

SPARTA - A STENT FOR FUSIFORM ANEURYSMS THAT PREVENTS ENDOLEAKS

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T-015969

Background: Popliteal artery aneurysms are the most prevalent type of peripheral aneurysms and are treated surgically to prevent rupture. Currently, surgical options include open surgery or endovascular aneurysm repair (EVAR). EVAR is less invasive than open surgery, resulting in shorter hospital stays (1 versus 5 days) with similar success rates and lower mortality rates. Despite the clear benefits of EVAR, the main limitation of this procedure is endoleaks where there is persistent blood flow to the aneurysm sac, external to the stent. Managing endoleaks is costly due to reinterventions through EVAR and open surgery if endoleaks continue. Considering that 10-30% of popliteal aneurysms treated with stents develop endoleaks, there is a strong need for a treatment for aneurysms that prevent this complication.

Technology Description: SPARTA is a stent for popliteal fusiform aneurysms that prevents endoleaks. This device is able to functionalize existing stents and initiates blood clotting within the aneurysm sac, creating a solid biological barrier that blocks all types of endoleaks. In addition, SPARTA induces fibrosis over the blood clot which reduces the size of the aneurysm. SPARTA consists of a nitinol frame which supports a lattice of silk sutures containing thrombogenic material that triggers the blood coagulation cascade. The nitinol frame is compressed into a sheath for deployment and once inside, expands to provide equal distribution of silk suture within the aneurysm sac. SPARTA was designed for popliteal aneurysms but could be applied to other (non-brain) aneurysms as well.