Adventitia Reinforcement Surgery to Treat Atherosclerotic Disease and Aneurysm

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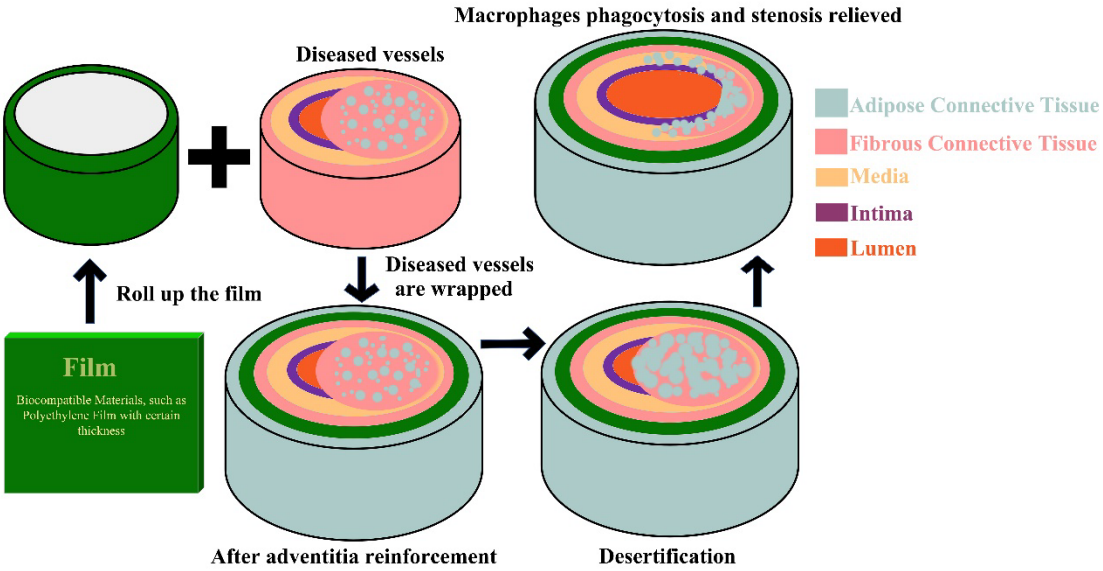

Figure 1. Vascular Adventitia Reinforcement Surgery to Treat Atherosclerotic Disease and Aneurysm

Main text

Atherosclerotic disease and aneurysm are now the most common diseases threatening human health. Although there are many treatment methods, such as drugs therapy, interventional therapy or surgical treatments, these treatments are still symptomatic treatments,

so the effect is less effective. Based on the evidences and logic of human pathology, human anatomy, cell biology, physics, mathematics and chemistry, I have clarified that tunica media dysfunction induced connective tissue remodeling is the main mechanism of atherosclerosis, aneurysm or stiffening[1-34]. This new theory can explain almost all the phenomena of large and medium blood vessels[1-34]. But the traditional vascular hypotheses cannot do it. My previous papers have described the possible etiological treatments of vascular diseases[1,2,8,16], and this article would not repeat it again. This paper would mainly introduce a better surgery to relieve atherosclerotic disease or hemangioma (Figure 1).

Vascular dysfunction is the main cause of vascular diseases, and vascular tunica media dysfunction (Decrease of the number / function of smooth muscle cells) is the main cause of atherosclerotic disease and aneurysm. However, the traditional vascular treatments mainly focused on the intima of blood vessels, which could not fundamentally solve vascular diseases, so the traditional drug treatments, interventional treatments or surgical treatment were less effective. Based on the theory of tunica media dysfunction, the "**adventitia reinforcement surgery**" proposed in this paper would more effectively treat vascular diseases such as atherosclerotic disease and hemangioma. The main idea of the surgery is as follows.

For severe atherosclerotic disease / hemangioma, the perivascular adipose tissue (vascular "Kuiper Belt") is blunt separated, the diseased blood vessels are tensional wrapped with non-toxic, biocompatible, non-degradable and malleable materials, such as polyethylene. After wrapping the blood vessels, the sealing device is applied to make the materials closely fit the blood vessels and remove the redundant materials, Then the perivascular adipose tissue (vascular "Kuiper Belt") is closed (Figure 1). With the theory of vascular simple harmonic

motion (SHM)[16] and tunica media dysfunction[2], the connective tissues (atherosclerotic plaques) in the intima would gradually become desertification, be phagocytized and cleared by macrophages, which could relieve the narrowed lumen (Figure 1). **Adventitia reinforcement surgery** applies to arteries, veins and artery / vein grafts.

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