

SUDDEN RESPIRATORY DIFFICULTY AND CARDIAC ARREST DUE TO ASCARIS LUMBRICOIDES ASPIRATION AFTER OPEN HEART SURGERY*

Ali Yener MD**, Coşkun İkizler MD***, Yurdakul Yurdakul MD****,
Rüstem Olga MD*****, Frank Traverse*****

Key words: Ascaris lumbricoides, foreign body aspiration

Aspiration of foreign bodies in the trachea or main stem bronchus may be a threat to life. This pathology usually occurs between the ages of one and three years¹. Numerous kinds of objects can be aspirated accidentally while the child is talking, eating, laughing or playing². Parents must be especially careful when children are eating and laughing at the same time. There is apparently no case in the literature resembling this present one where the aspiration of an intestinal worm is responsible for sudden respiratory difficulty and cardiac arrest after open heart surgery.

Case Report

An eight-year-old girl was admitted to Hacettepe University Children's Hospital with the complaints of dyspnea, tachycardia and fainting. Her disability was discovered by her family. During the physical examination her temperature was 36 °C, heart rate 132 per min and there was an arterial tension of 120/80 mmHg. Her general condition was good with no cyanosis or edema. A systolic thrill was felt on the jugular notch and a systolic crescendo murmur was heard on the right sternal border at the second and third intercostal space, she also had an early

* From the Department of Cardiovascular Surgery, Hacettepe University Institute of Child Health, Ankara.

** Assistant Professor, Department of Cardiovascular Surgery, Gazi University Faculty of Medicine.

*** Associate Professor, Department of Cardiovascular Surgery, Gazi University Faculty of Medicine.

**** Professor of Cardiovascular Surgery, Hacettepe University Faculty of Medicine

***** Assistant Professor, Department of Cardiovascular Surgery, Istanbul University Cerrahpaşa Medical Faculty, Istanbul.

***** Student of Mental Rehabilitation

diastolic decrescendo murmur near the left border of the sternal edge. Left ventricular hypertrophy was observed on the X-ray and the ECG. At cardiac catheterization the left ventricular pressure was 175-200/0-7 mmHg, and aortic pressure was 80/55 mmHg. In the cineangiography, subvalvular aortic stenosis was seen.

The patient was operated on and subvalvular stenosis was resected and she was taken to the intensive care unit in good condition. She was extubated twelve hours later. During the first post-operative day, the patient had intermittent vomiting. By the third day the vomiting had stopped but there was sudden respiratory difficulty and cardiac arrest. The patient was resuscitated successfully and connected to a ventilator. Antero-posterior chest X-ray failed to reveal a cause for the respiratory difficulty. The patient was extubated fifteen hours later while her condition was excellent. There was nothing significant in the lung sounds. On the fifth post-operative day, she continued to experience respiratory difficulty and, since the suspected cause was secretions, her tracheobronchial system was cleaned constantly by aspiration. On the evening of the fifth day she had to be intubated again. She was very irritated and continued to experience respiratory difficulty even though she was on artificial respiration.

While cleaning the trachea with a power aspirator, a large intestinal worm came out of the endotracheal tube, and the patient's condition improved immediately. The worm measured 20 cm in length. After the worm was aspirated, the patient was extubated and bronchoscopy was performed to examine and irrigate both main stem bronchi. No more worms were found. The presence of secretions was probably the result of irritation due to the worm. The patient's progress was uneventful after removal of the worm and she was discharged from hospital in good condition on the twentieth post-operative day.

Discussion

Ascaris lumbricoides may be passed through the airway only during its first stage of life within the human body. When fully embryonated eggs are swallowed, they hatch in the duodenum and undergo an extraordinary migration through the body before returning to settle in the intestine and grow to adulthood^{3,4}. The larvae first penetrate the wall of the duodenum and enter the blood or lymphatic vessels to be carried to the liver, heart and pulmonary circulatory system. They are then filtered out by the capillaries of the lungs. They grow into the alveoli and after approximately ten days migrate throughout the respiratory passages and so reach the esophagus, and from there they eventually get to the small intestine. Two or three months after ingestion of the ova, the mature worms commence egg laying in the intestine. Unat⁵ has noted that the adult *Ascaris lumbricoides* has been found in the respiratory tract, in the right ventricle, and at the base of the brain.

It is possible that when the worm was coiled up in the trachea and/or in the endotracheal tube, there was occlusion causing the patient to experience respiratory difficulty. When the worm uncoiled, however, the difficulty was removed and the patient could breath normally.

It was impossible to diagnose the cause of the sudden respiratory difficulty in this case before the worm was found; there was no cardiac failure or other cardio-respiratory reasons to explain it. It is possible that the *Ascaris lumbricoides* came from the stomach while the patient was vomiting and so passed into the trachea

Summary

A case with sudden respiratory difficulty after open heart surgery due to intestinal worm (*Ascaris lumbricoides*) aspiration, is presented. It is possible that acute dyspnea was the result of a coiled worm and that the patient was able to breath better when it uncoiled. This most unusual and life threatening type of trachea-bronchial obstruction was treated successfully by removal of the ascaris by means of a power aspirator.

REFERENCES

1. Aytaç A, Dokumacı Ö. Aspiration of foreign bodies among children. *Turk J Pediatr* 8:157, 1966.
2. Aytaç A, Yurdakul Y, İkizler C, et al. Inhalation of foreign bodies in children. Report of 500 cases. *Thorac Cardiovasc Surg* 74:145, 1977.
3. Markell EK, Voge M. *Medical Parasitology* (3rd ed). Philadelphia, London, Toronto: WB Saunders Co, 1971, pp 216-242.
4. Olsen OW. *Animal Parasites: Their Life Cycles and Ecology* (3rd ed). Baltimore: University Park Press, 1974, pp 451-454.
5. Unat EK. Extraintestinal localization of intestinal worms. Istanbul University Faculty of Medicine, Lecture Notes, 1953.