Medical Memoranda

Haemolytic Disease in a First-born Infant

Haemolytic disease is rare in first-born infants; the stimulus of a second rhesus-positive foetus is apparently nearly always required before the maternal antibody is produced in sufficient potency to affect the infant. When haemolytic disease has been observed in a first-born it has usually been explained by previous sensitization to the Rh antigen by a transfusion or injection of Rh-positive blood or a pregnancy which ended in an early abortion. The following case is of interest because it seems likely that there was no sensitization before the onset of the first pregnancy, which ended with the birth of an infant suffering from haemolytic disease.

CASE REPORT

A woman aged 27, who had been married for three years, was delivered of an apparently normal female infant weighing 7 lb. (3.2 kg.). A few hours after birth slight jaundice was noticed, and the next day the skin was a deep golden yellow.

On admission to hospital some 36 hours after birth, the infant was still deeply jaundiced, with slight enlargement of the spleen; otherwise it appeared perfectly normal. The laboratory findings were typical of haemolytic disease. The mother was Group A rhesus-negative and her serum contained strong saline and albumin rhesus antibodies. The infant was Group O rhesus-positive. The direct Coombs test was strongly positive. The serum bilirubin was 20 mg. per 100 ml.

The infant's haemoglobin fell steadily from 80% (11.8 g.%) on admission to 58% (8.6 g.%) on the ninth day, when, after a transfusion of 180 ml. of blood, it rose to 102%. There was a further slow fall in haemoglobin, but no further transfusion was needed.

The mother was an intelligent woman, a laboratory worker, who understood the significance of her evidence. She had previously been a blood donor, but neither she nor her parents could recall any occasion when she had been injected with blood or serum: she had, in fact, always been in good health. Furthermore, she had never had any abortions; whilst her menstrual cycle had always been irregular (4–7/24–35), the longest period of amenorrhoea prior to becoming pregnant was 39 days, ending with a menstrual loss no heavier than usual.

COMMENT

Mollison (1948) states that antibody formation may begin as early as the twelfth week of pregnancy, but it is not usually until the second or later pregnancy that haemolytic disease appears.

It is well established that the injection of rhesus-positive blood into a rhesus-negative subject acts as a most powerful stimulus to the production of antibodies, so that a woman's first-born child may suffer from haemolytic disease.

It is, however, not so well proved that, in the absence of previous sensitization, the first-born may be affected: when Levine and Waller (1946) reported 28 cases of haemolytic disease affecting the first-born, they found that 19 of the mothers gave histories of a previous transfusion or injection of blood; of the other nine cases the authors concluded that the possibility of previous sensitization could not be excluded, as it used to be a widespread practice—that is, in the U.S.A.—to inject a few millilitres of blood at birth to prevent haemolytic disease. Cappell (1946) mentioned four families in which the first-born were affected; and Spalding (1947) recorded a first pregnancy resulting in a hydrops foetalis: the mother had rhesus antibodies and there was no history of previous sensitization.

Few other cases have been published, although the incidence may well be greater than this fact suggests.

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Subcostal Pain Following Controlled Respiration

An unsolicited complaint of subcostal aching during the first post-operative day after controlled respiration, especially with succinylcholine relaxation, seems to be a common complication.

The cases seen so far have been confined to females aged 20 to 65 years, both athletic and sedentary. Thus in a series of 40 consecutive dental operations (12 males, 28 females) there was no complaint from the male group, but subcostal pain was noted in six (21.4%) of the females (see Table).

Agent	Male		Female	
	No. of Cases	Subcostal Pain	No. of Cases	Subcostal Pain
Succinylcholine	7	0	12	4
Gallamine triethiodide ..	1	0	4	1
No relaxant (thiopentone, pethidine)	4	0	12	1
Total cases (40) ..	12	0	28	6

The site of operation in these cases—for example, dental procedures, excision of glands of the neck, etc.—is remote from the abdomen: the pain following operative trauma in the latter presumably overshadows, or is associated with, post-operative subcostal ache. Most of the patients have required passive inflation for short periods only (5 to 10 minutes) after intubation.

This subcostal pain first appears soon after consciousness is regained, and persists for 24 to 48 hours. It varies in severity and distribution from that of a minor anterior subcostal discomfort to a severe ache encircling the costal margin and extending to the back. Forced respiration and movements involving the abdominal musculature, such as sitting up or turning, cause acute discomfort. The disturbing feature is that the patient, at the time, usually complains more of the discomfort subcostally than of the pain at the site of operation. (A young lady who awakens expecting an aching jaw, only to find something worse at her midriff, rightly asks for an explanation.)

This complication has only occasionally been seen when relaxation has been produced with other agents, and seems to be more commonly associated with the greater degree of relaxation obtained by succinylcholine. Thus, with this agent, passive inflation can presumably cause a greater degree of stretch of the respiratory musculature with minimal resistance. I do not think that the transient excitation preceding paralysis with succinylcholine is concerned in the mechanism.

That the complaint has been confined to females is probably accounted for by their inherent thoracic type of respiration, passive inflation with full relaxation causing an unaccustomed stretching of the muscle fibres of the diaphragm. As one intelligent patient put it, "My diaphragm feels as though it has just played its first game of squash for the season."

An awareness of this complication might indicate the need for less vigorous inflation during the period of complete relaxation, which should result in a decrease in the incidence of post-operative subcostal pain.

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