

sclerosis (hyperplasia of the intima of the blood vessels and increase in the muscular and connective tissue content of the organ). These observations clearly show that hysteropexy, in cases where it is indicated, can cure a situation which may otherwise lead to irreversible damage to the uterine tissues.

SUMMARY

Venous pelvic congestion caused by displacement of the uterus alters the acid-base balance of the uterine capillary blood. After hysteropexy, congestion is removed and the balance returns to normal.

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Therapy with mineral water containing sulphur in gynaecological conditions

by

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The beneficial effect of therapy with spa water in gynaecological conditions is supported by several physiopathological considerations. One of the simplest is the anti-inflammatory and antiseptic action which explains the positive results obtained with the use of a douch in chronic inflammation of the vagina and cervix. Because of its high concentration when spa water comes into contact with the mucose membrane fluid movement becomes established from the inside towards the outside which carries bacteria, toxins and products of inflammations with it; the mucose membrane behaves, therefore, as an inert semipermeable membrane where the surface cells have lost their property of selective absorption^(15, 32, 34).

Waters which contain iodine salts or sulphur show considerable anti-inflammatory properties because of their ammonium chloride content and they also possess and antibacterial property which can be attributed to changes in the pH of the medium. It has been shown that therapy with spa water can effect a considerable influence on the physicochemical properties, colloidal balance and chemical composition of blood plasma and also on the red blood cells, influencing their sedimentation rate⁽⁴⁷⁾.

It appears, also, that therapy with spa water facilitates the processes of non

specific inflammatory reaction, that is, those reactions of tissues which have a clear defensive function, modifying the reactivity of the organism, activating the allergic responses and, therefore, changing the state of natural and acquired immunity, both humoral and of the tissues themselves⁽⁴²⁾. In addition, therapy with spa water, especially when applied in the form of baths which allows penetration of mineral components into the organism, modifies the colloidal state of the cells of the *SRI* by stimulating them.

The ability of spa water to activate and mobilize the elements of the *SRI*, together with the influence exercised on the phagocytosing function of the leucocytes, explain its effectiveness in the treatment of inflammation of the genital organs, just as the stimulation of the defensive cellular processes explains the favourable results in some forms of sterility.

In genital inflammations, spa water also have a favourable action which can be attributed to their action on the enzyme-substrate-mucopolysaccharide complex^(12, 13) as has been found in the course of studies on the phenomenon of diffusion and of the anthyaluronidase activity of the serum of patients who underwent thermal cures^(43, 7).

The hypertonicity of mineral water stimulates the mineral metabolism by its influence on the endocrine system and also because of phenomena of colloidal-osmotic nature, by which the balance between ingested water, circulating fluids and tissue fluids is modified, producing a beneficial effect on the elimination of bacterial and metabolic toxin and on the reabsorption of the exudates. With regard to inflammatory conditions of the genital organs, the ability of spa waters (of high salt, bromine and iodine, bicarbonate or calcium and alkalis content) to modify the pH of blood is of interest, since it appears that acidosis increases the intensity of inflammatory processes whereas alkalosis seems to decrease their intensity⁽⁶⁾.

The colloidal-osmotic and mineral changes produced in the superficial cells cause a stimulation of the sensory receptors with consequent transmission of messages to the central nervous system. The majority of authors consider that therapy with spa water, especially with water rich in iodine salts, stimulates the sympathetic system whereas others believe that the parasympathetic is stimulated^(23, 44, 26).

At any rate it is certain that in cases of hypothalamic amenorrhoea, of anovulatory cycle, in cases of alterations in the secretory phase of the cycle and of altered receptiveness of the uterus, all causes of sterility on a functional basis in which the peripheral automatic system is involved^(3, 40, 52), the effects of therapy with spa water, both on the autonomic nervous centres and on the endocrine centres, are of great importance.

The good results obtained with spa water in cases of sterility related to secondary hypoplasia of the genital organs are due to the stimulation of the thyroid and of the hypothalamus-pituitary system and to the effect on the cells through stimulation of cell metabolism due to ionic exchange between nucleus and cytoplasm^(42, 4, 49, 39). The increased basal rate of metabolism and the histological changes which can be observed in the thyroid during therapy with spa water are due to the presence of iodine in the spa water which is absorbed through the skin and to a greater extent through the respiratory and genital mucosal membranes^(48, 28, 31, 30). The histological changes in the genital organs, the pituitary and the adrenal of guinea-pigs⁽²⁸⁾, the increased production of oestrogens in hypogenital women⁽¹⁾ and the increased activity of gonadotropins^(11, 16, 51) all of which have

been reported during therapy with spa water, have been claimed to be due to the presence of very small amounts of oestrogenic substances (^{9, 35, 24}). In cases of sterility due to conditions of the cervix, the effectiveness of vaginal douches with water containing radioactive salts and with water containing iodine salts has been demonstrated by studying the viscosity and crystallization of the cervical mucus and by applying the post-coital test (^{14, 17}).

MATERIALS AND METHODS

The results obtained with 50 patients undergoing therapy with sulphurcontaining spa water have been examined. Each patient underwent a gynaecological examination, Papanicolaou test and an examination of the vaginal secretion before starting the treatment, and at its termination. On the basis of the type of disorder, the patients have been divided into 4 groups, which have been considered separately, and are:

- 1st group: 18 cases of cervicitis and ectopia with signs of pelvic inflammation
- 2nd group: 10 cases of chronic inflammation of the adnexa
- 3rd group: 16 cases of vaginitis, of which 9 cases were caused by bacteria and 7 by *Trichomonas*
- 4th group: 6 cases of inflammation with adhesions following surgical operation.

The therapeutic cycle consisted of 12 vaginal douches, 12 thermal baths, and 12 application of mud in special pants in the pelvic and lumbar-sacral regions.

RESULTS

At the gynaecological examination patients of the first group (cases of cervicitis and ectopia with signs of pelvic inflammation) complained of pain due to pelvic inflammation, and also of dyspareunia, leucorrhoea and in some cases loss of blood, «drops of bright red blood», especially after intercourse.

Microscopic examination of the cervico-vaginal smear showed a coarse vacuolization of the cytoplasm of the pavement cells, presence of free nuclei on account of cell lysis and an increase in the nuclear volume and presence of multiple nuclei with evidence of karyorrhexis, karyolysis and pyknosis in patches.

In the cases with ectopic cervix the smear obtained by scraping the cervix showed the presence of cylindrical cells and metaplastic cells, in addition to the inflammatory changes. At the end of the treatment with spa water an improvement in the objective symptoms was seen in all cases with disappearance of leucorrhoea, clear diminution of pain and in about half of the cases a clear improvement of the cytological picture with a decrease in cytoplasmic vacuolization and of the interstitial inflammatory response and absence of polymorphonuclear white cells and lymphocytes.

The second group of patients also complained of pelvic pain emanating from the lumbar-sacral region with pelvic congestion, feeling of abdominal pain, nausea, headache and dyspareunia. In this group of patients, as an additional therapy, we carried out «humage», that is vaginal introduction of gas. The beneficial effect was noted from the 5-6th application, with improvement of the symptoms. At the final examination the area concerned was indurated, the pelvis felt freer, the vaginal fornices softer, the abdomen easier to palpate. For the patients of the 3rd group, the therapeutic effect differed depending on the type of vaginitis.

Those caused by bacteria, either cocci or bacilli, as diagnosed from the unfixed smears of vaginal secretion, responded well to the therapy, with disappearance of leucorrhoea and vulvo-vaginal irritation. Examination of the vaginal secretion showed disappearance of extracellular cocci, reduction of the intracellular ones and, at the same time, a reduction in the number of polymorphonuclear leucocytes and of bacilli.

Of the 7 cases of vaginitis due to *Trichomonas*, only 3 showed a positive result; examination of the vaginal secretion of the other four patients showed persistence of *Trichomonas*, but with a decrease in number, mobility and inflammatory response. No cases of vaginal fungal infection were studied and so we cannot pronounce on the possible positive or negative influence of spa water therapy in these inflammations. The patients of the 4th group on examination showed pelvic inflammation on account of multiple adhesions following total abdominal hysterectomy. Some of these patients had already been undergoing treatment with spa water for some years with considerable benefit. The therapeutic effect, particularly that from application of mud in special pants, was generally good. In addition, 100-150 cc of Sirmione water were being given orally to these patients while fasting in order to take advantage of its decongesting and mild laxative effect. Above all the sense of abdominal tension reported by the patient decreased, the colon was less tense and painful, the abdomen easier to palpate and relaxed, the base of the vagina softer. Also in this group, as in the others, an improvement in the cervico-vaginal cytological picture was noted.

CONCLUSIONS

The positive results shown in this preliminary investigation, although restricted to certain gynaecological conditions, are interesting and deserve further clinical and experimental investigation. The studies in progress on the change induced on the hypothalamus-pituitary-adrenal system and on the ovary by treatment with spa water seem to be interesting, particularly the variations in levels of gonadotropin, corticosteroids and oestrogens in both serum and urine. Analysis of such data, in a sufficiently large study of cases, will allow judgement on the real therapeutic possibilities in some forms of female sterility, amenorrhoea, dysmenorrhoea and gynaecological disorders of endocrine origin. At the present moment we can draw conclusions about the efficacy of these treatments in vagino-uterine, adnexal and pelvic infections and in genito-pelvic adhesion syndromes.

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