

# THE PLACE OF ISOTOPIC PLACENTOGRAPHY IN THE MANAGEMENT OF ANTEPARTUM HAEMORRHAGE

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Many investigations have been reported regarding the value of placentography.<sup>1-4</sup> Recently, emphasis has been placed on methods using radioactive isotopes, the placenta being localized by various scanning devices over the abdomen.<sup>5-10</sup> It has been shown that isotopic placentography is of value in localizing the placenta in both normal and abnormal sites. However, whether placentography contributes significantly to the management of any particular case of antepartum haemorrhage has not been determined.

Placentography thus may indicate a low-lying placenta, but this may already be obvious from the clinical presentation of the case. Alternatively, a significant degree of placenta praevia may be excluded by the finding of a well-engaged head, and placentography may not influence the further management of the case.

The aim of this paper is to determine whether placentography contributes useful information regarding the site of the placenta in those cases of antepartum haemorrhage where the diagnosis is in doubt, or where a clinical diagnosis is made but is subsequently proved wrong.

## MATERIAL AND METHODS

This report concerns 128 patients admitted to Groote Schuur Hospital with a history of antepartum haemorrhage. The cases were unselected except that no patients with severe accidental haemorrhage had placentography performed, and these cases are not included.

### *Routine Management*

On admission, the patients were sedated and any anaemia was corrected by either blood transfusion or haematinics. A speculum was passed, usually within 24-48 hours, to exclude any significant local cause for the bleeding. The patients were then observed in the ward until the bleeding had stopped and, in general, one of two lines of treatment was followed:

1. In those cases where placenta praevia could reasonably be excluded, the patients were discharged for regular follow up in the outpatient department. At 38 weeks' gestation they were readmitted and, with an anaesthetist available, a vaginal examination was performed in theatre with all preparations made for an immediate caesarean section, should this prove to be necessary. If no placenta praevia was found, a surgical induction was performed and the patient returned to the labour ward.

2. In cases where a low-lying placenta could not be excluded, the patients were kept in hospital until the 38th week. Vaginal examination was usually performed under anaesthesia.

If a major degree of placenta praevia was found, or if there was some other indication (such as foetal distress or persistent bleeding), an immediate caesarean section was performed. If no placenta praevia was found and no other abnormalities were present, a surgical induction of labour was performed.

Under this scheme of management, the accurate localization of the placental site—by whatever means available—was very important as this frequently determined whether the patient was discharged or was kept in hospital for the remainder of the pregnancy.

The placental localization was performed in 2 ways:

(a) Clinical assessment.

(b) Isotopic placentography using <sup>51</sup>Cr-labelled donor red cells.

(a) *Clinical assessment.* The criteria for making a provisional diagnosis of placenta praevia in a case of antepartum haemorrhage were as follows:<sup>11</sup> (1) The high head which cannot be made to engage; (2) unstable lie; and (3) anterior position of the presenting part, as found in cases of posterior placenta praevia.

Even after careful clinical assessment, however, there were still some cases in which the diagnosis was in doubt. There were others in which a provisional diagnosis of placenta praevia was made, but the clinical signs were subsequently found to have been misleading and the provisional diagnosis was thus incorrect.

(b) *Placentography.* This procedure was performed as soon as active bleeding had ceased and the period of gestation had exceeded 32 weeks.

Donor blood (20 ml.) was labelled with 100 microcuries of <sup>51</sup>Cr. The blood was centrifuged and the plasma replaced with an equal volume of normal saline. This solution was injected intravenously and 10 minutes allowed for mixing to take place. A baseline reading was taken over the heart. An average of 20 point counts of 100 seconds duration each were taken over the uterus using a scintillation crystal probe attached to a scaler, and utilizing a pulse-height analyser.

This procedure was considered superior to techniques in which readings are taken with a ratemeter and it was felt that greater precision in localization was achieved in this way.

## RESULTS

After delivery, the causes for the bleeding were classified as follows:

Placenta praevia .....	23
Accidental haemorrhage .....	13
Antepartum haemorrhage of uncertain origin .....	92

The diagnosis of placenta praevia was confirmed at caesarean section in 22 patients. In the remaining case the placenta was palpated on vaginal examination but the patient was permitted to deliver vaginally. In all cases classified as accidental haemorrhage a retroplacental clot was demonstrated at delivery. The remaining 92 patients were grouped as antepartum haemorrhage of uncertain origin.

*Placenta Praevia (23 Proven Cases)*

The results are summarized in Table I. The figures show that there were 9 cases where the diagnosis was either doubtful or incorrect on clinical assessment. Placentography in these 9 cases gave the correct diagnosis in 5 patients; in the remaining 4 placentography itself was equivocal.

TABLE I. RESULTS OF CLINICAL FINDINGS AND PLACENTOGRAPHY IN PROVEN CASES OF PLACENTA PRAEVIA

<i>Antenatal diagnosis</i>	<i>Clinical assessment</i>	<i>Placentography</i>
Correct	14	16
Doubtful	6	6
Wrong	3	1

It will be seen that 1 case of placenta praevia was missed on placentography. This occurred very early in the series and a similar mistake did not occur once experience had been gained in the technique of placentography.

*Remaining Cases of Antepartum Haemorrhage*

This group consisted of 105 patients with either proven accidental haemorrhage or antepartum haemorrhage of uncertain origin. The great majority of these cases fell into the group of antepartum haemorrhage of uncertain origin. In the 13 cases of proven accidental haemorrhage, the haemorrhage was of such a minor degree that the clinical presentation differed in no significant way from the remaining patients in this group, and the diagnosis was in fact only made on examination of the placenta. These patients, with similar clinical presentations, were therefore classified as one group.

TABLE II. RESULTS OF CLINICAL FINDINGS AND PLACENTOGRAPHY IN CASES OF ANTEPARTUM HAEMORRHAGE IN WHICH PLACENTA WAS NORMALLY SITUATED

<i>Antenatal diagnosis</i>	<i>Clinical assessment</i>	<i>Placentography</i>
Correct	64	95
Doubtful	28	7
Wrong	13	3

The results are summarized in Table II. There were 41 patients in whom the clinical diagnosis either was doubtful or incorrect, and in 36 of these placentography correctly indicated that the placenta was normally situated. In the 5 remaining cases, placentography was also found to be equivocal.

## DISCUSSION

The results in this series do not reach the very high degree of accuracy obtained by Paul *et al.*,<sup>2</sup> who precisely located the placental site in 105 out of 106 cases using <sup>51</sup>Cr-placentography. The figures nevertheless demonstrate the value of placentography performed as a routine in the management of individual cases of antepartum haemorrhage.

In 50 patients with antepartum haemorrhage, where the diagnosis was in doubt or incorrect on clinical assessment,

placentography gave the correct result in 41 cases and proved to be of great value, especially in helping to exclude placenta praevia.

Of the 96 cases where placentography indicated a normally situated placenta, this was correct in 95 cases. The one error occurred early in the series and did not recur once experience had been gained in the technique of placentography. Isotopic placentography therefore appears to be of considerable benefit in excluding placenta praevia where this is suspected clinically, and also in cases where the clinical diagnosis is in doubt. It is also of value in confirming a diagnosis of placenta praevia, although in many of these cases the clinical diagnosis is obvious.

Using the scheme of management outlined above, the routine use of placentography enabled more patients to be discharged from hospital with the assurance that placenta praevia had indeed been excluded. This has a number of practical advantages. Firstly, antepartum haemorrhage is still one of the commonest complications of pregnancy requiring admission to hospital, and this places considerable demand on the available beds, often at the expense of other patients. Secondly, many of the patients treated in this series fell into the lower socio-economic groups and could ill afford separation from their families for any length of time.

Another advantage is that, with the greater precision in diagnosis, examination in theatre to exclude placenta praevia is less frequently needed. Where placentography shows a normally situated placenta, the risk of inducing labour or allowing the patient to go into labour spontaneously and finding an unsuspected placenta praevia is very small indeed. Conversely, where the clinical findings strongly favour a low-lying placenta and placentography indicates a major degree of placenta praevia, vaginal examination (with the risk of severe haemorrhage) is unnecessary and an elective caesarean section becomes the treatment of choice.

## SUMMARY

A series of 128 cases of antepartum haemorrhage in which routine isotopic placentography was performed is described. It was found that placentography, using this technique, was a reasonably accurate means of localizing the placenta in these patients and proved of considerable practical value in their management. The greatest benefit of placentography was derived from the exclusion, rather than the confirmation, of the diagnosis of placenta praevia.

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