

## Neonatal ascariasis

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REPORTS of neonatal helminthic infections are rare. This paper is a report of an infant with neonatal ascariasis, born to a mother who also had intestinal and placental ascariasis.

### CASE REPORT

A male infant was delivered by cesarean section at 8 months' gestation to a 26-year-old para 2, gravida 3 farm woman. The mother was never examined antenatally. She had a history of occasional vague abdominal pain which lasted for about 10 to 30 minutes without nausea, vomiting, or diarrhea. She was admitted to the hospital on April 3, 1970, because of early rupture of the membranes and prolonged labor. Cesarean section was performed soon after admission as a result of the fetal distress and prolonged labor. Before cesarean section one living *Ascaris lumbricoides* worm passed from the vagina to the outside and another living adult worm was discovered in the vagina during vaginal douche in preparation for the operation. An adhesion between the small intestine and the uterus was found. After extirpation of the placenta, two living mature male worms and eight living mature female worms were found on the maternal side of the placenta (Fig. 1). At delivery, the infant weighed 2,010 Gm., measured 45 cm., and was in fair condition. The Apgar score at five minutes was 10. The baby appeared well on the second

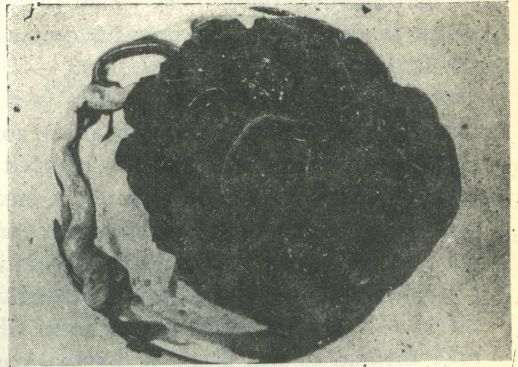


Fig. 1. *Ascaris lumbricoides* worms in the placenta.

day when he was observed to pass a live female *Ascaris lumbricoides*, 30 cm. in length. On the sixth day, he passed another live mature female worm 28 cm. in length. Piperazine citrate (50 mg. per kilogram per day) was given to the baby on the sixth and seventh day of life. However, no other worm was found during the following weeks, and *Ascaris lumbricoides* ova were not seen after the eleventh day of life. No eosinophilic leukocytes were seen in peripheral blood of the baby or the mother. Fertilized *A. lumbricoides* ova were found in the mother's stool, in the amniotic fluid, and in the baby's feces.

### DISCUSSION

The infant described had not had an opportunity to ingest food contaminated with fertilized *A. lumbricoides* eggs. His infection presumably resulted from transplacental migration of *A. lumbricoides* larvae or adult worms. The migration of mature *Ascaris* worms to many organs is well known, but reports of urogenital migration of the parasite are rare.<sup>1</sup> The first case of placental bilharziasis was reported by Sutherland and associates<sup>2</sup> in 1965, and the presence of *Taenia proglottid* was first reported in the human uterus by Schacher and Hajj<sup>3</sup> in 1970. *Enterobius vermicularis* has been recorded on a number of occasions in the urogenital system, including the uterus.<sup>4</sup> In

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1949, Ochsner and associates<sup>5</sup> reported a case of *A. lumbricoides* migration to the heart. In 1965, Phuac and Schmauss<sup>6</sup> reported embolism by a grown *A. lumbricoides* in the femoral artery. They stated that the worm in this case could only have reached the femoral artery via the bile duct → liver abscess → hepatic vein → vena cava → right heart → foramen ovale → left heart → aorta → femoral artery. In individuals exposed to many infective stage eggs, some of the larvae may pass through the pulmonary capillaries into the left heart and systemic circulation and may be filtered out in various organs and tissues of the body, as in lymph nodes, thyroid, thymus, spleen, brain, and spinal cord. They may also accumulate in the kidneys and be passed in the urine, or they may rarely pass the placental filter and reach the fetus.<sup>7</sup> The pathway of placental ascariasis in the present case can be postulated in two possible ways. The first is direct invasion of the worm from intestine to uterus and placenta, and we did find an adhesion between the small intestine and the uterus at the time of surgery. The second possibility is the migration of larvae into the placenta, where they developed to maturity. There may be three possible pathways for neonatal ascariasis. The first is direct invasion of *A. lumbricoides* from the mother's intestine to the placenta and amniotic cavity, to be swallowed by the fetus. The second possible route is as follows: infected *Ascaris* eggs → *Ascaris* larvae → lodged in the lung → some larvae reach left heart → placenta → umbilical vein → fetal circulation → ductus venosus → inferior vena cava → right heart → lung → alveoli → bronchioles → trachea → pharynx → esophagus → stomach → small

intestine → mature worm. The third possibility is that the fertilized *Ascaris* eggs are produced by ovipositing female worms in the placenta. These fertilized eggs become infective in the placenta and amniotic cavity by an intracorporeal hatching process.<sup>8</sup> The infective eggs are swallowed by the fetus and develop into mature worms in the small intestine.

We wish to express our gratitude to Dr. J. H. Cross, Parasitologist, United States NAMRU-2, for reviewing the manuscript, and confirming the identification of *Ascaris lumbricoides*.

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