**Case of the Month: July-August’s Diagnosis**

**The Neonatal Lupus Syndrome**

by Thomas T. Provost, MD

The first 3 respondents in each time zone to identify July/August’s Case of the Month correctly are:

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<th><strong>EASTERN</strong></th>
<th><strong>CENTRAL/MTN</strong></th>
<th><strong>PACIFIC</strong></th>
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<td>Leah Berkery, M D – NY</td>
<td>Mary Kelly, D O – IL</td>
<td>Andrew Harbison, M D – CA</td>
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<td>Michael Dresser, M D – PA</td>
<td>Victor Pace, M D – M O</td>
<td>Charanjit Lamba, M D – WA</td>
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<td>Houman Golzari, M D – CT</td>
<td>Nayar Syed, M D – OK</td>
<td>Asra Siddiqui, M D – CA</td>
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<td>Phanel Basile, M D – TN</td>
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<td>Suzanne Black, M D – TX</td>
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<td>Savita Chander, M D – WI</td>
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The neonatal lupus syndrome is an unusual disease process, the result of passage of maternal anti Ro (SS-A) antibodies to the unborn fetus.\(^1\)\(^2\)\(^3\) Approximately one half of the infants present with photosensitive erythematous, annular polycyclic dermatitis. The periorbital area is a site of predilection.\(^4\) In addition to the cutaneous manifestations, an equal number of infants are born with isolated congenital heart block. In general, but not always, those infants with isolated congenital heart block do not have cutaneous manifestations and vice versa. There are, however, exceptions.\(^5\)

The isolated congenital heart block is associated with an anti Ro (SS-A) antibody which shows cross reactivity on western blot analysis with a 52kD macromolecule.\(^6\) In addition, the 52kD macromolecules share epitopes in common with the alpha chain of L-type calcium channels, unique to the fetal heart. It is hypothesized that the anti-Ro (SS-A) antibody binds to the alpha chain of the L-type calcium channel, inducing an inflammatory response producing fibrotic replacement of the cardiac conduction system. This fetal isoform of the L-type calcium channel is not present in the adult heart. Hence, the explanation that heart block and cardiac arrhythmias are not detected in anti-Ro (SS-A) positive adult patients.

In addition to the isolated congenital heart block and the cutaneous lesions of lupus erythematosus, some neonatal lupus infants present with thrombocytopenia and cholestasis\(^5\) (as this child did).

A few infants present with cutaneous lesions at birth, but most develop the cutaneous disease within the neonatal period.\(^4\) M any times this occurs upon exposure to sunlight or, as in this case, the use of bilirubin lights.

Examination of the infant’s serum demonstrates anti-Ro (SS-A) antibodies. During the first 6 months these maternally derived antibodies are catabolized in the infant. The disappearance of the antibodies in the infant is associated with the disappearance of the cutaneous disease. However, the isolated congenital heart block is permanent. Some infants may have evidence of a first or second degree heart block. M any of these infants have a return to a normal rhythm. H owever, measurement of the Q-T interval in many infants born of these anti-Ro (SS-A) mothers will show prolongation.\(^7\)

The isolated congenital heart block is associated with very significant mortality; many of these infants need a pacemaker implantation. In addition, the infants may demonstrate abnormal cardiac development necessitating a heart transplant. The fate of the anti-Ro (SS-A) antibody positive mothers is very interesting. At times the birth of a child with neonatal lupus syndrome may be the first indication that the mother has a connective tissue disease.\(^8\) M any of the mothers are asymptomatic at the time of birth. O thers have an undifferentiated connective tissue disease. O ther mothers will demonstrate a phenotypic expression of lupus erythematosus. Some will demonstrate the classic annular polycyclic lupus lesions associated with subacute cutaneous lupus erythematosus. O ther women will demonstrate the phenotypic expression suggestive of Sjögren’s syndrome manifesting as dryness of the mucous membranes (ie, mouth, eyes, and vagina).

A follow-up of these mothers in most instances indicates that the patients will evolve either towards a picture of lupus erythematosus or Sjögren’s syndrome. The author, however, has seen several of these mothers who have been asymptomatic for many decades following the delivery of a neonatal lupus infant.

**Diagnosis**

T hose pregnant women having anti-Ro (SS-A) antibodies and who are at risk to give birth to a child with neonatal lupus syndrome are classically H LA-B8, D R3 positive.\(^1\)\(^2\) T his H LA typing should be done and, if positive, the infant should be monitored from 22 weeks of gestation onward using M-mode echocardiography. T he development of bradycardia in the infant should not be taken as an indication for early termination of the pregnancy because of fetal distress.

At the present time the treatment of the fetus is problematic and no standard therapy has been devised. Infusion of dexamethasone into the mother is theoretically therapeutically effective because it passes across the placenta whereas prednisone is catabolized in the placenta. H owever, the author is unaware of any success in treating isolated congenital heart block, once it occurs. O n rare occasions, connective tissue dis-
ease patients possessing anti-U1RNP antibodies have been found to give birth to infants with the cutaneous features of the neonatal lupus syndrome. No evidence of isolated congenital heart block had been detected in these infants.9

References