PATHOLOGICAL CHANGES IN PRODUCTS OF CONCEPTION OF ABORTERS WITH DEFICIEN IMMUNOLOGIC BLOCK FACTOR (S)

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INTRODUCTION

The foetal trophoblast behaves as a homograft in the maternal host, yet it survives. This refers to modulation of maternal immune system to antigenically foreign foetus and placenta. Various investigations demonstrated slight depression of maternal immune system during pregnancy, but the mother does not develop specific immunological tolerance to the foetus. The depression was expressed by increased number of suppressor cells (Moore et al., 1983), reduced activity of natural killer (Gall, 1983).

Rocklin et al. (1976) demonstrate the presence of immunologic blocking factor in the sera of normal pregnant multigravida women. This factor is absent from the sera of untransfused multipara (Stewart et al., 1984). It appears in the maternal sera of both primi and multigravidas, as early as the 4th - 5th week of gestation, its activity increased with longer gestation to reach maximum, at the time of delivery, then it begin to disappear (Kasakura, 1971). Johnson et al. (1984) claimed absence of the blocking factor in women suffering from habitual abortion.

To our knowledge the pathological changes in placenta in patients with decreased blocking factor is not described in the work English literature, so the present work is planned to study the pathological changes in the products of conception in patients with deficient blocking factor.

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RESULTS:

A. Presence of blocking factor

1. Effect of patients' serum on allogenic stimulated cells. The blocking factor was absent in 13 cases (65%).

2. Effect of patient's serum on mitogenic stimulated cells.

B. T-values of mixed lympho-cytic culture

1. Allogeneic stimulated cells: The mean CPM allogeneic stimulated cells was 1109 & S.D. = 122,4 after adding the patient's serum. The mean CPM control 1152 & S.D. = 1052. The values are 0.22 (statistically non significant). The serum of patient don't inhibit with multiple abortion don't inhibit allogeneic stimulated cells on MLC.

MATERIAL AND METHODS

Patient's Selection:
The study consists of 20 patients with spontaneous abortion. In all the cases, there was no history of maternal diseases e.g. hypertension, diabetes mellitus...etc. They were sero-positive for $, Rh +ve. All with habitual abortions. The age ranged from 20-35 years.

Methods:

1) Serological study: 5 cc of blood were obtained from patients. The serum was separated from the blood sample under the laminar air flow. The blocking factors were tested by evaluating the effect of patient's sera on the mixed lymphocyte culture (MLC) reaction.

2) The products of conception were obtained, divided into two parts.

a. One part was fixed in 10% formalin and processed for paraffin blocks and stained by H. & E., PAS, V.G. & TOAH.

b. The other part was processed for frozen section of allogeneic stimulated cells on MLC.
ii- Mitogen stimulated cells:

The mean CPM of mitogens stimulated cells was 1041.4 & S.D. 868.7 after adding the patient’s serum. The mean CPM was 7928.1 & S.D. = 7563.5. The t-value is 4.9 (statistically significant stimulation).

(2) Histopathology:

The cases were divided into 2 groups according to presence (7 patients) or absence (13 patients) of the blocking factor. This pathological change were described as:

a- Regressive changes in the decidual cells in the form of swelling, atrophy of decidual cells or cloudy swelling or hydropic degeneration and late necrosis. Inter decidual changes in the form of oedema, fibrinoid deposit, and cellular infiltration of plasma cells, macrophages, lymphocytes and eosinophils.

b- Vasculitis with swelling of endothelial cells and cellular infiltrate with late thrombosis all these changes were more frequent in cases with absent blocking factor. For the type of the cellular infiltrate, plasma cells were more frequent in cases in which the blocking factor was present, while the lymphocytic infiltrate, though shows no difference as regard the frequency in the 2 groups, but concerning the intensity of lymphocytic infiltrate it was more marked in cases with absent blocking factor.

Chorionic Villi:

Variable degree of fibrosis was observed in cases in those with blocking factor. In this lesion the core of chorionic villi were consisting of collagenous fibrous tissue of variable cellularity. No other significant difference could be observed between the two groups.

Immunofluorescence:

Immunofluorescent study by using IgM no florescence was obtained neither by direct nor indirect methods in both groups with present or absent blocking factor. Using IgG: the negative and weak reactions, were much more frequent in patients with absent blocking factor, while in patients with blocking factor mild and moderate reaction were more frequent.

In positive cases the reaction was seen in foetal stem vessels endothelium, Hofbauer’s cells tropoblastic
ACTION FOR ITS CAUSATIVE SIMILAR THING THAT IN - Possible underling immunological re-blocking factor which may refer to a
in cases which were sero-ve for the changes in the wall was more frequent chronic

Concerning chronic wall, Wili, Fibrillae

Spaces.

ma, fibrilloid changes in intracellular
claudal cells, swelling, atrophy, cedema.
Regressive changes observed in de-
vascularization which lead to the
vascular changes eventually lead to
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acute regression in sero-ve cases. This
delicate lining may represent a sort of
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-By cellular infiltration, wall of the arteries
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ma cells are the source vessels with
in mixed lymphocytes culture.

LOGIC: and fibrillar stimulated cells

blockade factor, etc. and that the pla-
-By the blocking factor, was also for the blockingfactor which were sero-ve for the blocking factor was

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-those who were sera +ve for anti-face

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volved in certain collagen disease e.g. Scleroderma.

A possibility which was first provided by Strate Ford (1970) who demonstrated elevation of serologic factors similar to that observed in patients suffering from certain collagen diseases in cases of spontaneous abortion associated with evident fibrotic lesion.

The absence of IgM results was previously mentioned by Johnson et al. (1976). The absence of IgM is natural in view of the fact that the maternal IgM cannot pass through the placenta and that the blocking factor is IgG (Rocklin et al., 1976).

Using IgG, lesser positive results were observed in sero-ve patients compared to sero +ve patient. For blocking factor (IgG) this may be due to deficiency of the blocking factor in sero-ve patients. Also the intensity of the reaction was less in the sero-ve cases.

Matey and Johnson (1977) reported that endothelium of the foetal stem vessels of normal full term human placenta binds to fluorescence - conjugated heat aggregated human IgG.

Johnson et al. (1977) suggested that the variability of the amount of IgG found in the foetal stem vessels in the placenta may reflect the extent of allogenic in compatibility between the mother and her foetus.

Faulk et al. (1974) suggested that IgG on the trophoblastic basement membrane (TBM) may represent maternal blocking antibodies that protect the placenta from maternal cells mediated immunity. An assumption which fit very well with the present study when the florescence at the TBM was observed in 16% of cases negative for blocking factor.

Positive fluorescence at the villous stroma showed no difference in relation to the presence or absence of blocking factor. From this study we can say that in absence of the blocking factor immune reaction is operated leading either to vasculitis with subsequent thrombosis and degenerative changes in the decidua or fibrosis of choronic villi by mechanism similar to that operating in collagen diseases. However since this changes are not constant, it is possible that the blocking factor are not the only factor in action for protection against the maternal immune rejection and possibly other mechanisms are also involved in the protection.

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was discussed.

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possible role of absence of blocking
the case than in precipitating ones. The
more marked in these seronegative
chorionic will were more frequent and

SUMMARY

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Fig. 3: Concentric perivascular fibrosis together with swelling of the endothelial cells (Hx. & E. X 100).

Fig. 4: Perivascular aggregation of chronic inflammatory cells with thick walled blood vessels (Hs. & E. X 150).

Fig. 5: Direct immunofluorescence for antihuman IgG in a case of spontaneous abortion. Strong positive fluorescence is detected in an area of fibrinoid change (F) there is also some diffuse stromal staining (S). (X 200).

Fig. 6: Indirect immunofluorescence using anti-human IgG in a case of spontaneous abortion. A weaker reaction is detected in the wall of foetal vessels (V). There is positive staining of some stromal cells (H).
Fig. 7: Direct immunofluorescence using anti-human IgG in a case of spontaneous abortion. Positive staining is found in a segment of a foetal stem vessel (V) and in an area of fibrinoid change (F).

Fig. 8: Indirect immunofluorescence using anti-human IgG in a case of sporadic abortion in which the blocking factor was detected at the trophoblastic basement membrane (T) and in foetal stem vessels (V). (X200)

REFERENCES


