ABRUPTIO PLACENTAE:
PERINATAL ASPECTS AND CURRENT MANAGEMENT

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Premature separation of the normally implanted placenta — an example of nature’s putting the cart before the horse — has been reported in 0.84% of pregnancies.5

Various degrees of severity are encountered. In the mild type, the retroplacental clot (pathognomonic of the disorder) is small and noted incidentally after delivery of a healthy infant. In the severe variety, the retroplacental clot is large, and maternal shock, acute renal failure or hypofibrinogenemia may be present in varying degrees. Stillbirth and neonatal death resulting from intrapartum hypoxia are frequent concomitants. The outcome for the infant will depend on the degree of abruption, the gestational stage and the adequacy of the treatment.

In compiling statistics from 16 reports in the literature, Hodgkinson and Neufeld6 noted a perinatal mortality of 53% in the presence of abruptio placenta. When the condition is recognized early and delivery is prompt, a corrected perinatal mortality of 14.3% has been obtained.

Theories on the etiology of premature separation of the normally implanted placenta include:

1. A “blowout” in the arterial system feeding the placental lake, producing uteroplacental apoplexy. Degenerative changes in the vessels have been suggested as a precursor to this phenomenon.8

2. Increased venous pressure. This mechanism of separation has been demonstrated artificially by occluding the inferior vena cava.9

A frozen section might have clarified the diagnosis at operation, but the pathologist felt that a definite diagnosis could not have been established by this means, although it might have removed any cause for concern about the possible presence of a malignant process.

Summary

A case of acute small-bowel obstruction of the terminal ileum due to endometriosis is described. The diagnosis was not seriously considered at operation, because of the absence of endometriosis at other sites. Review of the literature, however, reveals that in approximately half of the cases described the disease is confined to the terminal ileum.

The occurrence of monthly bouts of abdominal colic of an obstructive nature should have suggested the correct diagnosis because the periodicity of these symptoms was a marked feature. The apparent onset after abdominal surgery was a misleading feature in this case.

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REFERENCES


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3. Traumatic dislodgment of the placenta as a result of abdominal injury.
4. Excessive traction on the placenta resulting from a short umbilical cord.
5. "Shearing off" of the placenta when the uterus is rapidly decompressed and adjusts to a smaller volume. This mechanism may be demonstrated after delivery of the first twin or on rupture of the bag of waters in polyhydramnios.
6. An intriguing sixth possibility is suggested when one notes the resemblance of the placenta to a homograft. Could it be that some cases of premature placental separation occur because the uterus is rejecting this antigenically different organ, abruptly terminating the chimeric relationship?

MANAGEMENT

Considerable diversity of opinion exists as to the proper management of abruptio placentae. Some feel that there are no maternal indications for abdominal delivery and that supportive therapy plus measures to expedite vaginal delivery constitute the proper measures of treatment. Others note that the serious maternal and fetal complications are proportional to the duration and severity of the placental abruption and suggest, in addition to supportive therapy, prompt termination of the pregnancy by the abdominal route if safe, non-traumatic vaginal delivery is not imminent to help to decide between these two schools of thought, the Edmonton experience with premature separation of the placenta associated with perinatal death in the years 1955-1959 was reviewed.

ANALYSIS OF 94 PERINATAL DEATHS

This study involved 94 perinatal deaths in 92 pregnancies. The total number of deliveries in the four Edmonton hospitals during this period was 57,176.

Parity analysis of the group revealed that 25 women were para 0, 20 were para 1, 17 para 2, 12 para 3, 5 para 4 and 13 were para 5 or more.

Analysis of the age of the mothers revealed that four were between 16 and 20 years of age, 31 were between 21 and 25, 26 between 26 and 30, 23 between 31 and 35 and eight were between 36 and 40.

The gestational age calculated from the last menstrual period was: 25-27 weeks in five cases, 28-30 weeks in 25, 31-33 weeks in 12, 34-36 weeks in 17, 37-39 weeks in 22, and 40-42 weeks in 13.

Prenatal conditions recorded included nine cases of pre-eclampsia and one case of severe hypertension. Bleeding throughout pregnancy occurred in nine cases. Six patients had minimal or no prenatal care. There were four cases of acute hydramnios. Three cases of "trauma" immediately preceding abruptio placentae were recorded; one involved a criminal assault, one a car accident, and the other a "bad fall". The following medical conditions were noted in one case each: duodenal ulcer first manifested in the fifth month of pregnancy, phlebothrombosis, mild hyperthyroidism, "prediabetes", pneumonitis at 34 weeks, influenza immediately before labour, and an "arthritis-like" syndrome in pregnancy.

In the intrapartum period, one attempt at external version for a breech position was associated with premature placental separation. Also, two cases of cord prolapse with attempted replacement and breech extraction were accompanied by this complication.

Table I summarizes the length of labour in the 92 cases reviewed.

<table>
<thead>
<tr>
<th>No. of hours</th>
<th>Primigravida</th>
<th>Multigravida</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 4</td>
<td>6</td>
<td>31</td>
</tr>
<tr>
<td>5 - 8</td>
<td>8</td>
<td>23</td>
</tr>
<tr>
<td>9 - 12</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>13 - 16</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>17 - 20</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>21 - 24</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>24+</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>24</td>
<td>68</td>
</tr>
</tbody>
</table>

The method of delivery was spontaneous (vertex) in 74, outlet forceps in three, spontaneous breech in two, assisted breech in eight and breech extraction in three. Cesarean section was performed on three occasions. One section was performed after intrapartum death because of maternal indications. The other two sections yielded infants weighing 1672 and 1587 g. Both died on their third day of life with progressive respiratory distress. No autopsies were carried out. Barring unrevealed congenital anomalies, it is possible that these "near misses" could have been salvaged if intermittent positive pressure respirators had been available. A Braxton Hicks version was reported in one instance.

General anesthesia was administered for the delivery in 84 cases, spinal in two, and no anesthesia was used for six patients.

The time of onset of the placental separation was judged to be antepartum in 39 instances and intrapartum in 53.

The weight of the infants and the time of their deaths are recorded in Table II.

<table>
<thead>
<tr>
<th>Wt. of fetus or infant (in grams)</th>
<th>Stillbirth</th>
<th>Time of survival, neonatal deaths (in hours)</th>
<th>1-8 days</th>
<th>8-21 days</th>
</tr>
</thead>
<tbody>
<tr>
<td>1000 - 1500</td>
<td>15</td>
<td>7</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>1501 - 2000</td>
<td>10</td>
<td>4</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>2001 - 2500</td>
<td>13</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>2501 - 3000</td>
<td>13</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>3001 - 3500</td>
<td>6</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>3501 - 4000</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Unknown</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Totals</td>
<td>63</td>
<td>13</td>
<td>5</td>
<td>2</td>
</tr>
</tbody>
</table>
Of the 63 stillbirths, 16 deaths occurred in parturition. In nine of the 16 intrapartum deaths, periods of distress were noted before intrapartum death. In the other seven, the course was so fulminating or the observation so infrequent that no period of distress was detected before death. The autopsy findings are recorded in Table III.

**TABLE III.—AUTOPSY RESULTS**

<table>
<thead>
<tr>
<th>Weight in grams</th>
<th>1000-1500</th>
<th>1501-2000</th>
<th>2001-2500</th>
<th>2501-3000</th>
<th>3001-4000</th>
<th>Unknown</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atelectasis*</td>
<td>12</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>No autolysis</td>
<td>12</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Intrapartum hemorrhage</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Anoxia</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Bronchopneumonia</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Stillbirths with no anomalies noted at autopsy</td>
<td>13</td>
<td>11</td>
<td>10</td>
<td>19</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

*Seven of the 24 cases of ateriectasis displayed a byline membrane.

**DISCUSSION**

The 47 perinatal deaths that occurred in the antepartum period could not be prevented by altering the management of labour. The 16 intrapartum and 31 neonatal deaths, however, were potentially salvageable. Since premature separation of the placenta is not reversible but instead is prone to insidious progression, prompt delivery is desirable to shorten the period of fetal jeopardy. Therefore, if the mother’s condition permits and vaginal delivery is not imminent within an hour, Cesarean section under local anesthesia would seem to be the logical solution. Adverse influences, such as general anesthesia and heavy sedation, are best avoided when these “poor risk” babies are involved. Prompt delivery will also minimize and avoid serious maternal complications. The possibility of postpartum hemorrhage should be anticipated. Clotting deficiencies have been reported in 5 to 8% of all cases of abruptio placentae and in 16% of severe cases. This incidence warrants routine clot observation tests every half hour as well as the provision of fresh blood and fibrinogen for use as needed.

Acute renal failure may possibly be secondary to fibrin plugging of renal vessels but is commonly the result of ischemia from prolonged intrarenal arterial spasm. The incidence of this complication will be rare if compatible blood is administered promptly as required to maintain a stable cardiovascular status, and if early delivery is accomplished.

In the presence of a dead fetus due to placental separation, Adams et al. have demonstrated that rupture of membranes and oxytocin (Pitocin) drip is a safe and effective method for prompt termination of pregnancy in 94% of such cases.

**SUMMARY AND CONCLUSIONS**

In the five-year period 1955-1959, in the course of 57,176 deliveries in Edmonton, Alberta, there were 94 perinatal deaths associated with abruptio placentae.

The prognosis for the fetus when premature separation of the normally implanted placenta occurs depends on the stage of gestation, the degree of placental separation and fetal compromise when the diagnosis is made, and the adequacy of treatment. In 50% of the 94 cases, death occurred in the intrapartum or neonatal period. It is among this group that reduction of perinatal mortality may be possible by early diagnosis and prompt delivery in a suitable manner.

The principles of management outlined in recent reviews of this problem were corroborated by the findings in this study.

**REFERENCES**


11704 - 87 Avenue, Edmonton, Alta.