cases, any increase in volume, and the swelling of the liver cells could only occur by encroachment on the portal capillaries with consequent portal obstruction. The work of Azoulay and Jaquelin³ gives important confirmation to this contention. They found that the healthy human liver after death would increase and diminish in volume according to the pressure of the fluid with which it was perfused, but in a cirrhotic liver practically no volume changes could be produced.

Willcox⁴ quotes two cases of an analogous but not exactly comparable type occurring as a result of tetrachlorethane poisoning; after many weeks of toxic jaundice symptoms of portal obstruction developed. There is, however, a definite probability that in these cases the obstruction was due to replacement fibrosis. There are, of course, other explanations, and the case quoted by Halita⁵ of toxic jaundice of four months' duration with generalized anasarca cannot be accounted for on these lines. Halita regarded the dropsy as due to an upset in the metabolism of water, probably as the result of an alteration of the colloidal balance of the plasma.

The frequent oedema of the ankles in cases of pre-ascitic cirrhosis has been similarly ascribed. There is no reason why the two explanations should be mutually exclusive, as the two types of case are not clinically identical. A third explanation for the ascites is that it is caused by peritoneal irritation, and this cannot be denied; Fiessinger's views are, however, too alluring to be lightly spurned.

The case that came under my observation was that of a man aged 52; he was first seen in August, 1928, with the history that his Wassermann reaction two years before had been strongly positive and that he had then been successfully treated with novarsenobillon for paroxysmal tachycardia. The complaint had recurred, and a further course was suggested. Apart from rather an interesting tachycardia of the paroxysmal type there was nothing on examination, but the Wassermann reaction in the blood was strongly positive. He received six injections of 0.3 gram of novarsenobillon, a total of 1.8 grams, and his treatment was stopped on November 6th, as jaundice had developed. He was treated by his own doctor for some weeks, but as the jaundice did not clear up he was referred to me again on December 16th. He had a deep jaundice with bile in the urine and clay-coloured stools, and it appeared to be a case of rather severe toxic icterus. He was treated with the intravenous injection of sodium thiosulphate, and he received in all 4.5 grams. The jaundice increased rather than diminished, and the liver could be felt about two finger-breadths below the costal margin; ascites developed, and it became gross and of sufficient amount to produce oedema of the legs. He was sent back to his doctor on December 28th, and a very bad prognosis was given, with the suggestion that it must be a case of cancer of the liver, and the suggestion of toxic jaundice incorrect. He remained in bed for fifteen weeks, and both jaundice and ascites gradually cleared. He had become very emaciated, but it was now obvious that he was going to recover. On May 23rd I saw him again; he was rather thin, but there were no signs of jaundice; the liver appeared to be the same size as it had been at the height of the disease. Retrospectively the case was then diagnosed as an example of the ictero-ascitic syndrome, and it is difficult to see what else it could be. Liver function tests were carried out with the following results: Van den Bergh test negative. Icterus index 2. Levulose tolerance test: before levulose, blood sugar 0.098; half an hour after 50 grams, 0.154; 1 hour after, 0.168; 1½ hours after, 0.132; 2 hours after, 0.115; 2½ hours after, 0.108. Galactose tolerance test: before, 0.108; half an hour after 50 grams, 0.141; 1 hour after, 0.162; 1½ hours after, 0.110; 2 hours after, 0.105; 2½ hours after, 0.086.

It will be seen that both of the sugar tolerance tests show a definite abnormality in the functional capacity of the liver; this confirms my view of the pathology of the case—an initial cirrhosis of the liver, possibly of syphilitic origin, and a superimposed arsenical jaundice complicated by ascites.

Finally, due acknowledgement must be made to Mr. Garfield Thomas, biochemist to the General Hospital, for the chemical findings.

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THE DICK TEST IN PREGNANCY.

REPORT ON 533 CASES IN THE OBSTETRICAL UNIT OF THE ROYAL FREE HOSPITAL.

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In the *Lancet* (April 14th, 1928, pp. 746, 748) there were two interesting articles by Dr. Parish and Dr. Okell on the relationship of the haemolytic streptococci to scarlet fever and other diseases. The authors suggested that the closest relationship existed between the streptococci of puerperal fever and scarlet fever. It obviously became of great interest to see if there were any agreement between the reaction of pregnant women to the Dick test and their liability to puerperal sepsis. A paper by Burt-White¹ suggested that there was a definite relationship. The following investigation was also designed to test the hypothesis that such a relationship exists. Shortly after our work was begun the British Medical Association most generously awarded us a research grant, which has considerably facilitated the investigation.

In all, 533 cases have been tested. The test is performed as is described below on patients when they come into hospital in labour. Messrs. Burroughs Wellcome's standardized scarlet fever toxin and control are used. An intradermal injection of 0.2 c.cm. of toxin is made into the patient's left forearm, and 0.2 c.cm. of control into the right forearm.

The reactions are noted in six hours, and again in twelve to eighteen hours. Positive reactions begin to fade in about twenty-four hours. A positive reaction is indicated by an area of erythema, varying in size, surrounding the point of injection in the left forearm. Occasionally an erythematous area is also seen on the control arm. If there is an area of erythema only on the control arm a protein reaction is indicated, and this is also shown by areas of erythema of equal size on both arms. If there are erythematous areas on both, but that on the left is larger than that on the right, the reaction is positive. No erythema at all indicates a negative reaction. It is also of interest to note when doing the test whether the patient has previously had scarlet fever, erysipelas, puerperal fever, or severe sore throat.

The results of the tests are as follows, the Queen Charlotte's standard of morbidity (100° F. on one occasion at any time during the puerperium) having been used:

1. Of the 533 cases tested 158 (or 29.6 per cent.) were Dick-positive, 373 (or 69.9 per cent.) were Dick-negative, and 2 (or 0.3 per cent.) had protein reactions only.

2. Among the Dick-positive cases 126 (or 80 per cent.) remained afebrile throughout the puerperium, and 32 (or 20 per cent.) were at some time febrile, according to the above-named standard morbidity. Among the Dick-negative cases 317 (or 85 per cent.) remained afebrile, and 56 (or 15 per cent.) were febrile. In all, there were 443 (or 84 per cent.) afebrile patients, and 88 (or 16 per cent.) febrile patients.

3. An analysis of the afebrile and febrile cases in relation to complications yields the following statistical data: manipulations were necessary in the delivery of 50 Dick-positive patients and 140 Dick-negative patients; of the former, 14 (or 28 per cent.), and of the latter, 30 (or 21 per cent.) were febrile. Of the 108 remaining Dick-positive cases, in whose treatment manipulations were not undertaken, 18 (or 17 per cent.) were febrile; and of the corresponding 233 Dick-negative cases 26 (or 11 per cent.) were febrile. A history of previous attacks of scarlet fever, erysipelas, sore throat, etc., was obtained from 42 Dick-positive and from 123 Dick-negative cases. Of the former, 5 (or 12 per cent.), and of the latter, 22 (or 18 per cent.) were febrile. Among the 116 Dick-positive cases giving no such history 84 (or 72 per cent.) were febrile, and among

the 60 corresponding Dick-negative cases 34 (or 56 per cent.) were febrile.

The following are the clinical conditions that were found in association with the febrile cases: urinary infections with *B. coli* and streptococci isolated from catheter specimens; clinical sapraemia in conjunction with urinary infections; clinical sapraemia; streptococcal sore throat; breast abscess; white leg and clinical sapraemia and general peritonitis following septic abortion. There were three cases of Caesarean section in the series: one in which no cause for fever could be found, one with a septic abdominal wound, and one followed by general peritonitis. There was only one case of septicaemia in which the blood culture yielded *B. coli* and streptococci. In a number of cases in which a rise of temperature occurred on one occasion only no definite cause of fever could be found.

All the 32 febrile Dick-positive cases made a complete recovery; one death, from streptococcal general peritonitis following Caesarean section, occurred among the 56 febrile Dick-negative cases.

Discussion of Results.

The object of our work was to see if the pregnant woman giving a positive Dick reaction was more liable during the puerperium to suffer from "fever" than the negative reactor. Our results do not suggest that she is more liable. If she is, the difference is so small that it would obviously take a very large number of observations to establish it. Such a series of observations would have to be controlled by taking one or more cervical swabs in every case and examining them by complete bacteriological methods to establish the percentage incidence of haemolytic streptococci. It is not opportune to carry on the investigation on this large scale over a long period, and we have therefore been advised to discontinue the work.

The results obtained by Burt-White indicated a greater liability of the Dick-positive woman to suffer from "fever." We cannot give any explanation of the difference between those results and our own, and, as we are closing the research, we cannot further investigate the discrepancy.

Summary and Conclusions.

1. Of 533 pregnant women tested by the Dick method 70 per cent. were negative.
2. Of 158 Dick-positive reactors 20 per cent., and of 373 Dick-negative reactors 15 per cent., became febrile.
3. No attempt was made to decide whether the febrile condition was due to haemolytic streptococci or not.
4. There was no significant difference between the liability of the Dick-positive and Dick-negative pregnant women to suffer from "fever" in the puerperium.

We have to thank the British Medical Association for their grant, which has enabled us to do this work; Drs. O'Brien, Okell, and Parish for their help and advice, and Professor Dame Louise Mellroy for allowing us to publish the report of the cases from the Obstetrical Unit of the Royal Free Hospital.

REFERENCE.

¹ *British Medical Journal*, 1928, ii, 974.

Memoranda :

MEDICAL, SURGICAL, OBSTETRICAL.

FULL-TERM ECTOPIC PREGNANCY.

THE following case is of interest on account of its comparative rarity.

Mrs. H., aged 22, was seen by one of us on April 25th, 1929. She complained of vomiting of greenish fluid, and looked extremely toxic. The temperature was normal, but the pulse rate was rapid (110). There was a history of amenorrhoea since June 6th, 1928, the menstrual flow on that occasion only lasting one day. She felt well, and pregnancy apparently was following a normal course until April 5th (about three weeks overdue, according to her reckoning). On this date she fell, striking the abdomen against a door. This was followed by severe abdominal pain, with vomiting, for two days, causing her to remain in bed. Since that date she had felt no foetal movements. She had had two normal confinements, two and three years ago respectively.

On examination the contour of the abdomen was found to be conical, with the apex at the umbilicus, and corresponded in size to a full-term pregnancy. The foetal parts were unusually palpable, even the individual skull bones could be felt and made to override one another. There were no foetal movements or

heart sounds. Other systems were normal. Per vaginam the cervix was soft with the internal os closed, but the presenting part was too high to be palpated.

The patient was admitted to the Scarthoe Road Infirmary, where, owing to her toxic condition and the presumed death of the foetus, we decided to induce labour. Watson's method of induction was tried and failed. Three days later induction by the stomach-tube method was tried, but it was found that only about four inches of the tube could be introduced, giving rise to the suspicion of ectopic gestation.

An examination was then made under general anaesthesia, and it was found that the uterus, corresponding in size to a two months pregnancy, could be palpated against the right pelvic wall. A definite diagnosis of ectopic pregnancy was made. During examination a small piece of decidua was expelled and the remainder the following night.

On May 8th abdominal section was performed. On opening the peritoneal cavity membranes presented. These were much thickened (1/8 inch), greenish-brown in colour, and lightly adherent to the anterior abdominal wall. They were incised and a large quantity of greenish-brown fluid escaped. A macerated foetus of about 9 lb. weight was then removed.

Adhesions between the membranes and abdominal contents were now separated and in parts were found to be very firm. The structures of the broad ligament on the left side were directly continuous with the membranes and formed the entire placental attachment. The broad ligament was ligated and divided, the membranes, placenta, and a portion of the ligament being removed as a whole. The position and size of the uterus confirmed the findings at the previous examination. A large drainage tube was inserted into Douglas's pouch and the abdomen closed.

The convalescence of the patient was prolonged but without incident, and she left the infirmary six weeks after the operation.

In this case the relationship of the placenta to the broad ligament alone showed that the foetus must have escaped from the tube by a process of gradual erosion, an interesting point being that both the amnion and the chorion were intact.

We are indebted to the medical superintendent of the infirmary, Dr. S. W. Swindells, and to Dr. D. S. Campbell for their advice and permission to publish this case.

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PARAPHIMOSIS OF THE CLITORIS.

I WAS greatly interested in Mr. R. J. Willan's description of a case of paraphimosis of the clitoris, which appeared in the issue of the *British Medical Journal* on December 22nd, 1928 (p. 1130). This condition is evidently a rare one, so that a case of mine in a girl, aged 9 years, may be worth recording.

This child was out walking with her guardian when it was noticed that she was limping and appeared to be suffering some pain. When questioned by the guardian her reply was evasive, but she gave the information that two days previously she had fallen when climbing a fence and had injured herself. The guardian became alarmed when she discovered the site of the trouble, and decided to have her examined at once by a doctor.

When I saw the child on January 22nd, 1929, there was a large abrasion upon the outer aspect of the right thigh, and this seemed to confirm the history of a fall. I then placed the child in the lithotomy position and examined the external genitals in a bright light. I was surprised to find what I took to be a condition of paraphimosis of the clitoris. On closer inspection, after cleaning the parts with hydrogen peroxide and saline, I made an endeavour to identify the disturbed anatomical relations. At the base of the swollen and oedematous clitoris was a band of constriction and ulceration. From the dorsal aspect of this constriction a tiny speck of foreign matter was seen. I seized this with a pair of epilating forceps, and for some queer reason put into action the mechanism for taking out a suture. Sure enough, a short strand of linen thread tied tightly in a knot came away with a snip of the scissors.

On displaying this before the patient's eyes and asking her what she knew of it, a confession was finally wrung from her that, with the assistance of a girl friend, a piece of sewing machine thread had been deliberately tied round the organ, but their efforts to remove the string had been unsuccessful. Hence the awkward situation.

I must state in conclusion that I strongly suspect that the cause of the condition in Mr. Willan's case was not altogether an accidental one.

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