Original Article
Giant right coronary artery aneurysm secondary to Kawasaki disease in child: a case report

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Abstract: Coronary artery aneurysm or ectasia was reported in approximately 15% to 25% of the affected children, particularly in the proximal end of the main blood vessel and the left anterior descending part. Rare patients have been reported with aneurysm in the distal end of the right coronary artery. In this case report, we present a rare case with aneurysm in the distal end of the right coronary artery. Multi-slice computed tomography was performed for the coronary angiography. Aspirin (10 mg/kg body weight per day) and gamma globulin (2 kg/kg body weight) was administrated via intravenous injection. The patient is currently in a healthy status with a 12-month follow up.

Keywords: Giant right coronary artery aneurysm, Kawasaki disease, child, ultrasonic echocardiogram

Introduction
Kawasaki disease refers to an acute systemic inflammatory disorder frequently reported in young children [1, 2]. Coronary artery aneurysms or ectasia was noticed in approximately 15% to 25% of the children with Kawasaki disease, especially in the proximal end of the main blood vessel and the left anterior descending part [3]. In this report, we present a rare patient with Kawasaki disease combined with aneurysm in the distal end of the right coronary artery.

Case report
A 7-year-old male patient was admitted to our hospital due to fever lasting for 6 days combined with conjunctival hyperemia for 1 day and strawberry tongue. To decrease the body temperature, antibiotics (penicillin and Cephalosporin) was administrated in another hospital previously, however, the body temperature was still in a range of 38-40°C. No abnormality was identified in the laboratory test. Ultrasonic echocardiogram indicated the internal diameter of left coronary artery main stem was 3.1 mm, while that of the right coronary artery main stem was 3.4 mm. The boy was diagnosed with Kawasaki disease.

For the treatment, aspirin (10 mg/kg body weight per day) and gamma globulin (2 g/kg body weight) was administrated via intravenous injection. On the fourth day, the body temperature was reduced to a normal range, the conjunctiva hyperemia was eliminated, and desquamation was noticed at the distal end of the fingers and the balanus. To monitor the progress of the disease, ultrasonic echocardiogram was performed on day 6, which revealed the internal diameters of left and right coronary artery main stem were 3.1 mm and 4.7 mm (Figure 1), respectively. Tumor-like lesion was noticed in local sites, with the maximal width of 5.5 mm. Subsequently, coronary angiography was performed using multi-slice computed tomography followed by value rendering and curved planar reconstruction, which revealed the uneven width in the lumen of the right coronary artery. Meanwhile, uneven aneurysm-like lesion was noticed in local part with a maximal diameter of 6.4 mm (Figure 2). Further, tumor-like lesion was noticed at the distal end. The patient is currently in a healthy status with a 12-month follow up.
Giant right coronary artery aneurysm secondary to Kawasaki disease in child

Ultrasonic echocardiogram has been acknowledged as the basic procedure for the imaging of coronary artery in patients with Kawasaki disease [7]. Nevertheless, its accuracy in the identification of obstructive lesion and the imaging of the distal end of the coronary artery is still limited. Currently, coronary CT angiography is considered as the golden standard for the diagnosis of Kawasaki disease [8], but its disadvantages such as invasiveness and high cost have posed great obstacles for its further application in clinical practice. In our study, multi-slice computed tomography was used in the evaluation of coronary artery lesions in patients with Kawasaki disease. Compared with conventional coronary angiography, it showed various advantages such as non-invasive, less radiation damage and low cost [9].

In adults, besides atherosclerotic causes, Kawasaki disease could lead to coronary artery aneurysm [10, 11]. In 2006, Manghat et al reported an adult with Kawasaki disease, and the multi-detector row CT coronary angiography indicated giant coronary artery aneurysm in the left anterior descending artery [12]. Nevertheless, no child with Kawasaki disease concurrent with giant right coronary artery aneurysm has been reported previously after literature research in the PubMed, Medline, and Embase database.

Currently, the treatment of Kawasaki disease is mainly depended on the intravenous gamma globulin and high-dose aspirin to halt inflammation and to reduce the likelihood of developing coronary disorders [13]. In most patients, regression of coronary ectasia or aneurysm

Discussion

Few cases with giant right coronary artery aneurysm have been reported in adults [4]. For most patients with Kawasaki disease, the major parts affected by coronary artery disease were proximal end of the left anterior descending branch, proximal end of the right coronary artery, left coronary artery main stem, distal end of the right coronary artery and the adjacent area of the right coronary artery to the posterior descending branch [5, 6]. In this case, the patient was identified with giant right coronary artery aneurysm using multi-slice compu-

Figure 1. Ectasia of right coronary artery was revealed together with enhanced echo of the tunica intima. RCA, right coronary artery; AO, aorta.

Figure 2. Curved planar reconstruction images of the right coronary artery indicated uneven width of the right coronary artery, together with local aneurysm-like lesion in local parts. The maximal diameter was 6.4 mm. Aneurysm was noticed at the distal end of the coronary artery.
was noted about 12 months to 24 months. However, in less than 2% of the patients, systemic aneurysm may occur. In this case, the patient received intravenous injection of gamma globulin and aspirin, and he is in a healthy status during the 12-month follow-up.

Coronary artery aneurysms or ectasia was commonly noticed in children with Kawasaki disease, especially in the proximal end of the main blood vessel and the left anterior descending part. We present a rare case with Kawasaki disease combined with aneurysm in the distal end of the right coronary artery. After treatment, a satisfactory outcome was obtained during the 12-month follow-up.

Disclosure of conflict of interest

None.

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