Development of Aortic Stent Graft

for endovascular treatment of thoracic aortic aneurysms

TRC P 8124

An aortic aneurysm is a ballooning or enlargement of the aorta. When it occurs in the thoracic portion of the aorta, it is called a Thoracic Aortic Aneurysm (TAA). Aortic aneurysm is a disease affecting about 5% of the population in their late sixties and can be fatal in case of rupture. An aneurysm can be treated with open surgery or minimally invasive techniques. Endovascular Aortic Repair or EVAR is a minimally invasive technique which involves the insertion of stent grafts in the diseased vessel by a delivery catheter which enters the central circulatory system through the femoral artery.

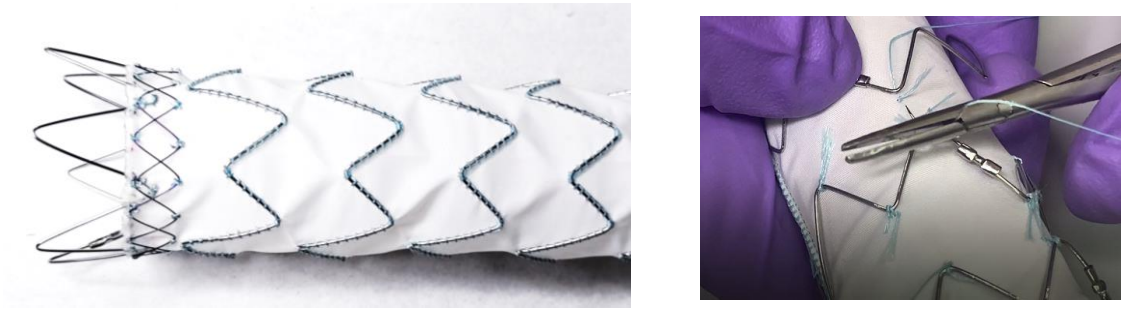

Figure 1: Chitra Aortic Stent Graft

The Chitra Aortic Stent Graft consists of a tubular graft made of polyester fabric which is kept patent by several nitinol stents. The novel asymmetric design of the NiTi rings (stents) enable insertion in to a lower diameter catheter sheath. This low profile catheter is expected to better suit the Indian patient population. The asymmetric design helps the stent graft to affix itself to the inner aortic wall more firmly so that it resists the migration. The device is also more flexible, has a better kink resistance, and allows twisting without kinking, all due to the novel asymmetric stents. A novel braided endcuff has also been incorporated into the device to resist endoleaks.

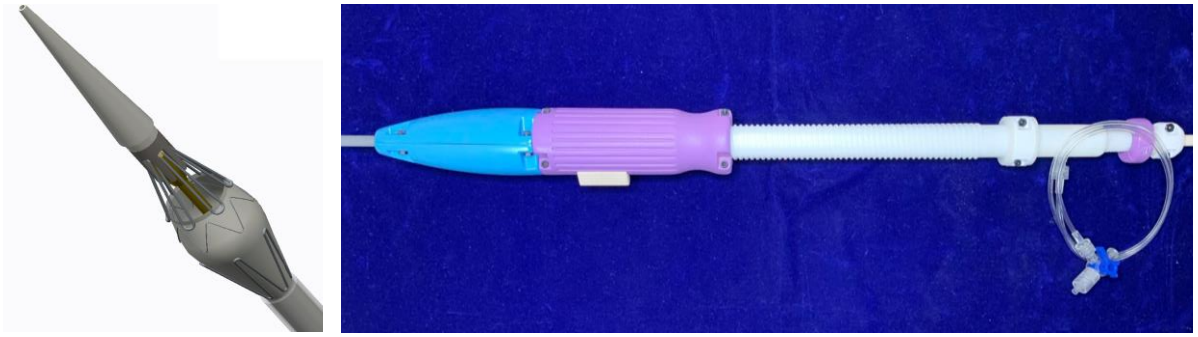

Figure 2: Delivery System - Tip Capture, Distal controls for Quick & Slow release

The delivery system has a tip capture mechanism which allows the better positioning of the device during delivery. The delivery system incorporates a feature for the gradual and fast release of the stent graft, which allows accurate deployment of the device during the EVAR procedure

Six patent applications and five design registrations were filed for the above said features.

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