

ASCARIS LUMBRICOIDES IN THE CONCEPTUS

Report of A Case

CHIEN-TIEN HSU, CHING-CHUAN CHEN, SHI-CHIY SU and CHENG-HSIUNG ROAN

(From the Department of Obstetrics and Gynecology, the Taipei Municipal Chung-hsing Hospital and Taipei Medical College, Taipei, Republic of China)

CHING-CHIANG HUANG

(From the Department of Pediatrics, the Taipei Municipal Chung-hsing Hospital and Taipei Medical College, Taipei, Republic of China)

A 26-year-old, para II, gravida III, farmer's housewife, with previous section, underwent repeat cesarean section for fetal distress and suspected threatened uterine rupture. At operation, 15 adult worms of Ascaris lumbricoides were found in the maternal surface of the placenta (utero-placental space and placenta), in the placenta and in the amniotic sac and in the newborn. Before operation she passed 2 adult worms in the vagina. The newborn vomited one adult worm immediately after the delivery and passed one adult worm on the second and sixth postnatal day respectively. The amnion and also the feces of the newborn contained numerous Ascaris ova. The mother also passed one adult worm on the sixth, seventh and eighth postpartum day respectively. Four pathways were postulated to explain the prenatal infection of the parasite. Although we cannot determine definitely which pathway is the most likely one, we are inclined to assume that the adhesion between the uterus and the small intestinal loop might have facilitated such prenatal infection of the parasite because cases like this have never been encountered even in this island with such dense infection of this parasite.

Although the adult worms of the *Ascaris lumbricoides* live in the small intestines, they have also been found in other rare sites of the human body⁽¹⁻¹²⁾. However, *Ascaris lumbricoides* in the conceptus has never been reported in the literature so far as we have searched. The present paper is a report of such rare case where *Ascaris lumbricoides* was found accidentally in the conceptus when cesarean section was performed for suspected threatened uterine rupture and fetal distress.

CASE REPORT

The patient, Mrs. H.S.C., a Formosan rural housewife, aged 26, gravida 3, para 2,

was admitted to the Department of Obstetrics & Gynecology, the Taipei Municipal Chung-hsing Hospital at 8:20 a.m., April 3, 1970, for premature delivery associated with early rupture of membranes and active labor pain. In 1968 she had a female baby by cesarean section performed by an obstetrician in the rural area, however, the indication for the cesarean section is unknown. Otherwise nothing particular in her past history. Her last menstruation was on August 2, 1969 and EDC was May 9, 1970.

The patient was a moderately developed and moderately nourished woman with clear consciousness. Non-anemic. Blood pressure:

120/60 mmHg. Pulse rate: 92/minute, regular and well tensed. Body temperature: 37.5°. Chest: normal. No toxemic sign was noted. RBC: 440×10^4 , WBC: 17,000, Hemoglobin: 14.0 gm. Differential Counts: Band form neutrophile: 3%, Segment neutrophil: 58%, lymphocyte: 36%, Monocyte 2%, Eosinophil: 1%. Abdominal wall showed an old cesarean section scar. Fundus of the uterus was 31 cm. above the symphysis. Fetus: L. O. A. Fetal head was still floating. The contraction ring was palpable 3 fingerbreadth below the umbilicus and uterine contraction was apparently too strong. Fetal heart sound was remote, 140 per minute and slightly irregular. External os was nearly in full dilatation and the membranes were ruptured. X-ray pelvimetry showed no definite CPD. However, cesarean section seemed to be indicated for suspected threatened uterine rupture and fetal distress. Two adult *Ascaris* worms slipped through the vagina when the patient was being prepared for operation, undergoing vaginal douche. At operation a loop of ileum was tethered loosely to the anterior uterine wall. After a simple blunt and sharp dissection the ileum loop was separated from the uterine wall and lower cervical incision was made, through which an adult worm of *Ascaris lumbricoides* passed out with the amniotic fluid. A living premature male baby weighing 2010 (45 cm in length) was delivered at 11:45 a.m., April 3, 1970. On removal of the placenta from the uterine wall, 10 more adult worms of *Ascaris lumbricoides* were evacuated. These ten worms must have lodged between the maternal site of the placenta and the uterine wall. On pathologic examination of the placenta 5 more adult worms were extracted from the placental parenchym. Laboratory investigation identified the former worms to be two living male and eight female mature worms. The newborn was in excellent condition showing Apgar score 10 five minutes after the delivery., however,

he vomited a living mature worm from his mouth immediately after the delivery. The amniotic fluid was proved to contain fertilized *Ascaris lumbricoides* ova and also to be contaminated by *E. coli*. The baby passed a mature female worm measuring 30 cm. on the second postnatal day and another female mature worm measuring 30 cm, on the sixth postnatal day respectively, while the mother passed a mature worm on the sixth, seventh and eighth postpartum day respectively. Both mother and baby feces contained numerous *Ascaris lumbricoides* ova. Laboratory examinations showed no eosinophilia in the peripheral blood both in the baby and the mother while the mother showed mild leucocytosis without neutrophilia. The baby was given Piperazine citrate 50 mg/kg/day on the 6th and 7th postnatal day and no more worms were passed after the second week and no more *Ascaris lumbricoides* ova were found after the eleventh postnatal day. The mother developed paralytic ileus on the third postoperative day, which was successfully treated with Hypaque and other conservative treatments. She also received Piperazine 5 tablets B. i. d. from the 6th postoperative day for 5 days. Both mother and baby were A. A. discharged on April 17, 1970 because of the family's poor financial condition. Postpartum check-up on April 30, 1970 revealed that both mother and baby were free from *Ascaris lumbricoides* ova in their feces.

DISCUSSIONS

It is generally believed that the *Ascaris lumbricoides* ova hatch in the upper small intestines into rhabditiform larvae after being ingested by the human beings, which penetrate the intestinal wall to reach the venules or lymphatics, then through the portal circulation they gain access to the liver, thence to the heart and lung. In the lung they break through the capillaries into the alveoli and then creep up along the bronchioles to

the bronchus, trachea and then to the glottis, from where they pass down the esophagus to lodge in the small intestines. On the basis of the forgoing basic parasitologic knowledge and the findings of the parasites in the conceptus, there are four possible pathways which should be taken into consideration in explaining the prenatal ascariasis in the present case.

1) The mature *Ascaris lumbricoides* worms might have penetrated the intestinal wall at the site of adhesion between the intestinal loop and the anterior uterine wall. They might have further penetrated the uterine wall and placenta to get into the amniotic sack and then they might have been swallowed by the fetus.

2) Instead of being at the mature worm stage, the rhabditiform larvae, which are considered to possess the strongest penetrating and wandering capability, might have penetrated the intestinal wall at the adhesion site between the uterus and intestinal loop to get to the uterine wall and then to the uteroplacental space, where they might have lodged and grown to their mature stage, or from where, they might have further penetrated the placenta to get into the amniotic sac and might have grown up to produce their ova, which might have been in turn swallowed by the fetus.

3) Some larvae might have broken the capillaries of the alveoli and reached the left heart by the pulmonary vein and then to the aorta, uterine arteries or ovarian arteries of the mother and then to the placenta from where they might have entered the fetal circulation through the umbilical vein and developed to adult worm stage in the fetus. Some could have remained in the placental site to develop to adult worm.

4) The fertilized ova produced by ovipositing female worms in the placenta would have become infective in the placenta or amniotic sac through intracorporeal hatch-

ing⁽⁴⁾ and then might have been swallowed by the fetus and developed into mature worms in the small intestines.

The presence of adult worm in the amniotic sac does not speak for or against any particular pathway above-mentioned. Since we may expect more intensive pathologic change resulting from penetration of adult worm than the larvae, minimum pathologic changes in the adhering intestinal loop, uterus and placenta and the amenability of the adhesion to dissection seem to speak against the first possible pathway, however, the contamination of amniotic fluid with *E. coli* and the uniformity in size of adult worms in the placenta and amniotic sac might speak for this possible pathway, because if the second or the third pathway had been the case, in the individuals exposed to many infective stage eggs on many occasions, the worm in the uteroplacental space, in the placenta and amniotic sac would not be uniformly adult worms but would be more variant at their developing stage. Although the possibility of *Ascaris lumbricoides* infection in the placenta and fetus was suggested in the text book⁽¹³⁾ and in the reports of cases where the parasites were found in the ovary and tubes^(1,2,3,4,5,7,9,10) this case might be the first one to confirm such possibility suggested in the literature. Although at this moment in the absence of our own experimental data, we are not in a position to determine which pathway should be most likely, at least we can say that the accidental adhesion between the small intestines and the uterus played some role in the prenatal ascariasis infection through either the first or the second pathway; if such prenatal ascariasis should have occurred purely only through the third pathway without the accidental adhesion between the uterus and the small intestines like this case, such cases of prenatal ascariasis infection like the present case would be more frequently encountered

in such severe epidemic area as this island. The present case together with the cases of Paragonimiasis Westermani in the female genital organs reported by one of the senior authors (CTH)^(14,15,16) indicates the necessity of strict vigilance by clinicians at the occurrence of parasitic infection in the rare organs other than their ordinary destination organs in the tropic zone where parasites are densely epidemic.

ACKNOWLEDGEMENT: Thanks are due to Professor Chiu for his parasitologic study National Taiwan University School of Medicine and Professors T. Y. Chen and T. S. Huang, Taipei Medical College for their pathological examination.

REFERENCES

- (1) NAKAYAMA, H.: Ascarides in the Fallopian Tube, Fukuoka Igakkai Zassi 2: 1, 1908.
- (2) CORFIELD, C. R. and HIRSON, B.: A Case of Acute Ascariasis Associated with Trichuris trichiura Complicating Pregnancy, Lancet May 20, p. 995, 1922.
- (3) MURRAY, H. E.: Ascaris lumbricoides in Fallopian Tube. J. Obst. & Gynec. Brit. Emp. Manchester, 33: 448, 1926.
- (4) HOFSTOTTER, H.: Ein Weiterer Fall von Ascaris lumbricoides in einem Eileiter. Klin. Woch. XI: 27, 1927.
- (5) TANAKA, K.: A Case of Ascaris lumbricoides migrated in the Dermoid Cyst, Sanka To Fujinka I: 6, 1933.
- (6) IWAZU, S.: Ascaris lumbricoides in Obstetrical and Gynecological Field, Sanka To Fujinka II (8): 625, 1934.
- (7) STERLING, R. and GRAY, J. L.: Invasion of the Female Genital Tract by Ascaris lumbricoides. J. A. M. A. XIX: 2046, 1935.
- (8) KINOSHITA, T.: Relation between Ascaris lumbricoides and Obsterical and Gynecological Diseases, Osaka Ijishinshi X: 99, 1939.
- (9) LIN H. L. and WARY Y. R.: The Passage of Numerous Ascaris lumbricoides from the Male Urethra, Clinical Med. Journ. 59: 570-574, 1941.
- (10) NOZUE, Y.: A Case of Ovarian Abscess lumbricoides, Sanfuzinka Kiyo XXV (911): 982, 1942.
- (11) BURTON I. F. and HOULD F. L.: Visceral Larva Migration Syndrome Caused by Human Ascaris lumbricoides, Harper Hospi al Bull. 18: 239-243, 1960.
- (12) BOJANOWICZK KUZMICKI R., ZY DOWICZ, LI: Wied parazyt 8: 535-538, 1962. A Rare Case of Ascaris lumbricoides in the Urinary Tract.
- (13) FAUST, E. C., RUSEL, P. F. and JUNG, R. C.: Ascariasis, Cinical Parasitology. 8th ed. Les and Febriger Company p. 338, 1970
- (14) HSU, C. T., MA, Y. M. and WANG, T. T.: Paragonimiasis Involving Female Genital Organs, Report of Two Cases: Obst. & Gynec.: 14: 461, 1959.
- (15) HSU, C. T., MA, Y. M., WANG, T. T., HSIA, C. J., OULI, C. K. and CHANGCHIEN, B. C.: Paragonimiasis der Weiblichen Geschlechtsorgane, Bericht Dreier Fälle, J. F. M. A., 61: 503, 1962.
- (16) CHENG, Y. S. and HSU, C. T.: Three Additional Cases of Paragonimiasis Involving Pelvic Organs, J. F. M. A., 8: 188-191, 1969.

蛔蟲寄生於子宮胎盤胎兒之稀有病例報告

臺北市立中興醫院婦產科及臺北醫學院婦產科

徐千田 陳景川 蘇錫棋 阮正雄

臺北市立中興醫院小兒科及臺北醫學院小兒科

黃 金 江

蛔蟲主要寄生於小腸，遇而迷走寄生於其他部位，也曾有報告。我們施行剖腹產時發現蛔蟲寄生於子宮、胎盤及胎兒推想在此稀有之病例，蛔蟲可能由前項

剖腹產得來的小腸與子宮前壁粘癒（着）部位通過小腸壁，子宮壁及胎盤而進入羊膜腔與胎兒的。



Fig. 1: *Ascaris lumbricoides* on the maternal surface of the placenta.



Fig. 2: Adult worms of *Ascaris lumbricoides* embedded in the placental parenchym.

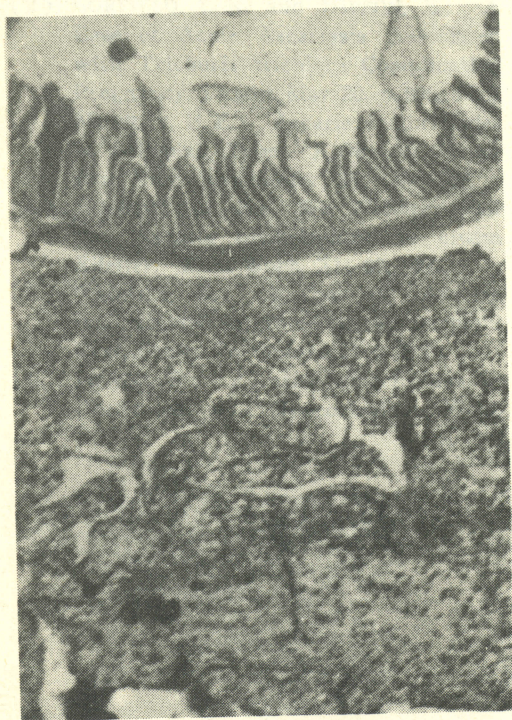


Fig. 3: Histologic Picture of the placenta with *Ascaris lumbricoides* infection.

In the upper part of the field, a cross section of adult worm, in the lower part of the field marked fibrotic change and inflammatory round cell infiltration in the placental were seen.



Fig. 4: High power view of Fig. 3

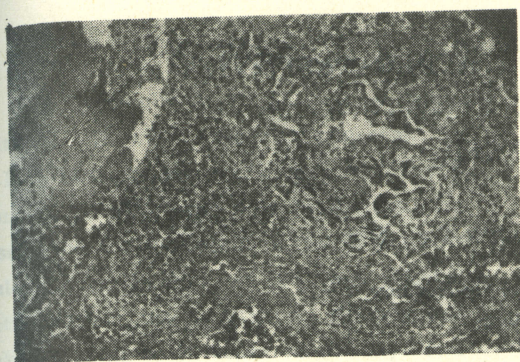


Fig. 5: Low power view, shows focal hemorrhage and fibrosis with marked inflammatory round cell infiltration in the placenta.

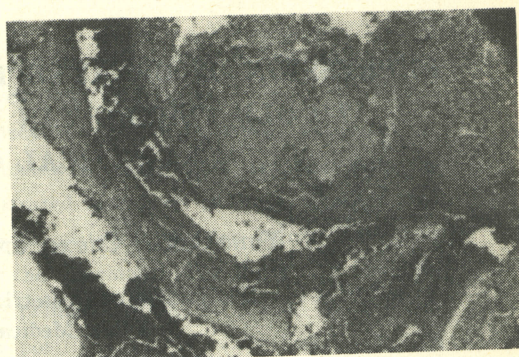


Fig. 6: the same, high power view.

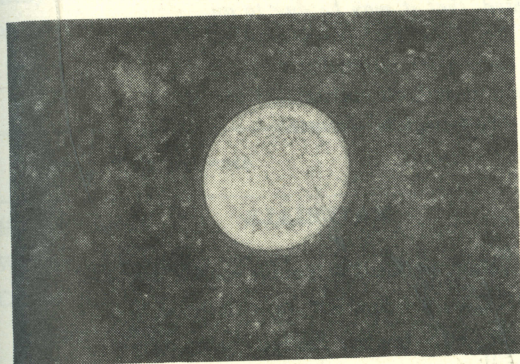


Fig. 7: Ova of Ascaris lumbricoides in the amniotic fluid.

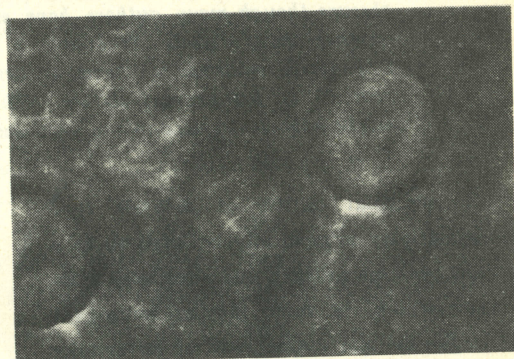


Fig. 8: Ova of Ascaris lumbricoides in the meconium of the newborn.

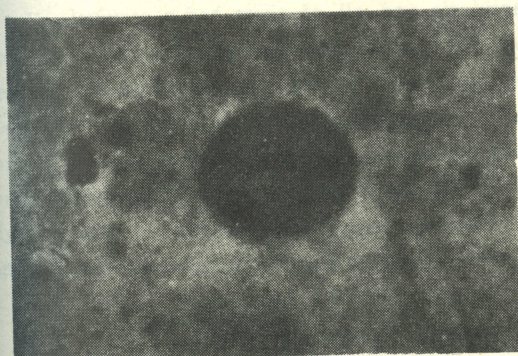


Fig. 9: Fertilized ova of Ascaris lumbricoides found in the mother's stool.

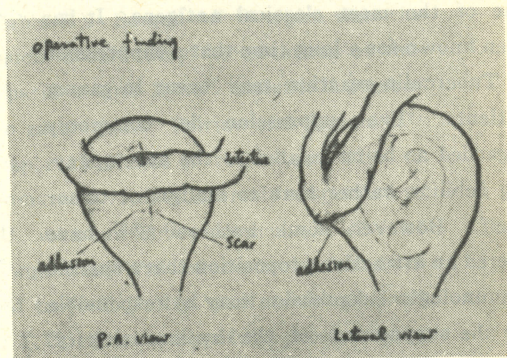


Fig. 10: Demonstrates the adhesion between the intestinal loop and anterior uterine wall.