A 34 years old Thai, woman with the history of aortic valve replacement about 3 years ago. She was accidentally found a suspicious of an aneurysm of the aortic sinus of valsalva during routine check up after aortic valve replacement by trans-thoracic echocardiography. Because of the unclear result of echocardiography examination, she was referred for MRI scanning to confirm diagnosis. Magnetic resonance imaging (MRI) scanning was performed by using 3T MRI scanner with Turbo Field Echo CINE sequence without Gadolinium injection. CINE images were obtained on the axial, coronal and sagittal views. Huge unruptured aortic sinus of valsalva aneurysm was displayed as shown below (Figure 1). Normal size (width) of each sinus of valsalva is about 10.6 mm (5).

Sinus of valsalva aneurysm (SVA) is a rare cardiac anomaly which may be acquired or congenital, most commonly involving the right or non coronary sinuses (1). The congenital aneurysms are often caused by weakness at the junction of the aortic media and the annulus fibrosus. Acquired aneurysms are caused by conditions affecting the aortic wall, such as infections, trauma, or connective tissue disorders. Unruptured aneurysms are usually found incidentally during diagnostic studies and may remain clinically silent for many years. Diagnosis of sinus of Valsalva aneurysm is facilitated by echocardiography, contrast aortography, and more recently, magnetic resonance imaging (MRI).
resonance imaging (2). The unruptured SVA may cause right ventricular outflow tract obstruction, infective endocarditis, malignant arrhythmias, or myocardial ischemia/infarction due to severe distortion of coronary ostia or compression of the coronary trunks (3). However, whatever diagnostic tools we use to demonstrate the pathologic anatomy and physiology like this case, the important issues for treatment and prognosis determination must be completely revealed and should have been detailed on images such as pathologic characters, the size of the consecutive pathologic anatomy, the affected neighbor organs including the associate diseases. Of this patient, the silent factors such as Takayasu arteritis should be investigated. The generalized involving of aneurysm to all aortic sinuses and much more to the right coronary sinus with no associate congenital defects are demonstrated (Figure 1, 2). The size (width) of each aortic sinus is shown in Figure 3. Small left atrium is observed which is most likely due to the compression by the aortic sinus aneurysm (Figure 1F). The right ventricular outflow tract obstruction during systole was not obviously observed (Figure 1G). No regional wall motion abnormalities of the left and right ventricles are noted as well.

This article is written with the intention to provide the images of the rare case which is demonstrated by MRI and to show the role of MRI as a complement diagnostic tool.
tool in difficult case. This case is a good example to show the use of the Gradient Echo CINE MRI effectively in pathologic anatomical characterization and size evaluation. For this case, the pathologic anatomical and physiological changes of aortic aneurysm are influenced by cardiac phase. Turbo Field Echo (TFE) CINE sequence is the suitable pulse sequence to demonstrate the anatomical structure including the physiology because it provide the dynamic images in both systole and diastole. In the contrary, the T1 Spin Echo sequence is widely used to demonstrate anatomical structure of many pathologic diseases but it can provide only non dynamic two dimension images in one selected cardiac phase.

As the image results of this case, surgical repair might be determined if there is no contraindication. Because the total size of the aortic sinus of valsalva aneurysm exceeding over 50% of the normal size and the most effected sinus (right coronary sinus ) size is over the average of the other two uninvolved sinuses (3). The development of an aneurysm of the sinus of valsalva late after aortic valve replacement (AVR) indicates the necessity of a close and lifelong follow-up for patients especially focusing on further investigation for the silent cause such as Takayasu arteritis as mention above (4).

References