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EARLY DIAGNOSIS OF PREGNANCY *

MARION DOUGLASS, M.D.

CLEVELAND

The diagnosis of uterine pregnancy is readily made after the first two months of gestation in the average case, and in experienced hands an almost positive diagnosis is often possible during the first eight weeks of pregnancy. It is often of importance to make an early diagnosis between normal pregnancy and various pathologic conditions, notably fibromyomas of the uterus, extra-uterine pregnancy, inflammatory tumors and ovarian cystoma. I wish to emphasize a sign that can be recognized by pelvic examination in a high percentage of cases in the first month of pregnancy.

Ordinarily, the statement is made in textbooks of obstetrics that the diagnosis under six weeks is

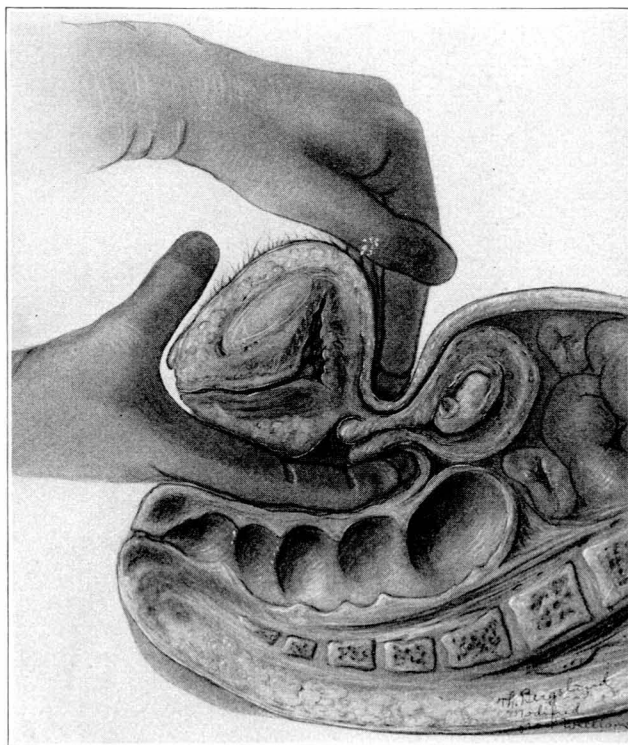


Fig. 1.—Hegar's sign.

extremely difficult, and the signs that appear during the first three months are usually called "presumptive evidences" of pregnancy. These consist of urinary disturbances, Chadwick's hyperemia of the vagina and vulva, changes in the size and consistency of the breasts, amenorrhea, morning nausea, quickening, disturbances of pigmentation, changes in the blood serum, and mental and emotional changes. The appearance of the probable signs of pregnancy, namely, enlargement of the abdomen, changes in the cervix, and Braxton Hicks contractions, which develop later during the early months, usually make the diagnosis quite clear. The appearance of a clear-cut Hegar's sign makes the diagnosis practically unmistakable.

In searching for an early Hegar's sign, the experienced examining hand may in most cases unmistakably feel the doughy and at the same time elastic resiliency

* From the Department of Obstetrics and Gynecology, Western Reserve University School of Medicine, and the Lakeside Hospital.

elicited from the uterus before the development of a typical Hegar's sign. This elastic consistency of the uterus, however, is variable, and considerable practice is required to make its recognition certain, as many normal nonpregnant uteri are deceptively soft. Any new criterion, then, or the elaboration of any existing signs that might make very early diagnosis more certain is a matter of considerable importance. Hegar's sign

may be elicited at about the fifth week at the earliest (fig. 1). I have been interested in the various signs which have been described in the past. Von Braun¹ describes a longitudinal furrow on either the anterior or the posterior surface of the uterus which may appear as early as the first week of gestation (Williams²).

Dickinson³ in 1892 described an early sign of pregnancy which makes the diagnosis possible between the second and sixth week after coitus, or between three and eight weeks after the beginning of the last menstrual period. He mentions elasticity

or resiliency of the body of the pregnant uterus as recognizable in 80 per cent of cases and states in contradistinction that "the empty uterus is as hard as a raw potato." He also mentions a transverse fold on the anterior uterine wall as occurring in the fourth to sixth week after implantation of the ovum.

Ladinski⁴ in 1907 considered various early stigmas of pregnancy and states that a very early diagnosis of uterine pregnancy can be made with almost absolute certainty. In the light of my own experience, I am inclined to think that a diagnosis of considerable accuracy can be arrived at within the first month after coitus with somewhat more than a fair degree of certainty. Ladinski has described the occurrence of a circular elastic area the size of the tip of the finger or larger in the anterior or posterior wall in the body of the uterus just above the junction of the body and the cervix. This area of elastic fluctuation was, of course, described by Dickinson and von Braun in 1899. The longitudinal furrow which von Braun explains as contraction and relaxation of the uterine musculature about the site of

the implantation of the ovum probably represents a variation of the same sign. There have not been any noteworthy contributions from the standpoint of diagnosis by manual examination in recent years.

Various observations have been made by Robert Frank and others utilizing the hormone of the blood of pregnant women, which gives a characteristic physiologic response in experimental animals. Siddall has been able to produce by injection of extract of the blood of pregnant women characteristic hypertrophy of the uteri of mice, which was quite striking in 80 per cent of the cases. It is, however, worth while to emphasize this addition to the early signs already described, because an easy observation which may be made by a simple manual examination is apt to be more available and as reliable as any method, however scientifically accurate it may seem, which is dependent on the variable mechanism of a biologic reaction in an experimental animal.

The sign is as follows: In the vast majority of cases within a week or ten days after the first missed period, a slight resilience or elasticity of part of the fundus may be felt on manual examination. The vaginal finger moves its way, step by step, advancing up the anterior uterine wall. By careful palpation through the bladder, the uppermost point of the cervix is felt, above which is the slight depression marking the site of the future lower uterine segment. This is the forerunner of Hegar's sign. The upper part of the uterus may feel hard, firm and "like a potato," but immediately below this on the front of the fundus uteri the rubbery elasticity may be made out extremely early.

If the finger is pressed firmly into the uterine musculature at this point or just above, it may be felt by the examiner to be making an indentation or depression in the musculature beneath its palmar surface (fig. 2). If the finger is moved to the side and returned to the original point of pressure, the depression made by the finger may be felt clearly to persist in the uterine musculature (fig. 3). The impression is that of "pitting edema." Under ordinary circumstances this effect cannot be reproduced at all on normal nonpregnant uterine musculature.

The occurrence of this reliable and simple diagnostic feature, which is probably the very early precursor of Hegar's sign, as are all of the previously mentioned grooves, depressions and areas of elasticity, in an extremely high percentage of cases of normal pregnancy has seemed to justify its mention. By the time Hegar's sign is easily recognizable, other signs usually have strongly suggested the diagnosis. The production, by manual pressure, of something analogous to pitting edema in an extremity is a perfectly obvious sign which can be recognized by any one.

In observations made in approximately forty cases of early pregnancy, in which a diagnosis had not yet been

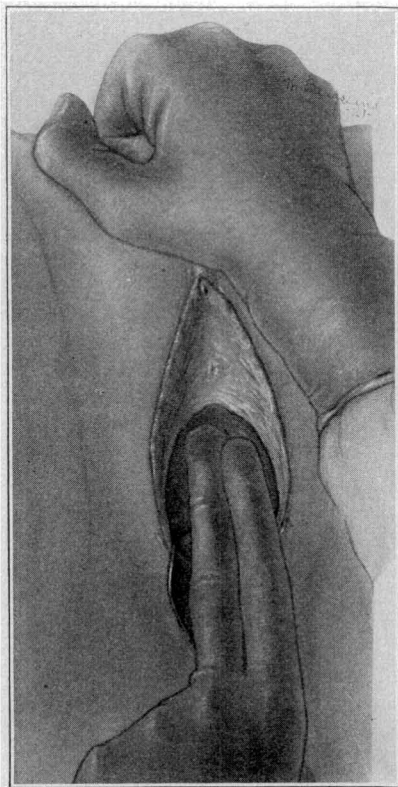


Fig. 2.—The examining finger making pressure on anterior uterine wall.

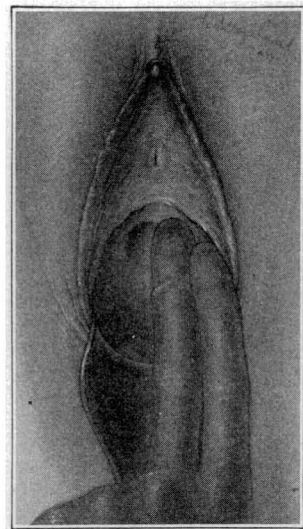


Fig. 3.—Permanent depression in uterine musculature being palpated by examining finger.

1. Von Braun, R.: Über früh diagnose der Gravidität, *Centralbl. f. Gynäk.* 23: 488, 1899.
2. Williams, W.: *Obstetrics*, New York, D. Appleton & Co., 1919.
3. Dickinson, R.: *The Diagnosis of Pregnancy Between the Second and Seventh Weeks by Bimanual Examination: Thirty-Five Cases*, *J. Gynec. Obst.* 2: 544, 1892.
4. Ladinski, L.: *The Diagnosis of Early Pregnancy with Reference to a Particular Sign*, *M. Rec.* 42: 597, 1907.

made in the outpatient departments of the department of obstetrics and gynecology of Western Reserve School of Medicine, the sign was elicited in 60 per cent of cases within three weeks after the first missed period and in many of these within the first week. Further observation of these forty cases proved pregnancy in more than 90 per cent of cases in which the sign was positive. The explanation of the phenomenon of the changed consistency and the persistence of a compressed area in the uterine muscle is probably merely the heightened vascularity of the uterus and increased boggiess of its musculature.

I have no evidence that this sign has any bearing on the site of the implantation of the ovum. The area of elasticity, particularly this putty-like compressibility of the uterine muscle or at least something closely resembling it, seems to be present in ectopic pregnancy and it is therefore of no especial value in differential diagnosis. This sign has been extremely valuable to me in the diagnosis of uterine pregnancy in early cases in which "bellying" of the uterus is slight and before the globular shape and anteroposterior diameter increase have become demonstrable.

I feel fairly confident in saying that this is a reliable sign of early gravidity and that it frequently occurs when there are no other signs in the uterus which might make a diagnosis possible.