

Novel Left Atrial Appendage Intraatrial Closure Device and Method



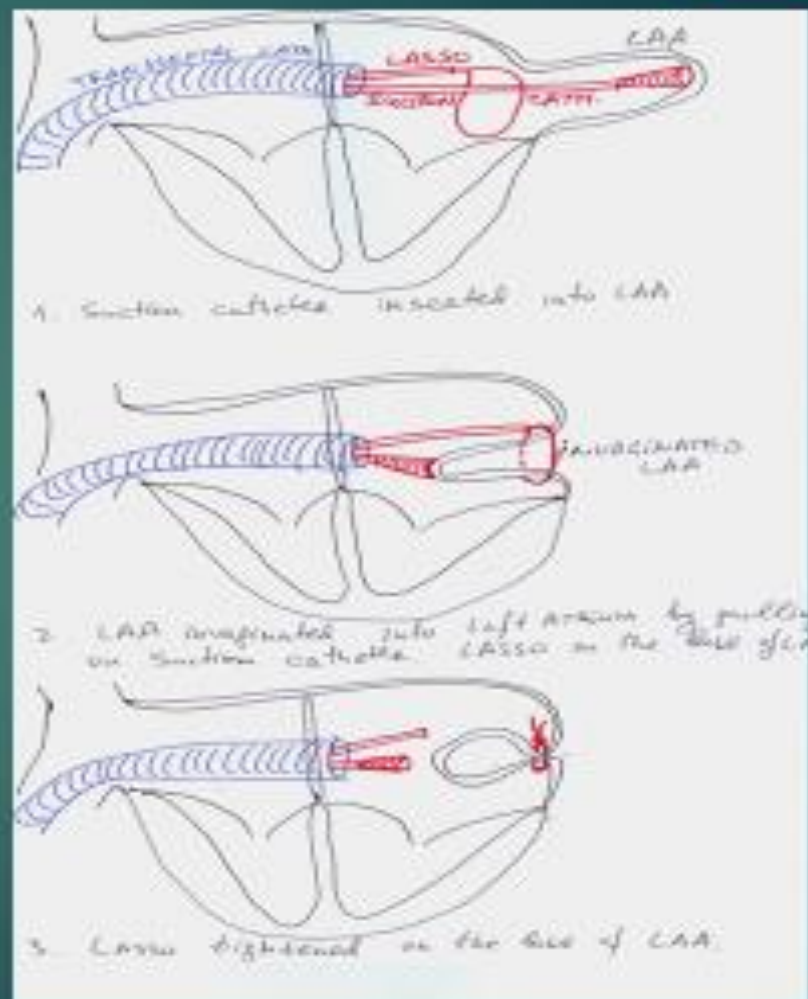
LAA Before and After Invagination

Leonid Sternik MD
Zachi Berger PhD MBA
Sheba Medical Center, Israel
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Novel Device and Method

- ▶ PCT - WO 2013/008231 A1
- ▶ BODY PART REPOSITIONING APPARATUS AND METHOD - Left Atrial Appendage Intraatrial Clip
- ▶ By Tel Hashomer Medical Research Infrastructure and Services Ltd
- ▶ Inventor – Leonid Sternik
- ▶ Priority Date - 11.07.2011 US, 9.03.2012 IL
- ▶ Publication Date - 17.01.2013



Detailed Description

- ▶ Elongated suction catheter + catheter with a detachable lasso at its tip
- ▶ The lasso is placed freely around suction catheter
- ▶ The suction catheter has a soft Teflon cone of 12 mm diameter for better tissue contact and for prevention of LAA or left atrial wall injury
- ▶ The catheter is inserted percutaneously and transeptally through the left atrium and into the LAA
- ▶ After locating the catheter in the LAA, suction is applied as to hold the LAA tip by suction
- ▶ The catheter is pulled back to the left atrium, thus invaginating the left atrial appendage into the left atrium
- ▶ While holding the invaginated appendage by suction, a lasso is applied on the interluminal base of the invaginated appendage and tightened to permanently prevent its invagination back into the normal position
- ▶ Then catheter that holds lasso detached
- ▶ After disconnecting the suction the catheter is removed, leaving the LAA permanently invaginated into the left atrium with the detached tightened lasso on its base
- ▶ The LAA is permanently invaginated into the left atrium. It is covered naturally with endocardium in contrast to occluders and washed by blood, so it can not harbor blood clots contrary to normal anatomy with protruding LAA with blood stasis in it



The Device

- ▶ The suction catheter we use, is a standard multipurpose coronary catheter 7-8 fr with a soft Teflon cone on its tip
- ▶ For lasso catheter we use Olympus Endo loop 30 mm, commercially available
- ▶ We use Transseptal kit 20 Fr by Cook
- ▶ We use standard medical suction device (1 atm – 760 mm Hg suction)
- ▶ All these devices are widely used and commercially available, except the soft Teflon cone, on the tip of suction catheter that we prepare ourselves



In Vitro/Ex Vivo Preclinical Studies in Human Hearts



Trans-septal Approach



Catheter Insertion



Suction Application



LAA Invagination and Lasso Application

ICI meeting 2015



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Summary of Results

- ▶ The apparatus principally used together with a multipurpose coronary catheter with our novel addition of a soft Teflon cone on its tip enable the septal penetration
- ▶ The invagination of the LAA procedure is completed with our innovative detachable lasso catheter apparatus
- ▶ The device was tested in an In vitro/ Ex Vivo testing model using pig and human hearts
- ▶ Complete Occlusion - Invaginated appendage cannot holds blood clots at all, as it is washed with blood and covered naturally with endocardium
- ▶ No Anchors, atraumatic and no risk of bleeding - Contrary to currently used occluders (as Watchman ® by Boston Scientific and Amplatzer by St Jude), no pins, hooks or other sharp and penetrating parts on the atrial wall are needed

- ▶ Safety:

Up to 1 atm suction

Up to 5 kg force on the "lasso" with 0.7 mm wire



Contact: Leonid.Stemik@sheba.health.gov.il, zachlganbar@gmail.com

Disclosures

I have no financial relationships to disclose concerning the content of this presentation or session.

