Coagulation and Fibrinolytic Properties of Peripheral Venous Blood in Chronic Ectopic Pregnancy

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SUMMARY

The coagulation and fibrinolytic properties of peripheral venous blood were studied in 10 Black patients with chronic ectopic pregnancy. There were significant elevations of plasma fibrinogen and serum fibrin-fibrinogen degradation products (FDP) and prolongation of the euglobulin lysis time. These features are believed to be compatible with chronic inflammation. No evidence of a haemostatic defect was found.


Ectopic pregnancy and its complications constitute the commonest surgical emergency in adult Black females, and the condition is causally related to gonococcal salpingitis. Krohn et al. and Johnson believe that the use of antibiotics in the treatment of salpingitis results in the maintenance of tubal patency with loss of normal tubal physiology, and they concluded that antibiotic therapy may therefore predispose to the chronic form of ectopic gestation.

Parker and Parker described the pathology of chronic ectopic pregnancy. Affected patients suffer repeated episodes of minor intraperitoneal bleeding with the formation of pelvic haematomas, which may be complicated by major haemorrhage or infection.

It has been our impression that patients who suffer from chronic ectopic pregnancy associated with large pelvic haematomas bleed unduly at laparotomy. The fatality from pelvic bleeding in just such a case described by Parker and Parker may have been associated with a coagulation defect.

Bonnar et al. have shown that the large retroplacental haematoma present in abruptio placenta is commonly associated with a haemostatic defect. It could be postulated that, by a similar mechanism, chronic ectopic pregnancy might be accompanied by a consumptive coagulopathy of less severe proportions and clinical expression.

We have previously shown that a haemostatic defect may result from the rupture of an acute ectopic pregnancy and the present study was designed to investigate the possible existence of a haemorrhagic propensity in patients who suffer from chronic ectopic pregnancy.

Patients and Methods

Patients

Ten Black women who suffered from chronic ectopic pregnancy were studied. They ranged in age from 20 to 39 years (mean 28 years). All had amenorrhoea, the duration of which was estimated to range from 8-12 weeks, and all were afebrile. Anaemia was a uniform finding, with a mean haemoglobin concentration of 6.0 g/100 ml. Abdominal examination consistently revealed an ill-defined, non-tender mass arising out of the pelvis and extending to the umbilicus. Atop this mass was a discrete lump, which was the uterus. Pelvic examination revealed, in each instance, a large mass occupying the pouch of Douglas and occluding the vagina. When doubt existed about the diagnosis, colpocentesis was performed with a large-bore needle, and a few millilitres of blood were withdrawn. The diagnosis in each case was confirmed at laparotomy, at which time the volume of haematoma was estimated at 1-3 litres.

Methods

At the time of operation, before any blood or blood substitute had been administered, whole blood was withdrawn from a forearm vein by a clean venepuncture into a plastic syringe and transferred to plastic centrifuge tubes in which 9 volumes of blood were mixed with 1 volume of 3.8% sodium citrate. An appropriate aliquot of blood was also delivered into a standard plastic tube which contained Sequestrene as an anticoagulant. The subsequent processing and analysis of the specimens were done as previously described.

Results

The results for the separate parameters in peripheral venous blood are expressed in Table I. Values obtained in 20 age-matched non-pregnant Black women were used for comparison. Each result is expressed as a range, with a median value in brackets. Statistical analyses were performed by the Wilcoxon one-tailed test. These reveal significant elevations of plasma fibrinogen and fibrinogen degradation product (FDP) concentrations, and lengthening of the euglobulin lysis time.

Discussion

Since none of the patients had a viable pregnancy, it was decided to use age-matched non-pregnant Black women as the control group. All patients presented with pelvic haematoma. The increased levels of fibrinogen and FDP
TABLE I. PARAMETERS OF COAGULATION AND FIBRINOLYSIS IN PERIPHERAL VENOUS BLOOD OF PATIENTS AND CONTROLS (RANGE AND MEDIAN VALUES)

<table>
<thead>
<tr>
<th></th>
<th>Chronic ectopic pregnancies</th>
<th>Control group</th>
<th>Statistical significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Platelet count (10³/mm³)</td>
<td>192 - 521</td>
<td>150 - 400</td>
<td>—</td>
</tr>
<tr>
<td>Factor V (%)</td>
<td>48 - 150</td>
<td>65 - 140</td>
<td>—</td>
</tr>
<tr>
<td>Factor VIII (%)</td>
<td>67 - 150</td>
<td>50 - 173</td>
<td>—</td>
</tr>
<tr>
<td>Factor X (%)</td>
<td>75 - 120</td>
<td>65 - 140</td>
<td>—</td>
</tr>
<tr>
<td>Fibrinogen (mg/100 ml)</td>
<td>117 - 933</td>
<td>202 - 397</td>
<td>$P&lt;0.01$</td>
</tr>
<tr>
<td>Plasminogen (casein units)</td>
<td>2.7 - 5.1</td>
<td>2.4 - 5.3</td>
<td>—</td>
</tr>
<tr>
<td>Euglobulin lysis (min)</td>
<td>47 - 1,256</td>
<td>94 - 480</td>
<td>$P&lt;0.01$</td>
</tr>
<tr>
<td>Urokinase sensitivity test (s)</td>
<td>202 - 640</td>
<td>200 - 364</td>
<td>—</td>
</tr>
<tr>
<td>FDP (µg/ml)</td>
<td>2.5 - 40.0</td>
<td>1.25 - 5.00</td>
<td>$P&lt;0.01$</td>
</tr>
</tbody>
</table>

FDP = fibrinogen degradation product.

and the prolonged euglobulin lysis time are compatible with associated chronic inflammation, as has been described in a variety of other clinical situations.8,9

There was no evidence that a haemostatic defect accompanied chronic ectopic pregnancy. The clinical observation of excessive bleeding at laparotomy is probably a reflection of the hypervascularity which accompanies chronic inflammatory change.

We wish to thank Dr Victor Alpidovsky for performing the FDP assays; Prof. D. A. M. Gebbie and Prof. W. F. M. Fulton for advice and encouragement; Kabi Pharmaceuticals Ltd for supplies of streptokinase; and Hoffmann-La Roche for supplies of urokinase. This work was supported by research grant No. 670-205 to R.D.B. from the University of Nairobi.

REFERENCES

Books Received: Boeke Ontvangst


