

## A Double Aortic Arch Presenting with Respiratory Distress in a Newborn Infant

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**Abstract:** A vascular ring is defined as an anomaly of the great arteries (aortic arch and its branches) that compresses to the trachea or esophagus. Double aortic arch is the most common vascular ring. It is very rare and typically becomes symptomatic in infancy or early childhood. We present herein a rare case of newborn infant with double aortic arch who presented with respiratory distress. The diagnosis made was preoperatively by contrast-enhanced computed tomography, and confirmed by angiography. Thereafter, the patient underwent successful surgical repair.

**Keywords:** Double aortic arch; respiratory distress; contrast-enhanced computed tomography; aortic angiography; surgery; newborn

### INTRODUCTION

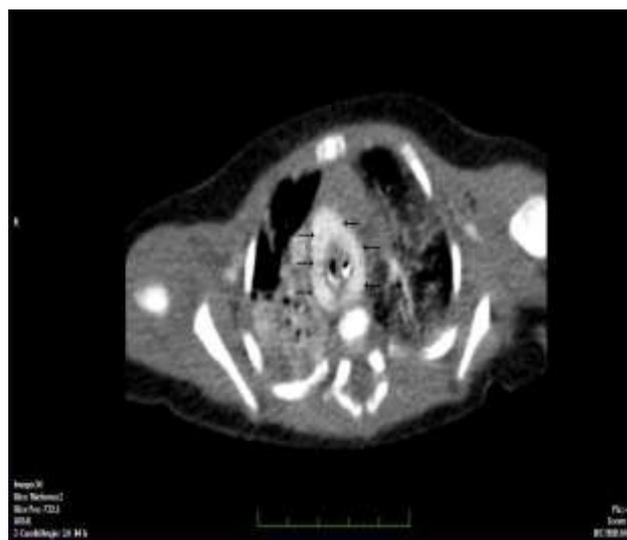
A vascular ring is defined as an anomaly of the great arteries (aortic arch and its branches) that compresses to the trachea or esophagus. Vascular rings are seen very rarely (<1%) among the all congenital cardiovascular anomalies [1]. Doubleaortic arch (DAA) is the most common complete vascular ring (40%), and symptoms like inspiratory stridor, cough and cyanosis, or syncope after feeding by compressing trachea and esophagus, tend to become early in life and more severe comparing to other vascular ring [2].

We present herein a rare case of newborn infant with doubleaortic arch who presented with respiratory distress.

### CASE REPORT

A 24-day-old newborn was referred to our neonatal intensive care unit (NICU) because of inspiratory stridor, cough, and cyanosis after feeding. She was born via cesarean section at 38 weeks of gestation, with a 3200 g birth weight, from a 25-year-old primipar woman. The physical examination showed poor general status, tachypnea, and cyanosis with weak pulses in all four extremities. There were grade two continuous murmurs on cardiac auscultation. On admission to NICU, blood gas analysis revealed mild hypoxemia. He was put on mechanical ventilation and then given systemic antibiotic intended for the pneumonia. Inotropic agent was supported for systemic hypotension. The echocardiography didn't reveal a cardiac pathology except a patent ductus arteriosus. Despite the medical therapy, the patient's complaints have been persisted. Therefore, a suspicion of the

diagnosis of vascular ring has been aroused. Thereafter, a contrast-enhanced computed tomography scan of the thorax demonstrated a DAA, narrowing of the trachea and esophagus (Fig. 1). Thereafter, the patient was referred to another hospital which was capable for the operation. The anatomy could be correctly identified herein by angiography. Then, the patient was successfully managed by surgical operation. After surgery the symptoms improved strikingly. She was discharged on the postoperative tenth day.



**Fig. 1: Contrast-enhanced computed tomography scan of the chest showing a narrowed trachea and esophagus by a double aortic arch (surrounding black arrows)**

## DISCUSSION

Vascular rings can be identified by fetal ultrasound as early as 12 weeks gestational age [3]. The postnatal diagnosis of vascular rings can be made by echocardiography, barium swallow studies, computed tomography (CT) or magnetic resonance imaging (MRI). While echocardiography allows sufficient imaging of the great vessels, airway obstruction is either confirmed by indirect imaging studies like barium swallow, or by CT or MRI [4]. Double arcus aorta is successfully treated with surgical repair as in our patient.

We conclude that the vascular rings should be considered in differential diagnosis of the patients with persistent respiratory distress, choking, and recurrent pneumonia especially if it is related with feeding. Early diagnosis and treatment may prevent irreversible complications.

## REFERENCES

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