under antiseptic dressing, were cured without any inflammation of the meninges; and 100 per cent., without antiseptic dressing, died of acute encephalitis.

ON THE ETIOLOGY AND TREATMENT OF LACERATIONS OF THE CERVIX UTERI.

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THE acts of parturition ought to be so thoroughly and completely performed, that no ill effects should ensue, and the woman should rise from her lying-in couch, as perfect anatomically as when she went to her travail. That such is the design of nature, is witnessed in the numbers of women who bear children, without the sundering of a single fibre of the entire genital tract; and, from the vestibule to the internal os uteri, no traces of the labour are to be seen, sixty days after the delivery, with the exception, perhaps, of a slightly increased size in the rugæ of the vagina, and a greater diameter of the external os uteri.

Why so many women suffer from lacerations of the vulva, of the perineum, and the cervix uteri, is a question worthy of our most serious consideration. I propose on this occasion to call attention to the etiology and lacerations of the cervix uteri.

The neck of the womb, in a large number of cases, is torn during parturition, either from causes residing in the pelvis, or in consequence of neglect or misuse of instruments upon the part of the accoucheur. Of about nine hundred patients treated in the Gynecological Clinic at the University Medical College of New York during the past six years, more than two hundred had a certain amount of cervical laceration, which either interfered with the generative functions, or produced more or less positive disease. In the vast majority of these cases, the lesion was producing the gravest results; and, in all of them, there were marked symptoms of disorder, not only of the local pelvic regions, but throughout the general system also. This proportion may not be absolutely accurate with regard to all parturient women, more particularly of the better classes, whose financial status enables them to procure the skill and comforts which should be awarded all lying-in women; but it applies to the poorer and labouring classes, whose surroundings necessarily promote accident, in consequence of the ill-trained midwife, or the blundering of the impatient medical man, whose ignorance or neglect

contributes largely to the promotion of those factors which enter into the etiology of laceration of the cervix uteri. Skilled obstetrics, based on common sense, and freed from the shackles of "authority", so called, may prevent the accident, as it should always facilitate the woman's complete return to physiological preparturient health. If the science and art of obstetrics were taught more philosophically and practically in all the schools, of both the Old and the New Worlds, and if "society" were instructed up to the point that the acts of maternity should be conducted only by the most learned and intelligent of surgeons and physicians, much could be done towards the prevention of ailments which frequently sap the integrity of the health, or which destroy the fecundity and family usefulness of many mothers subjected to unskilful midwifery, and a want of the due appreciation, upon the part alike of the family and of the medical man, of the supreme importance of the duties of the accoucheur. Lacerations of the cervix uteri are often prevented by facilitating labour and promoting a reasonably rapid delivery, so that certain conditions of the generative organs may be averted, presently to be described.

The causes promoting laceration are more frequently dependent upon slow tedious labours than one would suppose. In former years, I presumed the most active agent to be energetic uterine contraction, which drove the head through an undilated cervix; but a careful clinical study of numerous cases, where each successive stage of labour was noted with accuracy, as well as the histories of very many more, convinces me that retarded, tedious, and laborious labours, in fully 85 per cent., develop conditions which become undoubted factors in the production of the lesion.

The same conditions are not unfrequent causes of perineal laceration, and I have rarely seen a lacerated cervix without a certain amount of perineal rupture, although I frequently see the latter without the former. In rapid energetic contraction, where the placenta is implanted upon either side of the uterus, but which usually induces tedious labour, so as to diminish the force of the contraction at the site of the implantation, thereby awakening a sigmoid wave of expulsive force, one can understand how the effort of expulsion is diverted from the centre of the pelvic planes, with the formation of a folding of one of the cervical segments over the parietal boss. A rupture of tissue at that point ensues, because it is directly below the line of expulsive force, which should normally correspond with the lumen of the canal, and the centre of the external os; and undoubtedly the laceration begins in the cervical tissue to extend towards the os, whereas in those conditions of tedious, retarded, or laborious labour, the rent commences at the oral circumference, and travels upward towards the uterine texture. The majority of single lacerations occur on the left posterior cervical segment, at a point corresponding with the engagement of the foetal bimestoid diameter, because of the very much greater frequency of the left occipito-anterior position of the foetal cranial presentation.

Laceration of the right side of the cervix rarely occurs singly. I have seldom seen it unless coexisting with a certain amount of sundering of the left side also. In every hundred cases, as far as my observation extends, laceration on the left is found in about 80 per cent., bilaterally in 15 per cent., and on the right in 5 per cent.

We can readily understand the peculiar tendency to cervical sundering during a prolonged, tedious, or laborious gestation, when we take into consideration the fact that healthy speedy labour only occurs where all the normal factors of parturition exist. The cervix is especially liable to rupture, should, from any cause whatever, the symmetry of contraction be diverted into lines of expulsion, away from the centre of exit, and the head be driven anteriorly, laterally, or posteriorly, to form a capsule of the cervical segment, with production of perivascular ecchymoses, rupture of capillaries, œdema, and actual bruising of tissue. Undoubtedly, under these circumstances, the elasticity and distensibility of the cervix are impaired.

One of the most frequent causes of rupture is in the scleremic condition often following congestion or inflammation—the so-called hyperplasia cervicis—but which is in reality a result of the hyperplasia attendant upon preceding congestion and inflammation. The changes in the parts are actually shrinkage, atrophy, and induration of the connective tissue, with agglutination of the muscular striae, rendering the whole substance hard, inelastic, and very friable. These conditions of the neck are among the most prolific in the production of tedious labour, as the os is very slow to dilate, and the uterus exhausts itself by repeated efforts towards expulsion. The jamming of the anterior segment of the cervix upon the pubis by futile uterine contractions bruises and congests the already inelastic non-distensible tissue, and further develops its already very great tendency to rupture.

The osseous structures may be too small, or the child's head too large; or deformities may exist, which, recognised too late, render the application of the forceps indispensable; and the dragging of the child