X-RAY DIAGNOSIS OF PLACENTA PREVIA*

ALFRED C. BECK, M.D., AND FRANK P. LIGHT, M.D., BROOKLYN, N. Y.
(From the Department of Obstetrics and Gynecology, The Long Island College Hospital, and Long Island Division of Kings County Hospital)

UDE, Weum, and Urner,[1] in 1934, suggested a method for the diagnosis of placenta previa by x-ray and, in 1935,[2] reported 35 cases in which the method had been employed. Since the lower uterine segment and the two peritoneal layers of the bladder reflection are the only structures between the urinary bladder and the fetal head, it is their belief that a cystogram in the presence of placenta previa will show an abnormally wide space between the head and the bladder. Their technique is as follows: A catheter is inserted into the urinary bladder and, after withdrawing the urine, 40 c.c. of a 12½ per cent solution of sodium iodide are injected. After removing the catheter, an anteroposterior plate is then taken, with the tube centered over the mid or lower abdomen. In their experience, the normal bladder shadow conforms nicely to that of the head, with an intervening space of approximately 1 cm. In the presence of central placenta previa, there is seen a much wider separation of head and bladder shadows throughout. On the other hand, in partial placenta previa, a wider separation is observed on one side, the side of the placenta. They feel that, by this means, placenta previa can be diagnosed or ruled out with a high degree of accuracy, except in breech and transverse presentations.

On the Obstetrical and Gynecological Services of The Long Island College Hospital and of the Long Island College Division at Kings County Hospital, we have taken x-ray films of 90 cases admitted with bleeding in the last trimester of pregnancy. Of these, 19 revealed the presence of breech or transverse presentation in which, as above stated, this method is of no value. These, accordingly, are not considered in this report.

Thus we have 71 cases of last trimester hemorrhage examined by x-ray. The diagnosis was correct in 63 or 88.7 per cent of the cases, and incorrect in 8 or 11.3 per cent.

In the series are 17 cases of placenta previa. Of these, the diagnosis was correct in 13 or 76.5 per cent and incorrect in 4, or 23.5 per cent. One of the errors is seen in Fig. 1. This patient, a nullipara, was admitted at eight and one-half months, with a history of painless, causeless hemorrhage. The plate shows an apparently normal relationship between head and bladder shadows. Yet, at cesarean section, placenta previa was unquestionably demonstrated, lying to the right and posteriorly.

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Of the 54 patients without placenta previa, the diagnosis was correct in 50 or 92.6 per cent, and incorrect in 4 or 7.4 per cent. Fig. 2 shows one of the incorrect diagnoses. This patient, a nullipara, was admitted with a history of painless, causeless hemorrhage at seven months. The plate reveals a distance much greater than normal between the head and bladder shadows. This would seem to be highly

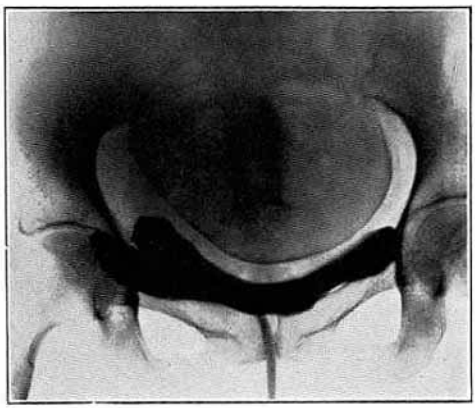

Fig. 1.—Apparently normal relationship between head and bladder shadows indicating absence of placenta previa. Placenta previa, however, was found at operation.

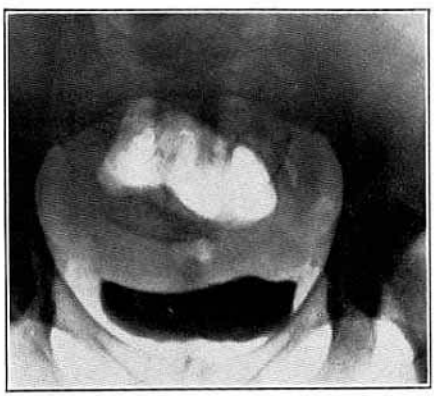

Fig. 2.—Relationship of head and bladder shadows is suggestive of placenta previa. Placenta previa, however, was not present.

suggestive of central placenta previa; however, the patient did not have placenta previa. The roentgenologist was able to rule out placenta previa because he was able to visualize it in the fundus of the uterus. Thus, as suggested by Ude and Urner,[2] the coordination of their method with that of Snow and Powell[3] may aid in establishing the location of the placenta.

Quite frequently, there is seen a distortion of the bladder to the right. We attribute this to the pulling of the bladder in that direc-

tion by the usual torsion of the uterus to the right. Fig. 3 shows a marked accentuation of this distortion. This patient, a para v, was admitted at eight months, with a history of having had two painless gushes of blood, estimated at a cupful each, one a week before, and one just prior to admission. The plate, though questionable, seems to suggest the presence of placenta previa on the opposite side. This patient did not have placenta previa.

In our experience, as the above statistics show, the method of Ude, Weum, and Urner may be helpful in the diagnosis of placenta previa. Its greatest value, however, lies in the fact that it enables us to rule out placenta previa with a fair degree of accuracy.

This study was undertaken in the hope that vaginal examination, with its attending dangers, might no longer be required in those patients in whom treatment by cesarean section was contemplated.

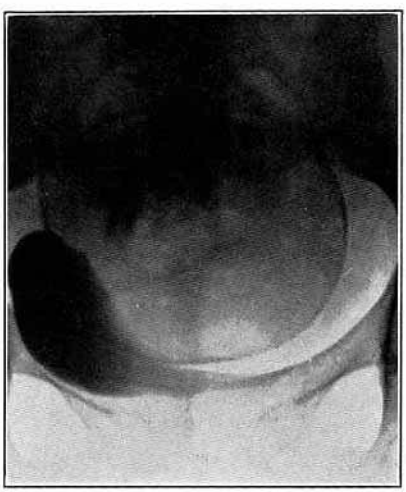

Fig. 3.—The greater distance of the head from the bladder on one side suggested placenta previa in this case in which placenta previa was not present.

While this hope has not been fulfilled, the x-ray has proved to be an aid in the diagnosis, and should be used only as such, in correlation with the history of the findings on abdominorectal examination.

CONCLUSIONS

1. Seventy-one cases of last trimester hemorrhage examined by x-ray are reported.
2. The diagnosis was correct in 88.7 per cent of all the cases.
3. Placenta previa was diagnosed correctly in 76.5 per cent of all the cases. Its absence was diagnosed correctly in 92.6 per cent of the cases.
4. The greatest value of the method is in ruling out placenta previa.
5. The method should be considered simply as an aid to the history and clinical findings.

Appreciation is expressed to Drs. A. L. L. Bell and Bernard Ehrenpreis, Roentgenologists at The Long Island College Hospital and at Kings County Hospital, respectively.

REFERENCES

(1) *Ude, W. H., Weum, T. W., and Urner, J. A.:* Am. J. Roentgenol. **31**: 230, 1934. (2) *Ude, W. H., and Urner, J. A.:* AM. J. OBST. & GYNEC. **29**: 667, 1935. (3) *Snow, W., and Powell, C. B.:* Am. J. Roentgenol. **31**: 37, 1934.

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DISCUSSION

DR. STANLEY C. HALL.—I have seen several cases in which there was a space between the presenting part and the bladder, and they were proved not to be cases of placenta previa. I think one may say that where there is a space it may or may not be placenta previa, but if there is no space it is not placenta previa.

DR. CAMERON DUNCAN.—This method has considerable value in cases that have been definitely diagnosed by vaginal examination. Where the cervix is dilated three or more fingers' and is covered by placenta, and a Braxton Hicks version is to be done, the cystogram shadow tells definitely to which side the greater portion of the placenta lies. Generally it lies more to one side than the other. Then one can go through the thin side of the placenta and cause less placental destruction with a better chance of a living baby.

DR. ALFRED C. BECK.—Although the pictures show some difficulty of diagnosis, I think there is no question but that this method is of very great value when taken in conjunction with the symptoms and possibly the findings on rectal examination, because it gives one more bit of information that should be very helpful.

To my mind, the worst case in the group was that one in which the head shadow conformed very nicely to the bladder shadow and the bladder was thinned out (Fig. 1). That was a case which most of us would regard as negative for placenta previa.

DR. FRANK P. LIGHT.—We were unable to make a diagnosis of the case illustrated in Fig. 1. The bladder very nicely conformed to the head except for one bit which was off to one side and seemed to be separate from the bladder shadow. Dr. Bell examined the plate and interpreted it correctly, saying that the placenta was posterior on that side and apparently gave rise to the separate shadow, but as far as we were able to tell, it was a negative plate.