ally burrows will be found in some of them. The burrow is never formed by animal varieties of scabies during their transient infestation of man.

It is almost unknown for Norwegian scabies to occur in the physically or mentally normal subject. Severe malnutrition, vitamin deficiency, and debilitating disease have been considered as contributory factors. Backhouse (1929) investigated endemic scabies among natives of New Guinea, and found severe crusted forms with massive infestation in those debilitated by dysentery, tuberculosis, and chronic beri-beri. On the other hand, the four mongols described by Calnan (1950) and the two seen by H. J. Wallace (1950, personal communication) were not undernourished and were in a reasonably good state of general health. Calnan emphasized the absence of itching in his cases, and it seems probable that a failure to scratch effectively is the main factor in the evolution of this type of case. Organic nervous disease, mental defect, psychotic depression, or the apathy associated with malnutrition may each in its own way allow the parasite to go unchecked by scratching. Zoon and Mali (1949) drew attention to nervous disease in their cases of Norwegian scabies, one of which had senile dementia, another had severe debility, another was an imbecile, and a fourth had taboparesis. Syringomyelia was present in the cases described by Hahn (1928) and by Prakken and van Vloten (1949). Mellanby (1943) points out that the number of mites in the average case of human scabies is quite small and that scratching serves to keep it down.

In the absence of scratching there is unrestricted multiplication of the mites in the horny layer of the skin. There follows a chronic inflammatory reaction and the horny layer in particular is thickened. Lymph nodes draining the affected skin are enlarged and the general reaction of the host is indicated by the eosinophilia and by the high titre of transferable antibodies to extracts from the scabious scales (Prakken and van Vloten, 1949).

It seems possible that the unrestricted increase of the mites in the thickened horny layer may lead to a temporary change of biological habit, so that the egg-laying female mite no longer forms a discrete burrow in a case such as ours, nor does she do so in contact cases for some generations.

Summary

Sixty-seven cases of scabies, mostly atypical, occurred among patients and nursing staff of two hospitals.

The epidemic was traced to a case of Norwegian scabies, which is described.

This rare variant of ordinary human scabies is discussed with reference to the factors favouring such massive infestation and great infectivity.

I wish to express my thanks to Dr. W. N. Goldsmith for permission to publish this case and for his valuable help in the preparation of this paper.

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OVARIAN DYSFUNCTION AND HEPATOCHOLECYSTOPATHY IN ASSOCIATION WITH RETRODISPLACEMENT OF THE UTERUS

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We wish here to draw attention to the well-known condition of displacement of the uterus with which menstrual disorders such as amenorrhoea, dysmenorrhoea, menorrhagia, metrorrhagia, etc., coexist, and with which not infrequently a cystic follicle and/or a cystic corpus luteum as well as a polycystic ovary may be associated. This primary displacement of the uterus, which very often may be due to endocrine deficiency (pituitary, suprarenal, thyroid) and resultant infantilism, may partly explain the menstrual disorders, as both have a common origin.

The anteverted and/or anteflexed infantile uterus may respond more or less favourably to treatment with oestrogens, as their hyperaemic action, which can be combined with dilatation of the cervix, results in many cases in a decrease of the dysmenorrhoeal symptoms. Sometimes this may be followed even by pregnancy. Cystic follicles, on the other hand, may also often disappear after short-wave diathermy. Repeated failure, however, of the various methods of treatment will seriously embarrass the gynaecologist, who may, as a result, try a series of pointless endocrinotherapeutic experiments.

Advantages of Ventrofixation

The retroflexed and/or retroverted uterus, either primary or secondary, represents, on the contrary, a very different condition, and therefore permits of a different treatment, as by ventrofixation it is possible to correct the abnormal position of the uterus. As is well known, this retrodisplacement causes a persistent backache and lower abdominal pains—symptoms which, we think, are a clear indication for ventrofixation. In our department, Bumm's modification of Doléris's method is used as a rule in these cases. This operation consists in suturing both the round ligaments—not together, but behind the rectus muscles, according to their natural topography, in almost the same way as in Gilliam's operation—following with suture of the vesico-uterine fold at the rear surface of the uterus.

This last modification has three main advantages: (a) By its use it is possible to correct retroflexion, which cannot be achieved by ventrofixation of the round ligaments alone. (b) By a suitable setting of the sutures both tubes can be put in their normal position, and thus tubal patency is often re-established. (c) It closes up the central vesico-uterine hole which is formed between the ventrofixed round ligaments, the abdominal wall, and the uterus, thus eliminating the danger of a volvulus. For the same purpose we further modified this kind of suture by also closing the two lateral holes which are formed by the ventrofixed round ligaments with the above suture of the vesico-uterine fold.

Ventrofixation also allows, where cystic follicles, cystic corpora lutea, or a polycystic ovary are present, either puncture or removal, if necessary. Polycystic ovaries, in our

opinion, cannot result from an operation on the ovaries, as has been contended in the past, but must be attributed rather to an endocrine deficiency.

The experience of supporters of the operative method is, we think, that, besides relief of backache and abdominal pains and the favourable effect on a possible existing sterility, ventrofixation also often restores menstruation to normal without further treatment.

On the contrary, treatment with oestrogens eventually will fail repeatedly if not applied after ventrofixation, so that this condition may be compared to that of a car with a defective transmission system which one tries to put in motion simply by supplying it with petrol. We therefore became rather dogmatic in supporting the view that in cases of retrodisplacement any kind of treatment with oestrogens before re-establishment of normal anatomical conditions is quite pointless. Even in cases in which ventrofixation fails of itself to correct periods, the re-establishment of normal anatomical conditions is essential for effective treatment with oestrogens, which would otherwise be harmful, as massive doses of oestrogens may produce polycystic ovaries, cystic follicles, metropathia, mastopathy, and other cyclic syndromes.

Our long experience, based on a considerable number of patients, has resulted in ventrofixation being performed in our department as a rule in all cases of retrodisplacement which present menstrual disorders.

Method of Action

We will try now to make clear how, in our opinion, this procedure helps in the re-establishment of menstrual periods.

Endocrine deficiency, and resultant infantilism, may in some cases be the cause of either primary displacement of the uterus or secondarily occurring menstrual disorders. The fact that ventrofixation alone will often restore periods to normal indicates, in our opinion, that the main cause lies rather in retrodisplacement itself than in endocrine deficiency and resultant infantilism, particularly since in many cases menstrual disorders appear only after retrodisplacement has occurred. We must also emphasize the fact that cystic ovaries, cystic follicles, and cystic corpora lutea, as also metropathia, mastopathy, and cyclic syndromes, are quite common where there is a retrodisplacement, whereas under normal topographical conditions they seldom occur. These facts make the contribution of retrodisplacement in the production of menstrual disorders fairly evident, and the question now arises: What is the mechanism of this phenomenon?

The bad conditions of blood supply met with as a rule in retrodisplacement might be responsible for the menstrual disorders. In fact, a menorrhagia can be explained by blood congestion. Bad conditions of blood supply may also affect the ovaries and result in the deficient excretion of oestrogens. On the other hand, the importance of the vasomotor factor and the connexion between acetylcholine and cholinesterase, as well as the vasoconstrictive properties of neostigmine, are already known in cases of amenorrhoea.

Nevertheless, the above interpretations cannot entirely cover the possible origin of this phenomenon and therefore cannot withstand criticism.

Two Important Points

There are, however, two other points which may play an important part in the possible mechanism.

1. In many cases of retrodisplacement with menstrual disorders we have noticed rather marked symptoms of dysfunction of the liver and the bile—symptoms which disappeared after ventrofixation; on the other hand, dysfunction of the liver and the biliary system often coexists with retrodisplacement. We therefore think that a correlation between these two conditions is very possible, so that one might go even so far as to support the view that possibly dysfunction of the liver and the biliary system is more often met among women owing to this very correlation.

The detection of this dysfunction may not always be possible, as in these cases the various laboratory tests are chiefly negative, in spite of other evident clinical symptoms. This is shown clearly in the laboratory investigations of our associate Professor Triantafyllopoulos. The usual symptoms of this dysfunction are dislike of fats, a heavy stomach, particularly after intake of eggs and chocolate, a feeling of tiredness, frequent yawning, sometimes a jaundiced colour, indigestion, chronic constipation, and tenderness of the liver area. These symptoms caused by retrodisplacement coexist with, and may be confused with, backache, abdominal pains, menstrual disorders, and symptoms due to a disordered vegetative nervous system, such as dizziness, headache, gravel, nausea, frequency of micturition, itching, etc. They, however, are also very characteristic of a hepatogenic syndrome described by Huet and his associates.

2. There is a connexion between the above clinical picture and the now, thanks to Zondek, well-known fact that both the liver and the bile are the main regulating agents in the supply of oestrogens; also that a dysfunction of the liver and bile may be accompanied by a hypersecretion of oestrogens—a fact which can explain the menstrual disorders in these cases.

Thus, where hepatocholecystopathy coexists with menstrual disorders, one might perhaps be justified in suspecting retrodisplacement as the main factor; but this is not always so. In a great number of cases retrodisplacement, by pressing the bowel, may cause symptomatic chronic constipation, which can lead to indigestion and hepatocholecystopathy, thus affecting the normal excretion of oestrogens and consequently resulting in menstrual disorders.

Discussion

The above is our interpretation of the mechanism, supported by the following data:

(a) Menstrual disorders coexisting with retrodisplacement can be attributed, in our opinion, to endocrine deficiency and resultant infantilism only when, after ventrofixation, menstrual periods are not restored to normal. In this case the hepatogenic syndrome is generally absent and endometrial biopsy may reveal either proliferative or secretive deficiency, as well as metropathia followed by a hypersecretion of oestrogens. A quantitative study, however, of the oestrogens has no real value in this case. Endometrial biopsy may sometimes also reveal an anovulatory cycle. In all these cases ventrofixation assists greatly in an effective treatment with oestrogens, which should follow ventrofixation.

(b) Where retrodisplacement is not associated with the hepatogenic syndrome and ventrofixation itself restores the periods to normal, menstrual disorders cannot be attributed to endocrine deficiency with resultant infantilism, but may be due either to bad conditions of blood supply or to hepatocholecystopathy. In the former case the content of oestrogens is about normal, and mostly neither metropathia nor mastopathy is present. In the latter case the content of oestrogens is above normal, and often metropathia and/or mastopathy are present, whereas the various tests of the function of the liver and bile may be either positive or negative, although the corresponding clinical symptoms are evident. The hepatic origin is rather clear, we think, where after ventrofixation both liver and bile symptoms as well as menstrual disorders disappear.

(c) Where primary or secondary retrodisplacement is not associated with the hepatogenic syndrome, endometrial biopsy may reveal nothing at all. In such cases menstrual disorders can be attributed to bad conditions of blood supply disorders can be attributed to bad conditions of blood supply.

(d) Where a secondary retrodisplacement is not evidently associated with the hepatogenic syndrome, menstrual disorders can be attributed to metropathia confirmed by endometrial biopsy, which, however, disappears spontaneously after ventrofixation. In such cases menstrual disorders may also be due to a latent hepatogenic syndrome detectable neither clinically nor by laboratory tests.

(e) The various laboratory methods for detecting the function of the liver and bile can be either positive or negative in the presence of the hepatogenic syndrome, and they may or may not correspond to the clinical picture, which also may or may not be quite evident.

(f) In cases where the above laboratory tests are positive, they may become negative after ventrofixation.

(g) Where a retrodisplacement is associated with a hepatogenic syndrome clinically evident and proved by laboratory tests, mastopathy may often be present, the content of oestrogens is usually above normal, and endometrial biopsy mainly reveals metropathia. These conditions disappear in most cases after ventrofixation with no additional treatment.

(h) In our experience the incidence of retrodisplacement is very high among patients suffering from hepatocholecystopathy.

(i) The hepatogenic syndrome may or may not be associated with retrodisplacement, and vice versa; also, retrodisplacement, as known, does not necessarily always cause backache, lower abdominal pains, and menstrual disorders.

Conclusions

Retrodisplacement may very often cause the hepatogenic syndrome. Ventrofixation will in most cases cure the hepatogenic syndrome if this is due only to retrodisplacement. If retrodisplacement is not associated with the hepatogenic syndrome ventrofixation alone will either restore periods to normal or assist in the subsequent treatment with oestrogens.

Clinical symptoms are to our knowledge more demonstrative than laboratory tests, which, besides endometrial biopsy, cannot safely assist the diagnosis.

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What is the cost of living like in New York? The New York State Department of Labor, in its monthly news magazine, *Industrial Bulletin*, for March, 1952, explains how it makes an annual calculation of what a working girl needs to live, in order to fix minimum wages in eight industries which employ women. Weekly costs are given for September, 1951, and have risen a little since. They are quoted here in dollars, with the approximate English values, at \$2.80 equal to £1, in brackets afterwards. The average New York working woman needs a minimum of \$45 (£16) a week, of which \$6.3 (£2 5s.) goes at once in Federal and State income-tax. Housing, including fuel and light, accounts for \$4 and food for \$8 (£1 8s. 6d. and £2 17s. respectively), and she is allowed five lunches away from home a week at 68 cents (4s. 10d.) each. She must allow \$1.80 (12s. 10d.) a week for medical care; she spends \$6.9 (£2 9s. 2d.) a week on clothes, and will starve herself rather than spend less, and she has \$3.2 (£1 2s. 8d.) for leisure-time activities and amusements. The noteworthy things in this budget are the high rate of income tax, which takes 14% of her wage, and the enormous amounts spent on clothes and entertainment, which total over 22% of her earnings. The cost of medical care seems to be remarkably high, coming to something over £30 a year.

HAEMOGLOBINURIA IN A CASE OF CHOLERA

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While studying the kidney changes and urinary abnormalities in cholera in order to evaluate the role of cortical ischaemia observed by some of us in experimental animals injected with cholera toxin (De, Sarkar, and Tribedi, 1950, 1951) and in human cholera (De and Sengupta, 1951), we stumbled on a sample of urine with typical port-wine colour. We became interested in the case and carried out certain laboratory investigations, which are recorded below along with the available clinical notes.

Case Report

A man aged 30 was admitted at 8 a.m. on March 4, 1952, with a history of frequent painless motions since 2 a.m. and one bout of vomiting. He had a dry tongue, a husky voice, severe dehydration, and an imperceptible pulse; his respirations were 26 a minute, and his rectal and axillary temperatures were 99° F. (37.2° C.) and 96° F. (35.6° C.), respectively.

The blood showed: haemoglobin, 70% (Sahli-Adams), or 9.9 g.%; red cells, 4,100,000 per c.mm.; white cells, 8,400 per c.mm.; no premature cell or malaria parasite; packed cell volume, 36%; mean corpuscular volume, 88 μ^3 , mean corpuscular diameter, 6.8 μ , mean corpuscular average thickness, 2.42 μ ; van den Bergh reaction of the serum, direct negative with indirect positive; total bilirubin, 1.17 mg. per 100 ml.; one-minute bilirubin, nil; plasma haemoglobin, 182 mg. per 100 ml. (measured with the help of photoelectric colorimeter); spectroscopic examination of plasma revealed absorption bands of oxyhaemoglobin (at 5,780 μ and 5,400 μ); osmotic fragility of erythrocytes, haemolysis started at 0.46%, was completed at 0.28% (Sanford technique); mean corpuscular fragility, 0.33%; effect of mechanical trauma, no lysis after 20 minutes' exposure of the washed red cells in a Kahn shaker (92 shakes a minute). The urine was first passed at 2 p.m.; port-wine colour; acid reaction, albumin +++; red blood cell +++++; hyaline cast +. The supernatant fraction of the freshly voided centrifuged sample showed absorption bands of methaemoglobin (at 6,300 μ , 5,780 μ , 5,400 μ , and 5,000 μ) and was positive to chemical test for blood. Stools had the appearance of rice-water; culture showed pure growth of Ogawa strain of *Vibrio cholerae*. The 8-hours and 72-hours broth culture of the strain were both non-haemolytic to human and sheep red cells.

Second Day.—The blood showed: haemoglobin, 74%, or 10.4 g.%; red cells, 4,780,000; reticulocytes, 0.9%; van den Bergh reaction, same as the first day; plasma bilirubin, 1.77 mg. per 100 ml.; plasma haemoglobin, nil; test for cold agglutinin, negative. The urine passed amounted to 528 ml. in 24 hours, with a specific gravity of 1016, and deep yellowish colour; acid reaction, albumin, +++; red blood cells, +++; granular casts, +; test for blood in the supernatant fraction of the centrifuged deposit was negative. Stools were five in number, liquid, and slightly coloured with bile.