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ACCIDENTAL HAEMORRHAGE AND ECLAMPTOGENIC
TOXAEMIA

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Placenta praevia and premature separation of the normally implanted placenta are universally accepted as the most common causes of ante-partum haemorrhage in the last trimester of pregnancy. In 1776 Rigby first differentiated between these two varieties and he designated the latter as accidental haemorrhage in contrast to the unavoidable type occurring in placenta praevia. In 1881 Chantreuil first noted its association with albuminuria. In 1885 Winter associated it with nephritis. Holmes in 1901 suggested the name abruptio placentae for the severe type in which there were abdominal signs and symptoms associated with concealed haemorrhage. Various authors have attempted to classify this condition

—some emphasizing the different clinical pictures, others on a pathological basis. Among the former are Bartholomew, Beavers, Polak and Deickman and among the latter Kellog and Hertig. There is thus a wide variation and perhaps this is due to the various aetiological factors—some known and others obscure—which bring about this condition.

Incidence

The incidence of premature separation varies greatly from clinic to clinic. From Chicago Lying-in Hospital Davis and McGee report an incidence of 1 in 244, Boulwere 1 in 90, Nicholls 1 in 350, Stander 1 in 250, Dorman 1 in 115 and Colclough 1 in

207. During the years 1949 and 1950 in this hospital there were 300 cases of premature separation of the normally implanted placenta among 17,047 deliveries—an incidence of 1 in 57. It is evident that premature separation is thus three to four times more common here than in other countries.

Ever since Chantreuil first noted its association with albuminuria more and more emphasis has come to be laid on pre-eclamptic toxæmia, essential hypertension and chronic nephritis as the prime aetiological factors in the causation of premature separation. There can be no longer any doubt that the chief aetiological factor is to be found in pre-eclamptic toxæmia. Since Chantreuil in 1881 and Fehling in 1885 showed that nephritis and accidental hæmorrhage were liable to be found together, the association has been noted by every writer. Gaifami found albumen in 80%, eclampsia in 6%. Portes found toxæmia in 93.3% and eclampsia in 8.3%. In 23 cases of accidental hæmorrhage from 1927-1932 in the University College Hospital there was evidence of toxæmia in 83%. Portes found toxæmia in 91.3% of cases in Couvalier's Clinic. At the Chicago Lying-in Hospital 69% of patients suffering from abruptio placenta had toxæmia (Deickman). Davis and MacGee in their analysis of 164 cases

gave the incidence of toxæmia as 56.6%. Thus from all sources one is led to conclude that toxæmia is the most important factor in the causation of accidental hæmorrhage. Ever since Chantreuil, Fehling and Winter in the last decade of the last century pointed out that albuminuria was a frequent accompaniment of accidental hæmorrhage, year by year evidence has accumulated in support of this view. In the Glasgow Maternity Hospital however according to Munro Kerr from 1930-33 in 466 cases of accidental hæmorrhage, albuminuria was present only in 35%.

If toxæmia plays such an important role in the production of accidental hæmorrhage it stands to reason that it should be as common as pre-eclamptic toxæmia. We have been here for some time impressed with the large number of cases of premature separation of the normally implanted placenta both mild and severe, in patients showing no manifestation of even the mildest forms of toxæmia—albuminuria, oedema, hypertension either alone or in combination. It is this finding which made me analyse all cases of accidental hæmorrhage, pre-eclamptic toxæmia including hypertension and chronic nephritis and eclampsia, treated in this hospital during 1949 and 1950. I give below number of cases in each group:

Year	Total No. of Confinements	Pre-eclampsia	Eclampsia	Accidental Haemorrhage
1949	8334	566	166	178
1950	8713	538	139	122
Total	17047	1104	305	300

The incidence of accidental haemorrhage is thus 1 in 57 and that of pre-eclamptic toxæmia 1 in 16. In this group there were 4,435 primiparae. Forty-two of the cases of accidental haemorrhage occurred in the primiparous group an incidence of 1 in 106. Among the pre-eclamptics there were 436 primiparae, an incidence of 1 in 10. These figures show that accidental haemorrhage compared to toxæmia is very much less common in the primiparae.

Among these 300 cases of premature separation it was found that only 52 cases showed evidence of toxæmia—the standard of toxæmia adopted for this purpose being albuminuria, oedema, hypertension (130/90) either alone or in combination. In other words, only 19.1% showed any evidence of toxæmia. 81.9% of these cases thus belonged to the non-toxaemic group.

Again, among the 1,104 cases of hypertensive toxæmia treated during the same period, only 50 developed accidental haemorrhage—an incidence of 4.2%. During the same period among 305 cases of eclampsia only two developed accidental haemorrhage. In 1933 in the Glasgow Maternity Hospital there were, according to Munro Kerr, 409 cases of albuminuria, chronic nephritis and pre-eclampsia and eclampsia. Amongst them accidental haemorrhage occurred in 26 (6.5%), Sexton, Hertig, Reid, Kellog and Patterson in their study of 476 cases of premature separation at the Boston Lying-in Hospital found the incidence of accidental haemorrhage as 1 in 85. In

their series 58% were non-toxic and 42% toxic. They record an incidence of one separation in 18.3 toxæmic patients. According to them, not only was the frequency of the separation of the placenta increased with associated albuminuria and hypertension but it was increasingly frequent as the toxæmia became more severe. If this were so, the incidence of accidental haemorrhage among eclamptics should indeed be high. On the other hand, we find that it is very uncommon to find eclampsia in association with accidental haemorrhage. In this group of 305 eclamptics there were only two cases of accidental haemorrhage. Further we find that very severe types of abruptio placentae occur with equal frequency even in the non-toxic group. Judging by the clinical severity of the cases, in this series of 300 cases among the toxæmic group, the incidence of the moderately severe and severe type was 18%. In the non-toxaemic group their incidence was 16%. In other words, cases of equal severity occur with equal frequency in the toxic and non-toxic groups.

It is clear from what has been said above that we are unable to fall in line with the view that toxæmia is the most important factor in the production of accidental haemorrhage. At least as far as our cases are concerned it is not so. The figures I have presented speak for themselves. We have to therefore, in the large majority of cases, look to other causes. One cannot but pay more attention to the mechanical faults that may occur at implantation, the decidua, the uterine musculature, the hormonal balance, the nutrition and

blood supply of the placenta. It is conceivable that various factors may operate to bring about this condition and not a single factor. Accidents play only a very very minor role. Faults in implantation, defective blood supply or insufficiency of the uterine muscle, hormonal imbalance in the early weeks, often end in premature separation and abortion. If however the pregnancy continues, this insufficiency of any or all the factors may operate at a later date and bring about the classical picture of premature separation in the later months. Premature aging of the placenta also may lead to its separation. But what exactly are the factors involved and how they operate in bringing about this separation requires much more experimental, clinical and pathological study. Up to now too much emphasis has been laid on toxæmia as the most important factor. At least in our series it is not so. We have to look to other factors. Naturally the role of nutrition in the causation of this condition is the thing that strikes us. Much work has to be done in that line and perhaps we may find an explanation in this factor for the more common incidence of accidental haemorrhage in this country and the very large number of non-toxaemic cases.

"That the most important factor in the causation of accidental haemorrhage is toxæmia has been fully confirmed by all investigators. Possibly the pendulum has swung too far in this direction. A considerable number of cases are encountered in which by none of the ordinary clinical or chemical tests are we able to identify any manifestation of toxæ-

mia as it is understood today," writes Munro Kerr. And Eastman after discussing the various aetiological factors remarks, "We may thus conclude this discussion with the statement that at present the underlying cause of the premature separation of the placenta is unknown."

It is this very large incidence of non-toxic variety of accidental haemorrhage that has made me write this short paper to invite the attention of all concerned to search for other causes. Toxaemia, I feel, plays only a minor role in the causation of premature separation of the normally implanted placenta.

Summary.

The incidence of premature separation of the normally implanted placenta in 17,047 deliveries during 1949 and 1950 was 1 in 57 which is very much more common than in other countries.

2. Among the 300 cases of premature separation only 19.1% showed any sign of toxæmia. 81.9% did not show any evidence of even the mildest form of toxæmia.

3. During the same period among 1,104 cases of pre-eclamptic toxæmia admitted into hospital the incidence of accidental haemorrhage was only 4.2% and out of the 305 cases of eclampsia during the same period only 2 developed accidental haemorrhage.

It is justifiable to conclude that hypertensive toxæmia plays only a minor role in the production of premature separation of the placenta.

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