PCI ASSIST

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The interventional field is growing with ever-expanding capabilities and is migrating to less invasive, safer and more cost-efficient procedures. With the new generation of GE's advanced interventional imaging solution, ASSIST, you can expand your clinical versatility and successfully plan, guide and assess increasingly sophisticated procedures with greater precision and dose efficiency.
PCI ASSIST

PCI ASSIST. Enables the physician to diagnose and treat all patients, in all angulations. It improves the image quality even in the most complex cases, at no extra X-Ray dose.

For complex PCI procedures, such as bifurcations, PCI ASSIST helps to increase accuracy of stent placement and also helps to evaluate stents underexpansion which contribute to in-stent restenosis1.

PCI ASSIST can help physicians increase their activity expanding to more complex procedures with confidence, opening also to novel generation of stents such as BVS.

IMAGE QUALITY IMPROVEMENT

GUIDE STENT PLACEMENT

ASSESS STENT DEPLOYMENT
Introduction

Dr. Hakim Benamer is Head of Cardiology Department at Hôpital Foch, and Interventional Cardiologist at Clinique La Roseraie as well as Institut Cardiovasculaire Paris Sud. He performs 500 angioplasties a year, including complex PCI procedures such as T-Stenting and use of multiple BVS in long lesions. The typical workflow used by Dr. Benamer during complex PCI procedures is illustrated here on bifurcation T-Stenting on the LAD. The patient was treated in the Innova IGS 520 room, equipped with PCI ASSIST. PCI ASSIST is an integrated solution to help plan, guide and assess PCI procedures. It includes StentViz and StentVesselViz.
Patient preparation

Before the beginning of the procedure, the staff will prepare the patient. Most of the time, the radial access is preferred, yet femoral access is also possible.
Fast gantry motion

The C-Arm is easily moved in the right angulation, and acquisition parameters setup with a single touch, directly from the user interface available at table side.
PCI ASSIST helps improve visibility up to +85% in moving anatomy, and up to 75% in larger patients, at the same dose.
CASE 1: Plan, Guide, Assess Bifurcation T-stenting
Patient information

- Male, 72 years old
- **BMI:** 32kg/m²
- **Cardiac history:** PCI in 2011 of the LAD, the Cx and the right coronary artery with DES

**Angio:**
- Stenosis of the LM and LAD
- Tight and long stenosis on the Cx

Clinical challenges in bifurcation T-stenting

- Precise position of the stent on the ostium
- Precisely open the stent
- Minimize stent overlap between the two stents
- Avoid a gap between the two stents
Plan - first stent implantation

Stenting of the left main to the left anterior descending artery while ensuring covering the ostium with StentVesselViz.
Guide

StentVesselViz was used to guide the procedure before stent deployment, enabled by the enhanced visibility of the stent positioning relative to the vessel.
Acquisition workflow

The acquisition workflow is very user friendly as it consists in a single acquisition of 30 frames for both StentViz & StentVesselViz. For the StentVesselViz acquisition, the system will prompt a message on the Large Display Monitor to indicate when to inject the contrast media.

1. Collimation on the region of interest for short recorded acquisition
2. Automatic internal computation
3. StentVesselViz video sequence
First stent deployment

Once the optimal position is reached, the balloon is inflated to deploy the stent.
Assess

Once the stent is deployed, StentVesselViz was used to assess the correct deployment of the stent relative to the vessel wall.

After stent deployment
Guiding balloon for Proximal Optimization Technique

The stent is correctly deployed. Yet, the stent has to be further expanded at the proximal part of the Left Main. PCI ASSIST helped find the optimal positioning of the balloon to do the Proximal Optimization Technique to cover the carena.
The stent needs to be further expanded at the proximal part of the Left Main. StentViz image was used to confirm the position of the balloon at the proximal part of the stent in the Left Main to ensure a correct expansion of the stent after the POT.

**Guiding balloon for Proximal Optimization Technique**

The stent has to be further expanded at the proximal part of the Left Main. StentViz image was used to confirm the position of the balloon at the proximal part of the stent in the Left Main to ensure a correct expansion of the stent after the POT.
Second stent placement

StentVesselViz was used to open the 1st stent at the ostia level to get an optimal position for the 2nd stent in the circumflex. StentViz was used to guide the stents to reach minimal protrusion.
**Deployment assessment**

The ostium of the Circumflex is covered.
Final assessment after re-POT

StentViz was used to assess the success of the re-POT. The stent is indeed well opened on the Left main, the proximal LAD and the Cx.
CASE 2: Prepare, Guide BVS on the LAD
CASE 2: Prepare, Guide BVS on the LAD

Patient information

- Male, 61 years old
- **BMI**: 33kg/m²
- **Cardiac history**: angioplasty of the right coronary artery
- **Angiography**: stenosis on the LAD

Clinical challenges in bifurcation T-stenting

- Radio-transparency of the BVS
- Precise positioning of the BVS (size of the BVS = size of the lesion)
Enhanced visualization of the BVS

StentVesselViz was used to evaluate BVS' place. It helps to confirm that the BVS is covering the whole lesion. Therefore, deployment can be performed in this position.
Prepare - post-dilatation on distal part

Alignment of balloon’s marker relative to BVS’ distal marker to ensure proper deployment.
Guide - post-dilatation on proximal part

Too proximal

The non-compliant balloon has to be moved more distally to align with the proximal part of the BVS.

Satisfying placement

The compliant balloon is at the optimal position, it can be inflated.

Acquisition parameters:
- RDL +
- 15 fps

Procedure time: 24 min

Total dose Air Kerma: 413 (mGy)
ACHIEVE CLINICAL EXCELLENCE IN PCI

- 39% of ADULTS ≥ 18 years old is overweight
- Up to 40% malapposed stents in bifurcations
- 25% of intra stent restenosis due to stent gap
- Challenging to visualize the BRS scaffold for implantation
PCI ASSIST HELPED

See more than the angiogram in 40% of cases

Better see the relation stent/vessel in 70% of cases

Decide the course of the intervention in 40% of cases
CADIOLOGY PORTFOLIO,
A complete solution to meet your needs

Innova IGS 520
Innova IGS 530
Advanced Visualization
Advanced PCI, complex procedures

Innova IGS 620
Innova IGS 630
See the vessels from two different positions with 1 injection in 1 shot

Discovery IGS 730
Rediscover space and movement. Structural heart and Hybrid OR

Built on solid foundations
Same user interface. Same imaging chain
## ASSIST, solutions for Interventional procedures

<table>
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<tr>
<th>Product Line</th>
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<td>EVAR ASSIST 2</td>
<td>EVAR</td>
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<td>Vessel ASSIST</td>
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<td>(An ASSIST brand)</td>
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   http://circ.ahajournals.org/content/109/9/1085.long

2. IQ & visibility improvement is measured on Innova IGS530 with phantoms using various Plexiglas Thicknesses, acquisition parameters and the NEMA spoke wheel tool (ref 1), calculating the ratio of the contrast of the moving wires to the background noise level. The amount of IQ improvement related to HCF depends on the acquisition parameters, clinical task, patient size, amount of motion in the image, anatomical location, and clinical practice.

3. Obesity and overweight - WHO:
   http://www.who.int/mediacentre/factsheets/fs311/en/

4. Crush, Culotte, T and Protrusion: Which 2-Stent Technique for Treatment of True Bifurcation Lesions?

5. Stent Gap by 64-Detector Computed Tomographic Angiography Relationship to In-Stent Restenosis, Fracture, and Overlap Failure Harvey S. Hecht, MD, Sotir Polena, MD, Vladimir Jelnin, MD, Marcelo Jimenez, MD, Tandeep Bhatti, DO, Manish Parikh, MD, Georgia Panagopoulos, PHD, Gary Roubin, MD, PHD
   https://content.onlinejacc.org/pdfaccess.ashx?ResourceID=2926481&PDFSource...


7. DOC1683165 - Clinical evidences generation study based on Columbia images. The Statements by GE’s customers described here are based on results that were achieved in the customer’s unique setting. Since there is no « typical » hospital and many variables exist i.e., hospital size, case med, there can be no guarantee that other customers will achieve the same results. - Method: Assessment of clinical benefit of StentVesselViz: => - Independant assessment of each sequence by 6 experienced interventional cardiologists; - Assessment done in 2 steps by each reviewer:
   1) conventional post-deployment angiogram alone x 11 clinical cases
   2) angio + SVV sequence x 11 same clinical cases.
   Results are based on - Consensus of 5/6 operators
GE Healthcare provides transformational medical technologies and services to meet the demand for increased access, enhanced quality and more affordable healthcare around the world. GE (NYSE: GE) works on things that matter - great people and technologies taking on tough challenges. From medical imaging, software & IT, patient monitoring and diagnostics to drug discovery, biopharmaceutical manufacturing technologies and performance improvement solutions, GE Healthcare helps medical professionals deliver great healthcare to their patients.

PCI ASSIST refers to features of Innova IGS 520, Innova IGS 530 and Discovery IGS 730. PCI ASSIST refers to features of Interventional X-ray system: StentViz, StentVesselViz.

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