

**Vascular rings- Diagnosis and management of 32 children: Early diagnosis better outcome**

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**Introduction:** Our aim was to investigate the presentation, diagnosis and outcome of the children with vascular rings. **Methods:** In this retrospective study, we reviewed the medical records of the children with vascular rings who were operated between January 2016 and June 2018. Demographic data, presenting symptoms, accompanying lesions, diagnostic methods, type of vascular ring, postoperative complications and outcome data were analyzed. **Results:** Mean age was 1.72 years (range 0.1 to 11), mean weight was 10.2 kg (range 2.5 to 40 kg). Seven patients (21.8%) had accompanying congenital heart defect. The most common presenting symptom was feeding difficulty (18 patient, 44%). All cases were evaluated by echocardiography and demonstrated vascular rings in 5 cases (15%). Barium esophagography was performed in 7 patients (%21.8). All patients had 64-slice CT angiography. In our centre, we are generally using 64-slice CT angiography as an imaging modality (Figure 1). CT angiography defines the type of arcus anomaly in a majority of patients and shows the anatomical relation of the arch to oesophagus and trachea. For patients who had congenital heart defects, pulmonary banding in one patient, coarctation of the aorta surgery in 5 patients, atrial septal defect surgical closure in one patient and PDA ligation in 3 patients were performed during the vascular ring surgery. Postoperative complications included: Atelectasis (three cases), chylothorax (one case), pneumonia (one case). There was no mortality. Mean follow-up duration was 2.3 years (range 0.5 to 3 years). Of these 32 patients, 23 patient (71%) was symptom-free after the first 6 months, five patients required >6 months to 1 year to reach full recovery. Four patients (12%) were still experiencing respiratory problems due to tracheomalacia. Clinical characteristics and types of the vascular ring were summarized in Table 1. **Conclusions:** In our series, gastrointestinal and respiratory symptoms are common. These symptoms are nonspecific in infants. Therefore, physicians should always consider the possibility of the vascular ring in children in this setting. Early diagnosis may prevent long-term respiratory issues after surgical treatment. CT angiography is an effective imaging modality to define vascular ring anomaly.

Table 1 Type of vascular rings and presenting symptoms data

<b>Symptoms</b>	
Respiratory (Stridor/Wheezing)	12
Feeding difficulties	18
Respiratory problems/feeding difficulties	8
Reflex apnea	1
<b>Anatomic type</b>	
Double arcus aorta	6
Aberrant right subclavian artery (ARSA)	8
Aberrant left subclavian artery (ALSA)	3
Pulmonary sling	2
Innominate artery compression	9
Kommerell diverticulum (isolated/combined)	5
Genetic anomalies (Down syndrome, CHARGE)	3
Associated congenital heart defects (Ventricular septal defect, Coarctation of the aorta, Patent ductus arteriosus, atrial septal defect)	7



Figure 1. ALSA + Kommerell div