or abort depending upon whether a false or true corpus luteum has been injured.

Some very interesting observations have been made by American veterinary surgeons on cows. They found that if the false corpus luteum remained unabsorbed the cow did not come in heat (which corresponds with menstruation in women), but that if the corpus luteum was expressed manually the condition developed in a few days. I find that if during an abdominal operation the corpus luteum be excised the patient will have a period two or three days afterwards, even if she has only recovered from her previous period a few days before the operation. The following cases illustrate this:

CASE I.

Mrs. E., aged 29, married two years; menstruation was of the four weeks type. Bimanually there was a tender tumour to the right of the uterus which was normal in position when felt. Her last period terminated two days before operation. I found on opening the abdomen a right hydrosalpinx adherent to the ovary, which contained the false corpus luteum. In removing the tube the corpus luteum was resected. The patient menstruated forty hours after the operation.

CASE II.

Miss S., aged 25; menstruation of four weeks type, always regular; the uterus was retroverted and the ovaries prolapsed; her last period had occurred thirteen days before the operation. Ventro-suspension was performed and the corpus luteum excised from the ovary. The patient menstruated two days after the operation.

Another very interesting point is that the size of the corpus luteum has a distinct bearing on the amount of haemorrhage lost at a period. On examining the ovaries during an operation, patients who have given a history of a heavy loss at their periods invariably have a large corpus luteum, and in those with only a slight loss the corpus luteum is small.

With regard to the true corpus luteum the veterinary surgeons made a very important discovery, that sometimes in expressing what they consider a false corpus luteum they have actually expressed or ruptured a true corpus luteum, in which case the cow has either aborted or bled to death. The following cases have a bearing on this observation:

CASE III.

Mrs. A. R., aged 28, married ten years, had had five children and one abortion; her last pregnancy was three years earlier. She was curetted at a hospital in October, 1919. She returned to this hospital during the first week of March, 1920; having missed two periods, she wished to know if she was pregnant. During the examination she felt a pain in her right side, became weak, and on going home went to bed. The next morning she noticed slight haemorrhage, which she took to be her period returning. As it continued for two weeks she consulted her own doctor, who sent her to me at the Samaritan Hospital. I found slight tenderness in the right iliac fossa; bimanually the uterus was about the size of an orange, freely movable, with a soft, round, tender tumour in the right and posterior fornices. A pre-operative diagnosis of an extra-uterine gestation was made. The abdomen was opened by median subumbilical incision. The left ovary and both Fallopian tubes were normal, and lay above the fundus of the uterus. The right ovary was not seen. On exploring the pouch of Douglas I found a mass of old blood clot intimately connected with the right prolapsed ovary which contained a ruptured corpus luteum. This I removed. Not being satisfied that I had found the cause of the haemorrhage I explored the uterus vaginally and removed a foetus.

CASE IV.

Mrs. McC., two months pregnant, was operated on for recurrent appendicitis. The apex of the appendix was adherent to the right Fallopian tube. In removing it I must, by handling the right ovary, have injured the corpus luteum, as the patient aborted next day.

CASE V.

Mrs. C., four months pregnant, had a subperitoneal fibroid about the size of a large orange, situated just below the right round ligament; it was removed without handling the ovaries. The patient made an uneventful recovery and went to term.

These observations throw very interesting light on the part played by the corpus luteum in abortion, sterility, premature menopause, and internal haemorrhage simulating extra-uterine gestation.

During pregnancy, if a woman receives an injury to the abdomen, as, for instance, a fall or during bimanual examination (Case III), it is not the traumatism to the uterus which brings on the abortion, but rather that to the ovary, causing the corpus luteum to rupture; if rupture takes place through a blood vessel in the wall of the corpus luteum, intra-abdominal haemorrhage occurs, showing all the physical signs of an extrauterine gestation.

Frequent and often recurring abortions during the early months of married life are, I believe, brought on by injury, during coitus, to a corpus luteum contained in a prolapsed ovary.

In sterility, especially in elder women, why is it that after a course of pelvic massage they will become pregnant? Has a false corpus luteum been expressed? The same question arises with regard to the operation of dilatation for sterility. Is it possible that we unknowingly express a false corpus luteum when bimanually examining the patient, and by thus producing menstruation and its accompanying ovulation we prepare the way for conception, rather than by the dilatation and curetting of the uterus?

Conclusions.

I believe that the above data justify the following conclusions:

1. That injury to either a true or false corpus luteum will simulate a ruptured extrauterine gestation.
2. That injury to a true corpus luteum will bring on an abortion.
3. That rupture of a false corpus luteum will bring on menstruation and its accompanying ovulation.

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MUCOCELE OF THE FRONTAL SINUS.

BY

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THE notes of the following case may be of interest, first, because there seems to be strong reason to infer that the condition was due to trauma in early life, a cause which apparently is somewhat rare, and secondly, because it produced no more distress than that occasioned by occasional diplopia and a "pricking sensation in the right eye," as occurred in the case reported by Mr. J. A. Gibb (*BRITISH MEDICAL JOURNAL*, November 25th, 1921), and slight headache.

In January, 1917, Miss L., aged 28 years, consulted me on account of a small swelling at the inner and upper angle of the right orbit and of occasional diplopia. I thought the swelling was probably an osteoma. The first sign of anything wrong—the presence of the swelling—was noted about six months before she saw me. She took up war work as a masseuse, and three months before she came to me began to feel run down and to have headaches after a hard day's work or after reading, and at such times the diplopia troubled her more. She had seen an ophthalmic surgeon, who wrote to me that he considered the swelling was an osteoma or a fibrosarcoma. Immediately before seeing me she had consulted a surgeon who considered the condition to be due to nasal sinus disease. A skiagram was taken, which was negative in every respect.

On September 12th, 1921 (the description holds good for the first consultation in 1917), I made the following notes. Inspection showed slight proptosis of right eyeball with displacement downwards and outwards; neither of these features would have been noticeable on casual observation, the right pupil being about 3 mm. lower than the left. Across the bridge of the nose, which was broader than normal, was a linear oblique scar three-quarters of an inch long; it was the result of an accident when the patient was 3 years old which broke the nose and laid bare a considerable area of bone. A bilateral symmetrical bony boss could be felt on either supraorbital ridge about the position of the inner side of the supraorbital notch. The swelling complained of was below the boss on the right supraorbital ridge. Estimated by palpation it was about the size of an ordinary pea; it was bony hard, did not fluctuate, and was immovable but tender to deep pressure; there was no redness. The eyelids were freely movable; there was no lachrymation, and no history of nasal trouble, excepting that the patient thought the right nostril seemed narrower than the other. Headaches were confined to pain behind the right eye. Both fundi were normal; vision R. and L. = 6/6. In the diplopia the images were vertical without lateral displacement. Intranasal examination showed a deformed septum deviated to the right in the upper part and posteriorly. The nasal mucous membrane was apparently perfectly normal and healthy,

and there was no discharge or history of discharge of any kind. The patient was seen with me by Dr. Macdonald, to whose help I am indebted; he agreed that the condition might be an osteoma.

Operation.

On September 30th, 1921, an incision was made along the right eyebrow down to the periosteum. The supraorbital ridge was then felt to terminate in a sharp irregular ridge, and in attempting to separate the orbital periosteum a thick gelatinous substance the colour of very pale yolk of egg presented; this I swabbed and scooped away with a blunt spoon; it measured, perhaps, a tablespoonful. There was apparently a delicate envelope, and pieces of eroded floor of the frontal sinus adhered. After this removal none of the floor of the sinus remained. The cavity above was bounded by the roof of the sinus. Either there was no median raphe between the right and left sinuses or it had been eroded; an opening which would have admitted a pencil led to the left sinus. As the condition in the left sinus was obviously the same as the right, a further incision was made through the left eyebrow, the periosteum was reflected, and the floor of the sinus, which was thin and fragile, was chiselled through and the sinus emptied.

Both fronto-nasal ducts appeared to be occluded. Drainage was established by two thick gauze drains into the nose through openings made by a spoon in the position of both ducts. The incisions were sutured. The gauze drains were removed on the following day.

After-History.

A little blood-stained discharge continued to flow from the right nostril for some days.

Forty-eight hours after the operation I was called to the case, and in my absence Dr. Macdonald kindly saw the patient at about 10 p.m. He describes her condition as follows: "She was comatose, curled up in bed; could not be roused. Temperature 102°. Did not respond to any stimulus. Reflexes normal." By midnight her condition was improved in that she could be got to respond to vigorous stimulation, but in the circumstances the condition was alarming, indicating a possible onset of meningitis. On careful examination Dr. Macdonald came to the conclusion there were indications pointing to the condition being at least partly hysterical, and that this was probably so is borne out by immediate and uninterrupted improvement.

The following day she was so much improved as to be able to say her head ached. The temperature reached 100° in the evening, but from this date she rapidly got well, and three weeks after operation only complained of a little occipital headache and occasional diplopia after a quarter of an hour or so of reading or close work. The wounds healed with practically no disfigurement.

The gelatinous substance and lining was examined by the hospital pathologist. His report was as follows:

"I find the fluid contains no cells and is of a mucoid nature, whilst sections of the solid pieces show them to be the normal mucous lining of the tissues. These results lead me to think that the condition was probably due to accumulation of the normal secretion."

The Kettzomian Lectures

ON

AMOEBC LIVER ABSCESS.

DELIVERED BEFORE THE MEDICAL SOCIETY OF LONDON *

BY

SIR LEONARD ROGERS, C.I.E., M.D., F.R.S.

[Abstract.]

LECTURE III.—THE PREVENTION OF AMOEBC LIVER ABSCESS AND THE RECENT REDUCTION IN THE PREVALENCE AND MORTALITY.

In his final lecture Sir Leonard Rogers said that from what he had so far indicated with regard to the pathology and treatment of amoebic liver abscess, it would be sufficiently obvious that any simple method of preventing such a complication would be far more beneficial than even the most certain and established methods of cure. He wished, therefore, to devote himself in this third lecture to the measures which had enabled him to establish such prevention on a scientific basis. Ipecacuanha appeared to have been used at quite an early date in India in dysentery and hepatitis, but afterwards was superseded. In 1855, however, ipecacuanha was being used in large doses for dysentery among the British troops at Mauritius, and there were records of its reintroduction at a still earlier date. Maclean in 1854, in writing on hepatitis, did not mention ipecacuanha, but advised saline purges, strict dieting, and the cutting off of alcohol. In the same author's article in Reynolds's *System of Medicine* in 1871, however, he stated that for years past he had advised 20- to 25-grain doses of ipecacuanha in acute hepatitis, and remarked upon it

as a curious fact in the history of tropical medicine that in dysentery this drug should have been superseded by calomel and opium. It was now clear that such violent fluctuations in treatment were inevitable in India so long as amoebic dysentery remained undistinguished. Sir Patrick Manson had consistently advised large doses of ipecacuanha whenever hepatitis was associated with dysentery, and long before he recognized amoebic dysentery as a distinct disease he recommended ipecacuanha in cases invalided home from the tropics.

Blood Changes in the Early Recognition of Amoebic Hepatitis.

The lecturer continued his description of the researches which led up to the differentiation of the presuppurative stages of amoebic hepatitis, with prevention of abscess formation, rendering surgical interference unnecessary. Coincidentally with his studies in the etiology of amoebic liver disease he was working on blood changes in fever admissions. At the time he began this work (1901) it might safely be said that 90 per cent. of the fever cases were diagnosed and treated as malaria, although he found that only one seventh of them were really so, and among the fevers at that time nearly always confused with malaria were the more chronic forms of amoebic hepatitis, which were always treated with quinine. It was known that amoebic hepatitis produced a leucocytosis, but with no pathologist and a very small staff of overworked clinicians there was no detailed history of blood counts until he began his own investigations in Calcutta.

From his notes collected at that time he found that during nearly four years none of the hepatitis cases (including those going on to abscess formation) had been treated with ipecacuanha. It was clear, therefore, that at this time, in Calcutta at all events, the specific drug had been superseded by ammonium chloride in hepatitis. He showed some tables of cases to illustrate the leucocytosis which was found.

In a first series of five cases admitted for hepatitis and not going on to suppuration only two showed a very slight increase in the leucocytes. In sixteen other cases which went on to liver abscess all except one showed a leucocytosis, and even in that one there was a relative increase in leucocytes. The counts where there was leucocytosis varied from 12,750 to 38,500 leucocytes. The case which showed 38,500 leucocytes and another which showed 35,000 were cases of multiple small liver abscesses which rapidly proved fatal. In the more chronic and insidious forms leucocytosis was absent on admission, but developed later under ammonium chloride treatment.

At this stage in his investigation he had already proved that tropical liver abscess always contained amoebae, but rarely pathogenic bacteria. Therefore the abscesses were almost certainly caused by the amoebae, and were preceded by amoebic ulceration of the colon. He became convinced that ipecacuanha was a specific for the amoebic variety of dysentery, although useless for the bacillary form common in Indian galls. Although cases in this presuppurative stage might or might not give a history of previous dysentery, he knew from his experience of the leucocytosis that latent amoebic ulcers must be present in some part of the large bowel which were healed by large doses of ipecacuanha.

Ipecacuanha in the Prevention of Amoebic Abscesses.

It was not, however, until 1907 that he was able to record a convincing series of successful cases. This included 15 cases of hepatitis he had met with among 1,350 consecutive fever admissions, or just over 1 per cent. It was not surprising that cases occurring in so small a proportion of the total number had not been differentiated by busy clinicians in the absence of blood examination.

The first three cases, which he showed in tabulated form, were cases of dysentery and hepatitis treated with ipecacuanha. The blood showed leucocytosis in all three. They had suffered from fever for eighteen, thirty-four, and forty-one days before they were put on ipecacuanha, and the fever ceased two, four, and three days after the full dose of this drug. The next eight cases were cases of hepatitis without dysentery: there was no previous history of dysentery, nor was there dysentery while in hospital; but one or two of them showed diarrhoea, and others constipation, and so on. In three of these cases, which were treated only with ammonium chloride, the fever went on for thirty-four, forty-four, and forty-nine days before the temperature came down. The others were treated with ipecacuanha, and the temperature quickly fell. Another group of four cases were cases without either dysentery or obvious liver symptoms; they were obscure cases of fever. Two of them showed leucocytosis on admission, and the other two developed it later, and on the strength of this all of them were put on ipecacuanha, and the temperatures came down quickly, in one case within two days.

The lecturer showed temperature charts obtained in these various cases. In one case the fever had lasted fifty-eight days

* Abstracts of Lectures I and II appeared in the BRITISH MEDICAL JOURNAL of February 11th and 18th, 1922.