

THE PRESENT STATUS OF CORPUS LUTEUM ORGANOTHERAPY.*

BY

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THE corpus luteum is a structure which forms in the ovary at the site of a ruptured Graafian follicle. In the earliest stages it is simply a ruptured follicle filled with blood outside of which is a narrow yellow ring formed by the lutein cells of the theca, which, however, proliferate rapidly and invade the blood-filled follicle, forming a festooned layer about its central blood clot. (Williams). This clot presents a yellowish color externally, while its central portion is of a reddish-gray hue. It gradually becomes organized, contracts, is slowly absorbed without the formation of cicatricial tissue, and finally disappears by a process of hyaline degeneration.

There are two views as to the origin of the lutein cells. The first and most generally accepted, is that they are of connective tissue origin and represent the cells of the theca interna; the second, that they originate from epithelial cells and are derived from that of the membrana granulosa. The corpus luteum of pregnancy, or the true corpus luteum, and the corpus luteum of menstruation, or the false corpus luteum, present exactly the same structure but vary in size and duration.

The corpora lutea have several functions according to recent investigations:

First: They bring about obliteration of the ruptured Graafian follicle without the formation of cicatricial tissue.

Second: According to Frankel, they prepare the mucosa of the uterus for the reception of the ovum.

Third: They dominate the occurrence of menstruation.

Fourth: The conclusive and convincing studies of Loeb prove that they are indispensable for the formation of the maternal placenta.

Fifth: "The corpus luteum changes the periodicity of the sexual cycle; it prolongs the sexual period, the interval between two successive ovulations, by preventing the rupture of the follicle." (Loeb.)

Sixth: Rebaudi believes he has demonstrated a functional

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connection between the pancreas and the ovaries, and that when the functioning of the corpus luteum was deficient, the islands of Langerhans in the pancreas became hypertrophied and were evidently doing extra work. Similar changes were noted after the removal of both ovaries, or after the destruction of the corpora lutea alone.

Seventh: The corpus luteum seems to resemble the adrenals in its effects upon blood-pressure and the vasomotor system.

A study of these phenomena appears to prove that the ovary has an internal secretion which is produced by the corpus luteum. Although many gynecologists are skeptical in regard to the theory of internal secretion and believe that the only function of the ovary is the development of the ova; yet the consensus of medical opinion at the present time is preponderatingly in favor of the theory.

Herman cites the fact that osteomalacia is frequently cured by the removal of the ovaries, as an evidence that the secretion, when in excess, produces softening of the bone and a copious excretion of phosphates in the urine. He believes that this secretion renders the tissues a fitter food for the cancer protozoon; for cases have been reported in which the removal of the ovaries combined with the administration of thyroid extract, has produced surprising diminution and retrogression of cancer in young women.

Assuming then the truth of the internal secretion theory, what is the best method of obtaining an extract of the corpus luteum for therapeutic use, what is the dosage and its physiologic action, what are the dangers to be avoided in its employment, and what are the indications for its use?

The preparation employed should be the dessicated extract, carefully prepared, as fresh glandular tissue is a most delicate substance and requires the most careful handling. Extremes of heat and cold, or strong chemicals will serve to render the extract inert. A fluid extract, whether aqueous or glycerinated, is not entirely free from objections. Until the active principle of the gland is isolated, the dried powdered extract is probably the best form to use.

Morley in a private communication, informs me that he is employing rectal suppositories of the extract in order to avoid the gastric symptoms which sometimes follow administration by mouth. The usual dosage is 5 grains, three times daily.

Bouin, Ansel, and Villemin found that the primary effect of

toxic doses of lutein extract was a violent elevation of blood-pressure, sufficient to produce effusion into all serous cavities. The physiologic effects of therapeutic doses have not been sufficiently studied to show positively that they are all those of the adrenal preparations, though what is known points in that direction. In one instance, I was compelled to reduce the dose because of marked cardiac palpitation following its use.

Therapeutics.—It may be said that the evidence as to the therapeutic value of the desiccated corpus luteum, is conflicting. One writer relates brilliant results, while another equally reliable authority fails to secure any results. This failure may be due, either to the use of inert substance, or a carelessly prepared extract; or to its employment in a case in which an agent influencing the vasomotor system is not indicated. However, a résumé of the literature shows an increasingly large number of men who are securing favorable results from the use of ovarian or corpus luteum extract. It has been employed in the treatment of the artificial or postoperative menopause, and also for the relief of the nervous symptoms of the natural menopause. McDonald has found it particularly valuable in the treatment of scanty menstruation. The value of its use in such cases has been confirmed by Dercum in a personal communication to the writer.

Lebreton has employed it in disturbances of pregnancy, believing these disturbances are due to an autointoxication which is caused by the functional insufficiency of the corpora lutea. He gave it to patients who complained of nausea, vomiting, attacks of suffocation, palpitation of heart, or congestion. The result was shown by an immediate cessation of the vomiting, while the other troublesome symptoms were rapidly ameliorated.

Drevet reports his results in thirty cases, and concludes that the symptoms which improved the most, are, on the one hand, dysmenorrhea and on the other, the reflex troubles of a nervous and congestive order.

Another therapeutic indication for lutein is, in the treatment of pregnant women on whom operations have been performed and in whom miscarriage is feared. This is particularly true of the early weeks of pregnancy during the imbedding of the ovum, as it has been shown experimentally that the corpus luteum has a definite effect under such circumstances. From reports there is reason to believe that it will prove valuable in cases of osteomalacia and as a galactagogue.

After a careful study of the literature and the observation of our own patients, I believe that the following conclusions formulated by Morley are justifiable:

1. The ovary possesses an internal secretion.
2. This internal secretion is produced by the corpus luteum.
3. In so-called ovarian insufficiency, relief may be obtained with an extract of the corpus luteum.
4. No untoward symptoms result from its use in conditions where it is indicated, even if no relief is obtained.
5. The extract should be given a fair trial before it is discontinued.
6. The extract used should be one that has been carefully prepared.
7. All glands that possess an internal secretion are more or less intimately connected.
8. Further experimental work will no doubt add new light to many of the questions that are still in a nebulous stage.

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