Objectives To develop a relatively simple and effective and less risk operation, aortic root wrapped procedure, to treat with aortic root aneurysm or ectasia.

Methods From June 2008 to September 2010, 15 patients were accepted of aortic root wrapped angioplasty procedure, Marfan’s syndrome with aortic root ectasia in two cases, and aortic sinus aneurysm with middle—severe aortic valve stenosis and/or regurgitation in 13 cases. The diameter of aortic valve annulus: 25.43±2.34 (22–32) mm, the diameter of aortic sinus: 50.45±7.41 (30–60) mm. All patients undertook aortic root wrapped angioplasty procedures with artificial blood vessel combined with aortic valve plasty or replacement with tissue valve prosthesis.

Results 15 patients were survival well, and the peri-operative mortality was 0%. CBP time was 82.31±16.34 (55–128) minutes. Pre-discharge UCG check result was showed: trace aortic regurgitation in three cases, and normal aortic valve function in 12 cases; Comparing with pre-operative UCG results, aortic annulus diameter 22.63±1.25 (21–25) mm, decreased significantly (p<0.01), aortic sinus diameter 36.86±7.41 (30–41) mm, decreased significantly (p<0.001). Follow-up results: All 15 patients were survival well, and Heart function (NYHA) of the patients are all Class I. The late mortality was 0%.

Conclusions Aortic root wrapped procedures combined with aortic valve plastic or replacement operation is an alternative surgical procedure in patients with aortic sinus aneurysm and aortic valve disease.