

“Wolfe Procedure” – What is it? Did W.Wolfe describe resuspension of replacement?

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Aneurysms of a single aortic sinus are not uncommon and it may also involve dilation of the ascending aorta as well. The dilated aortic sinus usually alters the geometry of the aortic root and patients will present more often with an aortic insufficiency. Both ruptured and non-ruptured sinus of valsalva aneurysm (SOVA) can be complicated by aortic regurgitation, occurring in up to 30% to 50% of patients [1]. Unruptured SOVA are asymptomatic, but can present as dyspnea, palpitations, angina or arrhythmia. The treatment options for unruptured SOVA include aortic root reconstruction or replacement, aortic valve repair or replacement, Bentall procedure or patch repair of the SOVA.

Aortic valve resuspension is a widely practised in repair for acute Type A aortic dissection. This procedure was first described by Walter G Wolfe from the Duke University, Durham. In his original series, 24 of the 30 patients with acute aortic dissection had resuspension of the aortic valve. Further “a woven Dacron® graft was then sutured beginning at the junction of the left and right coronary cusps. The graft was fashioned and sutured above the left coronary orifice around and down to the commissure of the left and non-coronary cusps. The graft suture line was then extended along the non-coronary cusp and then around the right coronary artery completing the suture line ”[2]. Three years later, in his updated case series he added, “the prolapsing portion of the aortic valve (usually the non-coronary cusp) was resuspended with pledgeted sutures in order to restore competency of the valve ”. It worth noting that he described a surgical procedure wherein, the aortic valve was resuspended and supracoronary aorta was replaced.

In the recently published article [4], the authors have successfully performed a “Wolfe Procedure” in a 78 year old female and followed up the patient for 2 years. Though authors have conscientiously extricated the option of root repair or replacement, it still raises a few concerns about the procedure which they have performed. The authors mention of a “predominant expansion of the non-coronary sinus and thinning of the wall at the level of FC 22 mm and SV 76, 7x62 mm, ST-zone 38 mm”. Though not sure of the abbreviations, Figure 1 shows an enlarged non-coronary aortic sinus. Dilated aortic sinus / annulus will distort the aortic root leading to aortic insufficiency. It is surprising that the authors have not mentioned about the status of the aortic valve and is highly inconceivable that the patient will not be having any aortic valve insufficiency for such a large aneurysm. The status of Aortic root aneurysm was detected in preoperative echocardiogram, while the status of the aortic valve was noted intraoperatively - “aortic valve leaflets did not close due to the expansion of the non-coronary sinus” . Though they have not mentioned about the aortic valve while presenting the case report, but when opening the discussion, they mention that the, “case report describes the treatment of an aortic root aneurysm by the replacement of the aortic valve together with the placement of an interposition graft with proximal scallop to recreate the non-coronary sinus (i.e., Wolfe procedure)” . It is not clear whether the authors have replaced the aortic valve in their patient or they describe in general. In either of the situations, the procedure describe by Wolfe does not mandate replacement of aortic valve; it is rather a resuspension of the valve.

They have argued that the Euroscore II of 19.39% is high in regards to “*patient’s age, female sex, the center’s estimated surgical volume, and the present comorbidities*”. It has to be noted that ‘Center’s surgical volume’ is not a variable in Euroscore II. It should be further emphasised, that the authors have not any mentioned any comorbidities of the patients including the left ventricular function while presenting the case. Earlier studies have reported the overestimation of surgical risk in septuagenarians and octogenarians by Euroscore II [5,6,7]. It is a well-known fact that the coronary artery of elderly patients has to be evaluated before any open heart surgery; more so when have symptoms of angina. Though the authors mention that the elderly lady had coronary heart disease with class III angina pectoris, there is no description of the native coronary arteries in the manuscript. Atrial fibrillation or arrythimas are well known presentation symptom for patients with SOVA. This may be due to compression of the coronary arteries or any chamber(s) of the heart. A preoperative CT aortogram could have added value in this regard which the authors have not provided. It is mentioned that there is “dilation of the ascending, arch, and descending aorta” preoperatively. After the procedure the size of the aortic arch is 28 mm. It is so intriguing to know the mechanism of decrease in aortic arch size postoperatively after the so called “Wolfe Procedure”. As an aortic surgeon it is curious to note the ‘plunger-top’ of a syringe buried inside the vascular graft in Figure 3. Not sure why and how it was buried, but it would be of great value, if the authors could describe the technique of using the same in detail in a separate manuscript.

Reference

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