

On examination the child looked sick; her face was puffy, and she had dry skin and hair; there was a firm diffuse enlargement of both lobes of the thyroid as well as the isthmus. Her pulse was slow, settling eventually between 60 and 70, her blood pressure was 80/60, and there was a soft localized apical systolic murmur. There were no other abnormal physical signs, but her mental state was unusual, as she was miserable, apathetic, and whining. She refused to co-operate with the nursing staff and was incontinent of urine and faeces.

Further investigations which were carried out on her re-admission to hospital were as follows:—Full blood count: haemoglobin, 70% (Haldane); red cells, 3,620,000 per c.mm.; white cells, 6,000 per c.mm. (polymorphs 60%, lymphocytes 28%, monocytes 9%, eosinophils 3%). Urine: nothing abnormal detected. Cerebrospinal fluid: protein, 35 mg. per 100 ml.; Pandy's reaction, negative; glucose, 70 mg. per 100 ml.; chlorides, 623 mg. per 100 ml.; cells, less than 3. Blood cholesterol, 250 mg. per 100 ml. Blood urea, 17 mg. per 100 ml. Serum potassium, 13 mg. per 100 ml. Glucose tolerance, impaired, probably because of temporary liver dysfunction. Prothrombin time, 40% of normal, using Rusven and Quick's methods. Radiograph of heart and chest: generalized cardiac enlargement but no evidence of miliary tuberculosis. Electrocardiogram: rate 64, inverted QRS and T waves in Lead III.

The P.A.S. therapy was stopped immediately and she was given menaphthone ("synkavit"), 10 mg. intramuscularly daily for three days, and then 10 mg. orally daily for one week. In addition, her diet contained large quantities of orange juice, and she was given a small amount of potassium citrate by mouth.

She was discharged home on November 8. Her general condition had improved considerably, her serum potassium was now 20 mg. per 100 ml. and her blood cholesterol 200 mg. per 100 ml.

When she attended the out-patient department a week later her pulse rate had risen to 90, the radiograph of her heart revealed a normal contour, and the thyroid gland had returned to normal both in size and in consistence. The most noticeable thing, however, was the improvement in her mental condition. She was much happier, very co-operative, and interested in everything that was going on around her.

She finally attended the clinic on February 26, 1951, when she was gaining weight and was happy and alert. Investigations, which included examination of the cerebrospinal fluid, estimation of blood cholesterol, x-ray examination of heart and chest, electrocardiography, and prothrombin time, were all normal.

We did not carry out an estimation of the basal metabolic rate, as the child was so uncooperative, but the clinical diagnosis of acute hypothyroidism was never in doubt. In fact, the picture was most striking, as was the rapid return to normal when the drug was stopped. Other complications of the therapy were hypopotassaemia and a prolongation of the prothrombin time, manifestations which have been described previously and which in this case disappeared in a very short time.

Comment

In the many careful reviews (Bogen *et al.*, 1950; Carstensen, 1950; Cayley, 1950; Madigan *et al.*, 1950) of the modern treatment of tuberculosis stress has been laid on the apparently innocuous behaviour of P.A.S.; the complications which have been detailed have included gastro-intestinal symptoms (nausea, vomiting, epigastric pain, and diarrhoea), pruritic dermatitis, neutropenia, and drug fever: in addition, bacterial resistance, prolonged clotting-time, and a lowering of the serum potassium, with the production of coupled heart beats and temporary muscle paralysis, have been described. Only one reference has been made to the

thyroid gland—by Madigan *et al.* (1950), who suggested that the basal metabolic rate might rise during the administration of P.A.S.

It is true that the duration of P.A.S. therapy in this case was great, but it is quite conceivable that when the drug is used in the treatment of pulmonary tuberculosis this period of time will be exceeded, and it is suggested that the possibility of this complication should be entertained.

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A SIGN FOR DIFFERENTIATING UTERINE FROM EXTRAUTERINE COMPLICATIONS OF PREGNANCY AND PUERPERIUM

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A simple physical sign which does not appear to have been described before has been found useful in the differential diagnosis of abdominal pain in pregnancy and the puerperium. The test may have been employed by other clinicians, but the object of this communication is to submit to the profession my experience with the method so that its value in the hands of others may be proved or disproved.

The diagnosis of acute appendicitis complicating pregnancy is fully described in textbooks of obstetrics and discussed in detail in the classical monographs of Jerlov (1925) and Fahmy (1944). In *Queen Charlotte's Textbook of Obstetrics* (1943) it is stated; "It is important to define whether the chief tenderness is uterine or extrauterine. In the one case the lesion is probably concealed accidental haemorrhage, red degeneration of a fibroid, or an injury to the uterus, while in the other case it is liable to arise from a peritonitis or pyelitis." (To the causes of uterine tenderness, angular pregnancy may be added.) Fahmy says: "In order to palpate the appendix area more readily it has been suggested that examination be made with the patient in the left lateral position so that the uterus may move away towards the left side as far as possible." From these two statements it appears a logical step to include the "sign of fixed or shifting tenderness," described below, among the means of differentiation between the causes of abdominal pain in pregnancy and the puerperium. This sign bids fair to assist in diagnosing the cause of abdominal rigidity and tenderness in cases in which it is difficult or impossible to outline the uterus.

With the patient lying straight on her back, the examining fingers find the area of maximum tenderness to pressure on the abdominal wall. While the fingers remain in contact with that area without altering the intensity of pressure they are exerting to elicit pain, the patient is made to turn over on to the opposite side so that the plane of the anterior abdominal wall is approxi-

mately vertical. The pain produced by the pressure of the fingers will be less or will have entirely disappeared if the lesion is uterine and has fallen away from the examining fingers—"shifting tenderness" (concealed accidental haemorrhage, Case 3, or degenerated uterine fibromyoma, Case 4); pain sensation will be unaltered if the lesion is extrauterine—"fixed tenderness" (due to appendicitis, Cases 1 and 2, renal or gall-bladder disease, ovarian cyst with twisted pedicle, diverticulitis).

It is obvious that this sign can be of use only if the uterus is large enough to be palpable abdominally, and that it may be misleading in the rare case in which a uterine lesion has become fixed by adhesions to the anterior abdominal wall (Case 4). In acute salpingitis, which does occur in pregnancy (Lennon, 1950), the result of the test will depend on the presence or absence of perisalpingitic adhesions.

No opportunity has arisen to diagnose a case of appendicitis or of twisted ovarian tumour during the puerperium, but the sign should be helpful in the differentiation of these and similar conditions from lesions confined to the uterus. In "puerperal endometritis," for instance, there is "shifting tenderness" (Case 6), and in a case of volvulus of the caecum (Case 7) tenderness was "fixed."

I have employed this method of examination for 10 years. A brief summary of seven relevant cases observed in recent months is appended.

Case Reports

Case 1.—A primigravida aged 22, 38 weeks pregnant; history of "labour pains" and vomiting for 20 hours. Rigidity and tenderness over the whole abdomen; maximum "fixed tenderness" in the right flank. No pus in the urine. Laparotomy. General peritonitis, perforated gangrenous appendicitis. Appendectomy. Onset of labour two days later. Forceps delivery. Recovery.

Case 2.—A primigravida aged 23, 24 weeks pregnant; history of generalized abdominal pain for 60 hours, constipation, no vomiting. Rigidity and tenderness over the whole abdomen, maximum "fixed tenderness" in right iliac fossa. Laparotomy. General peritonitis, perforated gangrenous appendicitis. Appendectomy. Recovery. Pregnancy preserved.

Case 3.—A 3-para aged 25, 38 weeks pregnant; history of severe generalized abdominal pain for three hours. The whole abdomen was rigid and extremely tender, so that the uterus could not be outlined. "Shifting tenderness" in both iliac fossae helped to arrive at the diagnosis of concealed accidental haemorrhage. Morphine and blood transfusion given; artificial rupture of the membranes after onset of uterine contractions, with some external bleeding. Foetus stillborn. Mother recovered.

Case 4.—A primigravida aged 43, 28 weeks pregnant; severe R.I.F. pain, vomiting, pyrexia. An extremely tender mass as large as an orange in the R.I.F. moved away from under the examining fingers when she was turned on to her left side—"shifting tenderness." A diagnosis of red degeneration of a uterine fibromyoma was made. The symptoms all but subsided with rest in bed. At 38 weeks the symptoms recurred; the findings were similar, but tenderness was now "fixed." Delivery by caesarean section. A subserous fibromyoma attached to the right uterine margin by a broad pedicle and adherent to the anterior abdominal wall was removed. Recovery. The diagnosis of red degeneration was confirmed histologically.

Case 5.—A primigravida aged 22, in labour, complaining of severe right-sided abdominal pain and of vomiting of 24 hours' duration. Temperature 100.2° F. (37.9° C.), pulse rate 132, guarding and "shifting tenderness" in R.I.F.

There was no evidence of concealed accidental haemorrhage or of uterine fibromyoma. A diagnosis of appendicitis was rejected because tenderness was "shifting." Spontaneous delivery. Pain, vomiting, and "shifting tenderness" persisted. Laparotomy. In the peritoneal cavity there was free purulent fluid from which *Bact. coli* was cultured; the appendix was healthy; there was no Meckel's diverticulum. The right Fallopian tube was deeply congested, swollen, and its lumen contained pus; it was not adherent to any surrounding structure. Closure of the parietes without drainage. Chemotherapy. Recovery.

Case 6.—A 2-para aged 30, admitted with inversion of the uterus, which was replaced by taxis. Three days later there was pyrexia, vomiting, and pain in R.I.F. There was much tenderness of the right uterine margin; this tenderness was shown to be "shifting," and a diagnosis of "puerperal endometritis" was made. Chemotherapy. Recovery.

Case 7.—A 3-para aged 28; history of appendectomy four years previously; immediately after spontaneous delivery excruciating pain in R.I.F. set in. There was "fixed tenderness" of a mass in the R.I.F., over which the percussion sound was tympanitic; it was impossible to outline the uterus. Laparotomy. The head of the caecum was bound down by a peritoneal band; the caecum, the lower half of the ascending colon, and the last 6 in. (15 cm.) of the ileum had undergone axial torsion through two full circles. The volvulus was untwisted after division of the peritoneal band. Recovery.

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A pamphlet describing some of the movements of population in England and Wales over the last 100 years or so has been issued from the General Register Office. The authors of it are Miss Mary P. Newton and Mr. James R. Jeffery. In the first part Mr. Jeffery describes the great migrations of people in this country after the industrial revolution. In 1851 about 50% of the population lived in rural districts, whereas in 1901 just over 20% did so. There was not at this time much movement between north and south, for most of the country dwellers moved to towns near their old homes. At the beginning of the nineteenth century Birkenhead had about 700 inhabitants. Sixty years later it had a growing population of over 50,000, while at the 1951 census its population was over 142,000. Though part of the great population increase in the towns during the nineteenth century was due to the general population increase in the country as a whole, the population in the large towns was increasing at a rate which was double that of the rest of England and Wales. By 1880 world competition economically depressed British agriculture, and again many agricultural labourers sought employment in the towns. Most of the immigrants to towns were young adults. In the second part of the pamphlet Miss Newton makes use of national registration statistics in analysing migration in recent years. An outstanding feature of migration to-day is the very high rate of movement experienced in holiday resorts. The greater part of this movement is not due to people taking holidays but to people employed in the hotels, boarding-houses, and catering industry. The pamphlet is *Studies on Medical and Population Subjects, No. 5: Internal Migration* (H.M.S.O., 1s. 6d.).