Instructions for Use

DETOUR™ System

Carefully read all instructions prior to use. Observe all warnings and precautions noted throughout these instructions. Failure to do so may result in complications.

Device Description

The DETOUR™ System is comprised of two main components:

- TORUS™ Stent Graft System; comprised of the
  - TORUS™ Stent Graft
  - TORUS™ Stent Graft Delivery System
- ENDOCROSS™ Device

The procedure using the DETOUR System is described in Section 1.

TORUS Stent Graft System

The implantable TORUS Stent Graft (Figure 1) is a flexible, self-expanding composite structure made of a Nitinol (NiTi) wire frame encapsulated in an Expanded Polytetrafluoroethylene (ePTFE) film and Fluorinated Ethylene Propylene (FEP). The length of FEP is identical across all stent lengths, while the length of ePTFE increases with stent length. The TORUS Stent Graft is pre-loaded onto the TORUS Stent Graft Delivery System.

Figure 1:TORUS Stent Graft

The TORUS Stent Graft Delivery System (Figure 2) is an 8-French (Fr) system. It is compatible with a 0.035" guidewire and has a 135cm working length. The handle of the delivery system consists of an internal pulley mechanism activated by turning an external knob. The handle also features fluid flush ports for the inner lumen and guidewire lumen. The TORUS Stent Graft Delivery System uses an outer sheath to maintain the TORUS Stent Graft implant in a compressed state. Once at the target site, the user can slide the outer sheath proximally (toward the handle of the device or toward the user) by turning the knob in the direction of the arrow to expose the self-expanding TORUS Stent Graft. The TORUS Stent Graft Delivery System has Platinum-Iridium (PtIr) radiopaque markers on both the proximal and distal ends of the TORUS Stent Graft landing zone (part of the inner shaft), and a marker band on the outer sheath to allow visualization of the position of the inner and outer sheath during deployment.

Figure 2: TORUS Stent Graft Delivery System

ENDOCROSS Device

The ENDOCROSS Device (Figure 3) is a dual guidewire delivery tool that uses a 0.025" Nitinol needle with a 15mm throw. The needle exits the delivery tool at an angle of approximately 45° to the ENDOCROSS Device shaft. The ENDOCROSS Device is an 8 Fr compatible device with a 133cm working length with dual 0.014" guidewire ports, a rapid exchange (RX) guidewire port, and a needle guidewire port. The RX guidewire port is a back-loaded, rapid-exchange design used for initial device placement. The needle guidewire port is the central lumen, and the lumen exits through the needle and is used to deliver guidewire(s) to the desired location. The ENDOCROSS Device also incorporates an intra-luminal stabilizer and a PtIr alloy marker band used to support and guide needle deployment, respectively. The ENDOCROSS Device features are controlled using the outer handle and the button on the ENDOCROSS Device handle.

The outer handle controls spring loading, stabilizer deployment, and needle activation. The user moves the outer handle proximal to distal, then rotates the handle counterclockwise to load the spring, deploy the stabilizer, and activate the needle for deployment in a single motion. The ENDOCROSS Device shaft is keyed to ensure that the needle deploys in the same orientation as the marker band. Subsequent depression of the handle button deploys the needle in the direction indicated by the marker band.

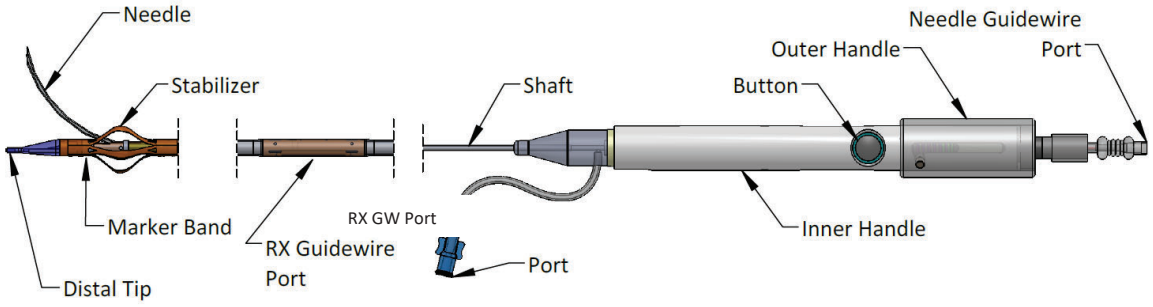


Figure 3: ENDOCROSS Device

Intended Use/Indications

The DETOUR System is indicated for use for percutaneous revascularization in patients with symptomatic femoropopliteal lesions from 200mm to 460mm in length with chronic total occlusions (100mm to 425mm) or diffuse stenosis >70% who may be considered suboptimal candidates for surgical or alternative endovascular treatments. The DETOUR System, or any of its components, is not for use in the coronary and cerebral vasculature.

Contraindications

Do not use the DETOUR System in patients with:

- A distal common femoral artery (CFA) <7mm in diameter.
- An increased risk of deep vein thrombosis (DVT), such as patients with a recent history of DVT, thrombophilia, and disseminated malignancy.
- Untreated flow-limiting aortoiliac occlusive disease.
- Lack of patent single vessel tibial runoff to ankle.
- Known coagulopathy, bleeding diathesis, or thrombocytopenia that cannot be medically managed.
- Known hypersensitivities, allergies, or contraindications to any of the following:
  - Nitinol
  - PTFE
  - Antiplatelet, anticoagulant, or thrombolytic therapy
  - Contrast media that cannot otherwise be medically managed

- Aspirin
- Heparin

Sizing Tables

Measure the diameter of the reference vessel (i.e., the diameter of the normal vessel immediately proximal and distal to the lesion) and the length of the target lesion.

Refer to the tables below for recommended sizing.

Table 1: Vessel Diameter

Labeled Device Diameter (mm)	Reference Vessel Diameter (mm)	Available Device Nominal Lengths (mm)	Recommended Balloon Diameter for Post-Dilation (mm)
5.5	4.5-5.5	200	5.5
6.0	5.6-6.0	100, 150, 200	6.0
6.7	6.1-6.7	100, 150, 200	7.0

Table 2: Recommended Sizing Chart

Lesion Length (mm)	Number of Stent Grafts**	Stent Graft 1 Nominal Length (mm)	Stent Graft 2 Nominal Length (mm)	Stent Graft 3 Nominal Length (mm)
200-220	2	150	150	N/A
230-270	2	200	150	N/A
280-320	2	200	200	N/A
330-410	3	200	200	150
420-460	3	200	200	200

*** 60mm of stent graft overlap is required*

Note: In the procedure using the DETOUR System, the femoral vein is used as a conduit for a series of overlapping TORUS Stent Grafts that provides a femoral-popliteal bypass. As accounted for in the sizing tables, the stent grafts are overlapped by at least 60mm, and each end of the overall bypass is fixated within the arterial wall by at least 30mm. Therefore, foreshortening is not impactful when the TORUS Stent Graft is implanted as part of the procedure using the DETOUR System.

Warnings

- In the DETOUR2 Clinical Study, venous event rates were higher in females than males. This should be considered in patient selection and post-procedure management.
- For single use only. Do not reuse, reprocess, or re-sterilize. Reuse, reprocessing, or re-sterilization may compromise the structural integrity of the device and/or lead to device failure, which in turn, may result in patient injury, illness, or death. Reuse, reprocessing, or re-sterilization may also create a risk of contamination of the device and/or cause patient infection or cross-infection, including, but not limited to, the transmission of infectious disease(s) from one patient to another. Contamination of the device may lead to injury, illness, or death of the patient.
- Do not use the DETOUR System if the package is opened or damaged. Prior to use, perform a thorough examination of the pouch materials and seals to ensure there is no visually detectable damage.
- Do not use the DETOUR System beyond the stated use-by date on the package label.

- Inspect the DETOUR System prior to use. Do not use if the device appears to be bent, kinked, or damaged in any way. The ENDOCROSS Device should be test fired prior to use in the patient to ensure proper functionality. Do not use if the device does not function properly when tested, or if the device appears to be bent, kinked, or damaged in any way because vessel damage and/or inability to advance or withdraw the device may occur.
- Do not place finger or other body parts near distal tip of the ENDOCROSS Device prior to deploying the needle.
- Do not rotate the ENDOCROSS Device while stabilizer is deployed.
- Place hand and fingers on the inner handle (not on the guidewire port area) of ENDOCROSS Device during needle deployment to avoid pinching gloves during needle deployment.
- Do not advance the guidewire significantly through the needle tip prior to needle deployment. Doing so may damage the device and/or guidewire tip.
- Ensure the stabilizer and needle are retracted prior to removing the ENDOCROSS Device.
- Do not deploy the stabilizer prior to advancing through the proximal anastomosis.
- Do not exert excessive force while advancing the ENDOCROSS Device through the anastomosis. Ensure tension is applied to the guidewire at both access sites and gently advance the ENDOCROSS Device until femoral vein (FV) access is confirmed fluoroscopically. Re-dilate the anastomosis if significant resistance is encountered.
- If the ENDOCROSS Device needle extends through both walls of the target artery, partially retract the needle using the outer handle and advance guidewire until the guidewire can be advanced to gain arterial access.
- Do not exert excessive force while advancing the TORUS Stent Graft System through the anastomosis. Gently advance the TORUS Stent Graft System until distal arterial access is confirmed fluoroscopically. Re-dilate the anastomosis if significant resistance is encountered.
- When deploying the proximal stent graft please ensure that the proximal edge (exposed end) of the stent graft is 1-2mm above the ostium of the superficial femoral artery.
- Do not dilate outside the margins of the deployed stent graft(s).
- Do not cannulate or puncture the TORUS Stent Graft. Cannulating or puncturing the stent graft may result in damage to the ePTFE lining and/or the NiTi frame, resulting in compromised performance or failure of the stent graft.
- Do not cut the stent graft or attempt to surgically implant the stent graft. The stent graft should only be placed and deployed using the TORUS Stent Graft System on which it is pre-loaded.
- Inadvertent, partial, or failed deployment or migration of the stent graft may require surgical intervention.
- If strong resistance is felt during guidewire tracking, determine the cause of the resistance before proceeding further. If the cause cannot be determined, withdraw the ENDOCROSS Device.

Precautions

- The DETOUR System is intended for use by physicians who have received appropriate training.
- The DETOUR System must be used with visual guidance (e.g., fluoroscopy) by physicians skilled in percutaneous, endovascular techniques in a fully equipped catheterization or angiographic laboratory or a surgical suite.
- Store the DETOUR System in a cool, dry environment and away from direct sunlight.
- Do not expose the DETOUR System to organic solvents (e.g., alcohol).
- Consider recent DVT history in the target limb in case planning and post-procedure anticoagulation as use of the DETOUR System uses a bypass conduit within the femoral vein.
- Antiplatelet medication should be initiated prior to placement of the stent graft. Effective dual antiplatelet therapy should be maintained following the procedure at a dosage deemed appropriate by the physician.
- A knee prosthesis may prevent successful and accurate ENDOCROSS Device needle deployment.
- To maximize wire differentiation, it is recommended to use a 180cm long 0.014” guidewire through the ENDOCROSS Device RX guidewire lumen.

- When conducting the procedure using the DETOUR System, the TORUS Stent Graft should only be used in patients with a patent femoral vein > 10mm in diameter, or with a duplicate or accessory femoral vein.
- Do not deploy the stent graft prior to insertion. The stent graft is self-expanding and cannot be re-loaded on the delivery system.
- Do not use excessive force when manipulating the device through an introducer. Excessive force may damage the device.
- When removing the delivery system avoid displacing the stent graft by removing the delivery system under fluoroscopy.

MRI Safety Information

MRI Safety Information A person with a TORUS Stent Graft in an overlapped configuration may be safely scanned anywhere in the body at 1.5T or 3.0T under the following conditions. Failure to follow these conditions may result in injury	
Parameter	**Condition**
Device Name	Overlapping TORUS Stent Graft single lengths up to 200mm and overlapping lengths up to 480mm
Static Magnetic Field Strength (B0)	1.5T and 3.0T
MR Scanner	Cylindrical
B0 Field Orientation	Horizontal
Maximum Spatial Field Gradient	5000 Gauss/cm or less
RF Excitation	Circularly Polarized (CP)
RF Transmit Coil Type	Integrated Whole Body Transmit Coil
Operating Mode	Normal Operating Mode
RF Conditions	Maximum Whole-body SAR: 2W/kg
Scan Duration	15 mins of scanning
Scan Regions	Any landmark is acceptable
Temperature Rise	1.5T: 2.9ºC after 15 minutes of continuous scanning. 3.0T: 2.3ºC after 15 minutes of continuous scanning Cooling due to blood flow inside the covered stent and perfusion in the vascular bed surrounding the covered stent was included in the assessment of in-vivo temperature rise.
Image Artifact	The presence of overlapping TORUS Stent Grafts may produce an image artifact of 0.6cm. Some manipulation of scan parameters may be needed to compensate for the artifact.

**The limit ($pbSAR_{lim}$) scales dynamically with the ratio of exposed patient mass to patient mass*

Potential Adverse Events and Complications

Below is a list of the potential adverse effects (e.g., complications) associated with the use of the DETOUR System.

- Access vessel (arterial/venous) occlusion
- Amputation
- Aneurysm or pseudoaneurysm
- Arteriovenous (AV) fistula
- Bleeding complications
- Death
- Device or deployment malfunction/failure
- Drug reactions to antiplatelet agents or contrast medium
- Edema
- Embolism (peripheral or pulmonary)
- Fever in absence of infection
- Hemorrhage or hematoma
- Hypotension/hypertension
- Infection local or systemic including bacteremia or septicemia
- Malposition
- Migration
- Myocardial infarction
- Pain (insertion site, leg and/or foot)
- Peripheral ischemia
- Renal insufficiency or failure secondary to contrast medium
- Shock
- Side branch vessel occlusion
- Stenosis or occlusion
- Stroke or transient ischemic attack
- Thrombosis
- Vessel wall trauma (dissection, perforation, or rupture)
- Vessel spasm
- Venous flow disruption (deep vein thrombosis, phlebitis, leg swelling and/or development of varicose veins)
- Worsening claudication

Special Populations

- The DETOUR System has not been studied in women who are pregnant.
- The DETOUR System has not been studied in pediatric patients (< 18 years of age).

Clinical Studies

DETOUR® Endovascular Technique for long OcclUsive fem-pop Revascularization – 2 (NCT03119233)

The purpose of the DETOUR2 study was to establish a reasonable assurance of safety and effectiveness of the procedure with the DETOUR System for percutaneous revascularization in patients with symptomatic femoropopliteal lesions from 200mm to 460mm in length in the US, Latvia, and Germany under IDE G170083. Overall, 220 subjects (including roll-in patients) were treated with the investigational device.

Study Endpoints

The primary safety endpoint was freedom from major adverse events (MAEs) through 30 days post-procedure. Major Adverse Events include death, clinically driven target lesion revascularization (CD-TLR), amputation of the treated limb, occlusive-symptomatic deep vein thrombosis (DVT), pulmonary embolism (PE), or procedure-related bleeding requiring any transfusion of packed red blood cells or surgery. A performance goal for freedom from 30-day MAE of 84.0% was established for this endpoint. The safety performance goal was based on an aggregate of published trial data as described by VIVA Physicians Inc. (VPI) and adjusted to reflect the greater risk associated with the DETOUR2 study population. The study device was considered to have achieved the safety objective if the lower limit of the one-sided lower 97.5% confidence limit based on the exact method is greater than 84%.

The primary effectiveness endpoint was patency at 12 months post procedure. Patency is defined as the absence of CD-TLR and absence of recurrent target lesion diameter stenosis >50% by imaging (e.g., duplex ultrasound peak systolic velocity ratio peak systolic velocity ratio [PSVR] of >2.5 within the stent or immediately 1cm above or below the treated segment). If both duplex ultrasound and angiography were available, angiography took precedence. The primary effectiveness endpoint of 12-month patency was evaluated by comparing the proportion of successful subjects to a literature-derived performance goal of 60.4%.

The analyzed patient cohorts are defined as:

Roll-ins: The first two subjects at each U.S. site were considered roll-in subjects. Roll-in subjects were pre-identified. Not all sites enrolled roll-in subjects.

Intention to Treat (ITT): All subjects who received the intervention and were enrolled in the IDE Study (excluding roll-ins). The ITT Cohort was the primary analysis set to determine if the primary safety endpoint was met in the study.

Modified ITT (MITT): Only those subjects/lesions where a DETOUR System: TORUS Stent Graft was implanted. The MITT Cohort is a subset of the ITT Cohort. The MITT Cohort is the primary analysis set to determine if the primary effectiveness endpoint was met in the study.

Per Protocol (PP): Subset of the MITT group which excludes all subjects with major protocol deviations (e.g., violations of eligibility criteria) and missing the data required to evaluate the primary effectiveness endpoint.

Of the 220 subjects who received the ENDOCROSS Device, 18 were considered roll-in subjects and the remaining 202 (91.8%) are considered part of the ITT Cohort. Two subjects from the ITT group did not receive the TORUS Stent Graft, thus 200 patients were part of the MITT Cohort. Of the MITT Cohort, 197 (89.5%) were considered part of the Per Protocol Cohort.

Accountability of PMA Cohorts

At the time of database lock, 220 patients enrolled in the DETOUR2 study at 36 sites. 85.5% (188) patients are available for analysis for the 12-month post-operative visit. Overall, 220 subjects were treated with the ENDOCROSS Device. Figure 4 depicts the accountability of subjects at the study follow-up time points. Of the 220 subjects enrolled, 83.6% (184) patients are available for analysis for the 12-month post-operative visit. Eighteen (18) subjects in the ITT group exited before the 12-month window: 2 enrolled but did not receive the ENDOCROSS device, 7 subject withdrawals, 2 physician withdrawal, 5 deaths, and 2 lost-to-follow-up.

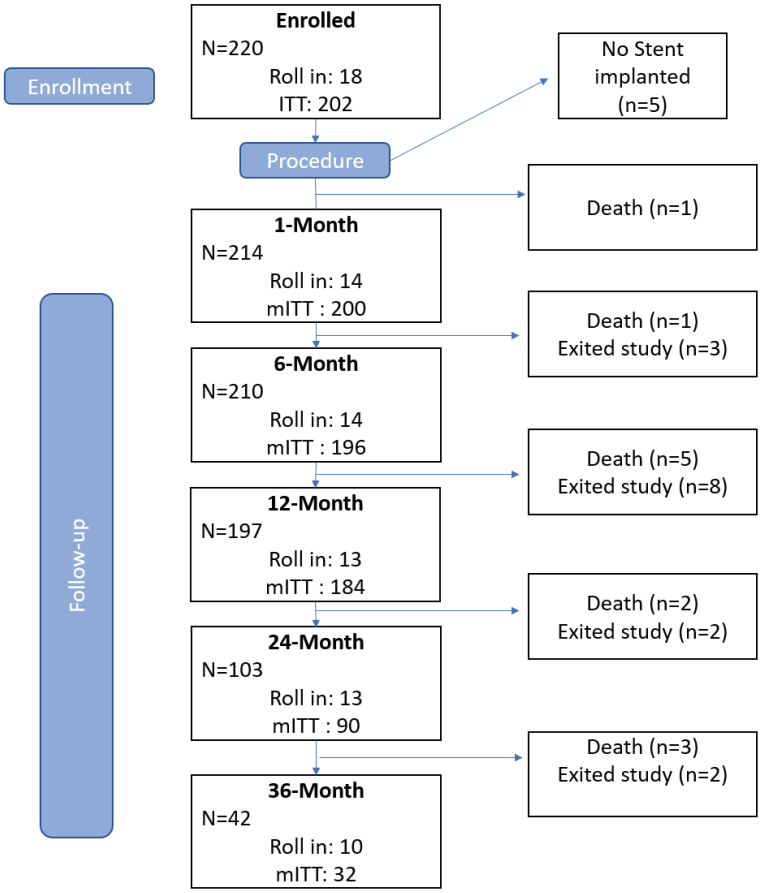


Figure 4: Subject Disposition

Patients Studied

Eligible patients had symptomatic chronic total occlusions of ≥200mm, including de novo, restenotic, or in-stent restenotic lesion or symptomatic femoropopliteal lesions ≥ 240mm (total lesion length) that can include a chronic total occlusion or a ≥70% lesion that includes de novo, restenotic or in-stent restenosis.

Methods

In eligible patients, the ENDOCROSS device was used to deliver a guidewire from the arterial segment proximal to the beginning of the target lesion, through the femoral vein and back into the artery distal to the chronic total occlusion or diseased segment. TORUS Stent Grafts of appropriate dimension were selected. Stent grafts were then deployed in series, starting distally, until the bypass was complete. Follow-up visits occur at 1-month, 6-months, 12-months, 24-months, and 36-months post-procedure with arterial and venous duplex-ultrasound assessment at each follow-up visit. Stent-graft x-ray also occurred at the 12-month follow-up visit. An independent Clinical Events Committee (CEC) was used to review and adjudicate primary and secondary safety endpoints, including major adverse events. A Data Safety Monitoring Board (DSMB) reviewed safety data. All angiograms, duplex ultrasound studies and x-rays were submitted to the central Imaging Core Lab for analysis.

Peri, Intra and Post-Procedural Medication Regimens for the DETOUR2 Study

For study subjects, Dual Antiplatelet Therapy (DAPT) was required for the duration of the DETOUR2 study (3 years), starting at least 24 hours prior to the index procedure, or a loading dose during the index procedure. The minimum loading doses required were 75mg of ASA, and 300-600 mg of Clopidogrel if not on long-term therapy. It was recommended that the patients remain on ASA indefinitely following completion of the study.

Table 3. Summary of Recommended Peri, Intra and Post-Procedural Medication Regimens for the DETOUR2 Study

Medication		**Peri-Procedure** (<24 hours of index procedure)	**Intra-Procedure**	**Post-Procedure**
Antiplatelet	Aspirin (ASA)	Loading dose of 300-325 mg within 24 hours prior to procedure, if not on long-term aspirin therapy	N/A	73-325 mg per day, indefinitely
	Clopidogrel (or similar antiplatelet agent or alternative agent, per operator discretion)	Loading dose of 75-300 mg within 24 hours prior to procedure, if not on long-term clopidogrel (or similar) therapy	N/A	Clopidogrel 75 mg per day for 3 years (or per prescribing dose if a similar or alternative antiplatelet agent is used)
Anticoagulation	IV Heparin / Bivalirudin (or other thrombin inhibitor)	N/A	Maintain anticoagulation per hospital standard of care (minimum ACT >250 sec recommended)	Anticoagulation administered at dose prescribed per institutional standard, at operator discretion

Baseline Characteristics

Specific demographics and baseline characteristics for the DETOUR2 Study ITT population are presented in Table 4. Medical history and health status are provided in Table 5. Sub-group analysis of the ITT population is provided in the Safety and Effectiveness Results sections.

Table 4: Baseline Demographics - ITT Population

Variable	All Subjects
Age at Consent (years)	68.9 ± 9.38 (202) 69.0 (47, 88)
Body Mass Index (BMI)	28.74 ± 5.028 (202) 28.50 (18.3, 45.0)
Sex	--
Female	26.2% (53/202)
Male	73.8% (149/202)
Race[1]	--
American Indian or Alaska Native	0.5% (1/202)
Asian	0.0% (0/202)
Black or African American	8.9% (18/202)
Native Hawaiian or Other Pacific Islander	0.0% (0/202)
White	86.6% (175/202)
Other	4.5% (9/202)
Ethnicity	--
Hispanic or Latino	4.6% (9/196)
Not Hispanic or Latino	79.6% (156/196)
Not Reported	15.8% (31/196)

Categorial variables presented as % (n/N), and continuous variables presented as mean ± SD (N) median (min, max) where N is the number of subjects with available data.

[1]One subject identified under two (2) categories (White, American Indian or Alaska Native).

Patient demographics and medical history are summarized in Table 4 and Table 5. The mean age was 68.9 ±9.4 years and 26.2% were female. 86.6% of the patients were white. Comorbidities included coronary artery disease (87.6%), hypertension (87.6%), diabetes (34.7%), prior history of smoking (91.1%), and renal insufficiency (10.9%). The mean ABI was 0.61 ±0.22 at baseline. Most patients (77.7%) were Rutherford Clinical Category (RCC) 3. The remainder of the patients (22.3%) were RCC 4 and RCC 5.

Table 5: Medical History and Health Status – ITT Population

Variable	All Subjects
Renal Insufficiency (with or without intervention)	10.9% (22/202)
History of Smoking	--
Current/Previous	91.1% (184/202)
Never	8.9% (18/202)
History of Peripheral Venous Disease (DVT, Thrombophlebitis, etc.)	0.0% (0/202)
Peripheral Arterial Disease	98.0% (198/202)
Previous Peripheral Intervention	60.5% (121/200)
Previous Peripheral Vascular Surgery	16.8% (34/202)
Hypertension	87.6% (177/202)
Diabetes Mellitus	34.7% (70/202)
Type 1	1.4% (1/70)
Type 2	98.6% (69/70)
Hypercholesterolemia	73.2% (145/198)
Hyperlipidemia	73.3% (140/191)
Coronary Artery Disease	46.0% (92/200)
Congestive Heart Failure	12.4% (25/201)
NYHA I	16.0% (4/25)
NYHA II	48.0% (12/25)
NYHA N.A.	36.0% (9/25)
History of Myocardial Infarction	21.9% (44/201)
History of Cerebrovascular Disease	13.9% (28/201)
Stroke	60.7% (17/28)
TIA	21.4% (6/28)
Other	17.9% (5/28)
Target Limb Ankle-Brachial Index (ABI)	0.61 ± 0.22 (193) 0.60 (0.00, 1.55)
Contralateral Limb Ankle-Brachial Index (ABI)	0.82 ± 0.26 (189) 0.82 (0.00, 1.63)
Target Limb Toe-Brachial Index (TBI)	0.45 ± 0.19 (58) 0.43 (0.00, 0.83)
Contralateral Limb Toe-Brachial Index (TBI)	0.59 ± 0.23 (57) 0.60 (0.00, 1.10)
Rutherford Clinical Category	--
Grade 3	77.7% (157/202)
Grade 4	17.8% (36/202)
Grade 5	4.5% (9/202)

Categorical variables presented as % (n/N), and continuous variables presented as mean ± SD (N) median (min, max) where N is the number of subjects with available data.

Table 6 summarizes the baseline lesion characteristics determined by the Core Lab. Target lesions were relatively equally distributed between the right and left limb. Pre-procedure chronic occlusion (CTO; 100% stenosis) was observed in 96.0% (194/202) of subjects and diffuse stenosis (>70% stenosis) was observed in 97.0% (196/202) of subjects. The mean lesion length was 327.14 ± 61.38mm. The mean CTO length was 217.31 ± 85.98mm. The calcification grade for lesions was predominantly severe (70.4%, 126/179) followed by none/mild (29.1%, 52/179) and then moderate (0.6%, 1/179).

Two vessel run-off to the foot was observed in 69.0% (129/187) of subjects. There were no subjects who had zero run-off vessels to the foot. The popliteal artery was involved in approximately 10% of lesions, and approximately 44% of subjects had below-the-knee arterial disease as well.

Table 6: Core Lab Baseline Lesion Characteristics - ITT Population

Variable	All Subjects
Total Occlusion (100% stenosis)	96.0% (194/202)
Diffuse Stenosis (>70% stenosis)	97.0% (196/202)
In-Stent Restenosis	17.3% (35/202)
Lesion Length (Normal to Normal, mm)	327.14 ± 61.38 (196) 328.15 (194.6, 520.3)
Calcified Length (mm)	64.12 ± 77.50 (178) 41.10 (0.0, 415.7)
CTO Length (mm)	217.31 ± 85.98 (191) 232.50 (0.0, 436.1)
Calcification	--
None/Mild	29.1% (52/179)
Moderate	0.6% (1/179)
Severe	70.4% (126/179)

Categorical variables presented as % (n/N), and continuous variables presented as mean ± SD (N) median (min, max) where N is the number of subjects with available data.

Of the 202 ITT subjects, the device was implanted in 200. Two (2) subjects did not receive the device: one (1) case was aborted because there was a complication with a percutaneous transluminal angioplasty (PTA) balloon which extended the procedure time, and one (1) case was aborted because venous access was difficult.

Table 7 summarizes site reported procedure characteristics. The majority of subjects were treated under conscious sedation (40.6%; 82/202) or local anesthesia (28.2%; 57/202). Mean procedure time was 181.4 ± 90.55 minutes, with a mean fluoroscopy time of 46.4 ± 19.51 minutes. An average of 208.1 ml ± 111.74 of contrast was used per subject. Estimated blood loss was 50 ± 57.50 ml per subject.

Table 7: Site Reported Procedure Characteristics - ITT

Variable	All Subjects
Type of Anesthesia Used	--
General	12.4% (25/202)
Local	28.2% (57/202)
Epidural/Spinal	5.9% (12/202)
Conscious Sedation	40.6% (82/202)
Other	12.9% (26/202)
Estimated Blood Loss (ml)	50.0 ± 57.50 (201) 30.0 (0, 400)
Contrast Volume Used (ml)	208.1 ± 111.74 (199) 180.0 (50, 900)
Fluoroscopy Time (min)	46.4 ± 19.51 (199) 42.0 (12, 122)
Total Procedure Time (min)	181.4 ± 90.55 (202) 163.0 (55, 495)

Categorical variables presented as % (n/N) and continuous variables presented as mean ± SD (N) median (min, max) where N is the number of subjects with available data.

Post-Procedure Core Lab Angiography Data

Core laboratory reported post-procedure angiographic data are presented in Table 8.

Table 8: Post-Procedure Core Lab Angiography Data

Post-Procedure Characteristics	All Subjects
Distance of Proximal TORUS Edge from Superficial Femoral Artery Ostium (mm)	5.91 ± 5.672 (183) 4.40 (0.0, 50.8)
Distance from Distal TORUS Edge to Tibial Plateau (mm)	42.55 ± 36.22 (183) 28.00 (2.4, 150.5)
Proximal Intra-Arterial TORUS Length	48.10 ± 17.68 (187) 45.90 (13.2, 125.6)
Distal Intra-Arterial TORUS Length	59.44 ± 20.82 (187) 54.40 (19.2, 129.4)
Overlap Lengths (mm)	--
Proximal (or only)	72.00 ± 20.54 (169) 69.00 (28.5, 139.1)
Middle	43.60 ± 23.11 (3) 35.80 (25.4, 69.6)
Distal	66.14 ± 16.54 (134) 63.15 (28.1, 179.9)
Run-Off Vessels to the Foot	--
0	0.0% (0/183)
1	15.3% (28/183)
2	67.2% (123/183)
3	17.5% (32/183)

Categorical variables presented as % (n/N), and continuous variables presented as mean ± SD (N) median (min, max) where N is the number of subjects with available data.

Technical success in the MITT population, defined as successful delivery of the investigational devices to the identified area and removal of delivery system was 100%, in the 200 subjects. Procedural success in the MITT population, defined as successful delivery of the investigational device to the identified area and removal of the delivery system in the absence of in-hospital MAEs, was 98.5% (197/200). Three (3) patients had MAEs prior to discharge: Two (2) subjects were reported to have major bleeding, and one (1) subject was reported to have had a symptomatic DVT.

Safety Results

The primary safety endpoint was freedom from a composite of Major Adverse Events (MAE) at 30 days (Table 9) as adjudicated by the CEC. MAEs were defined as any of the following: all-cause mortality, CD-TLR, amputation of the treated limb, occlusive-symptomatic deep vein thrombosis, pulmonary embolism, or procedure-related bleeding. There were 15 total 30-day MAEs in 14 subjects: 3 CD-TLR, 5 DVT and 7 major bleeding events.

Freedom from MAE at 30 days was 93.0% (185/199), with a lower exact one-sided 97.5% confidence interval of 88.5% compared to the PG 84%. Thus, the primary safety endpoint was met. The composite primary safety endpoint is summarized in Table 9. There were 199 subjects of the 202 subjects in the ITT group evaluated for the primary safety endpoint at 30 days. The 30-day MAE rate for the roll-in cohort (n=18) was comparable to the pivotal [ITT] cohort (5.6% in roll-in versus 7.0% in pivotal ITT).

Major adverse events are reported in Table 10. Follow-up is on-going through 36 months.

Table 9: Freedom from Major Adverse Event (MAE) at 30 Days - ITT Population

	All Subjects	Lower 97.5% Exact Confidence Limit
Freedom from MAE[1]	93.0% (183/199)[2] 15 total 30-day MAE events in 14 subjects: • 3 CD-TLR • 5 DVT • 7 Major Bleeding Events	88.5% > 84% P

[1] Freedom from a major adverse event (MAE) at 30-days post-procedure defined as any occurrence of the following events: Death, Clinically Driven Target Lesion Revascularization (CD-TLR), Amputation of the Treated Limb, Symptomatic Deep Vein Thrombosis (DVT), Pulmonary Embolism (PE) or procedure-related bleeding requiring any transfusion of packed red blood cells or surgery.
[2] There were 199 subjects of the 202 subjects in the ITT group evaluated for the primary safety endpoint at 30 days.

Table 10: Major Adverse Events Over Time: Kaplan Meier Estimates - ITT Population

Event	30 Days	6 Months	12 Months
MAE	7.0% [3.5%, 10.5%]	13.6% [8.8%, 18.3%]	19.8% [14.2%, 25.4%]
Death Events[1]	0.0% [0.0%, 0.0%]	0.5% [0.0%, 1.5%]	2.6% [0.4%, 4.9%]
CD-TLR	1.5% [0.0%, 3.2%]	6.6% [3.1%, 10.0%]	12.3% [7.7%, 17.0%]
Amputation of Treated Limb	0.0% [0.0%, 0.0%]	1.0% [0.0%, 2.4%]	2.1% [0.1%, 4.1%]
Deep Vein Thrombosis	2.5% [0.3%, 4.7%]	3.5% [1.0%, 6.1%]	4/1% [1.3%, 6.8%]
Pulmonary Embolism	0.0% [0.0%, 0.0%]	0.0% [0.0%, 0.0%]	0.0% [0.0%, 0.0%]
Procedure Related Bleeding	3.5% [1.0%, 6.0%]	3.5% [1.0%, 6.0%]	3.5% [1.0%, 6.0%]

Data presented as % (n/N) [m] where n is the number of subjects experiencing at least 1 event, N is the number of subjects, and m is the total number of events.
[1] There were 11 adverse events that resulted in death: none of these adverse events were related to the device or the procedure. Three (3) deaths were reported for unknown causes.

Serious Adverse Events that Occurred in the PMA Clinical Study:

Overall, 66.3% (134/202) of subjects had a serious adverse event (SAE) within 12 months; almost half were vascular disorders based on the System Organ Category (SOC) classification. Of all SAEs, 24.3% (49/202) were device related SAEs, as adjudicated by the CEC. The most common SOC for device-related SAEs were Vascular Disorders, with 48/202 subjects (23.8%) experiencing at least one SAE in the SOC.

Overall, 17.3% (35/202) procedure related SAEs were adjudicated by the CEC, were observed through 12-months. The most common SOC for procedure-related SAEs was Vascular Disorders, with 21/202 subjects (10.4%) experiencing at least one adverse event in this SOC.

Table 11: Serious Adverse Events – ITT Population

Adjudicated Event	Body System or Organ Class / Preferred Level Term	Through 12 Months % (n/N) [m]
All Serious Adverse Events	Any Event	66.3% (134/202) [355]
	Vascular Disorders	48.5% (98/202) [167]
Serious Device Related Adverse Event	Any Event	24.3% (49/202) [67]
	Vascular Disorders	23.8% (48/202) [59]
Serious Procedure Related Adverse Event	Any Event	17.3% (35/202) [57]
	Vascular Disorders	10.4% (21/202) [26]

Data presented as % (n/N) [m] where n is the number of subjects experiencing at least 1 event, N is the number of subjects, and m is the total number of events.

Secondary Safety Endpoints

Secondary safety endpoint Kaplan Meier Estimates were performed on the ITT analysis set (Table 12). Major Adverse Limb Events (MALE) were reported at 30 days, 6 months, and 12 months, with a rate of 4.0%, 10.5%, and 15.7%, respectively.

Major Bleeding was reported in eight (8) subjects, with nine (9) events occurring within 30 days of the index procedure. Eight (8) of these events were related to the procedure. Five (5) of these eight (8) procedural related events were due to blood loss anemia, there were two (2) gastrointestinal bleeds and one retroperitoneal hematoma.

Symptomatic DVT occurred in eight (8) subjects through 12 months with no new symptomatic DVT in the subjects followed through 24 months and 36 months. Most DVT (7/8) occurred within 6 months of the index procedure. There has been no Pulmonary Embolism (PE) observed in the ITT Cohort at the time of this report. There was one (1) perioperative Myocardial Infarction (MI) in the ITT population, through 30 days (0.5%; 1/199). There were three (3) MIs through 12 months in the ITT cohort and seven (7) MIs total in patients followed through 36 months.

The percentage of hematoma (≥8cm within 30 days of the index procedure that were related to the device or procedure is 0.5% (1/199). At 30-days follow-up, the stent thrombosis Kaplan Meier estimate was 3.5%.

Table 12: Secondary Safety Endpoints Over Time: Kaplan Meier Estimates - ITT Population

Event	30 Days	6 Months	12 Months
Major Adverse Limb Events (MALE)	4.0% [1.3%, 6.7%]	10.5% [6.3%, 14.8%]	15.7% [10.7%, 20.9%]
Major Bleeding	4.0% [1.3%, 6.7%]	6.0% [2.7%, 9.3%]	6.6% [3.1%, 10.0%]

Event	30 Days	6 Months	12 Months
Symptomatic Deep Vein Thrombosis (DVT)	2.5% [0.3%, 4.7%]	3.5% [1.0%, 6. %]	4.1% [1.3%, 6.8%]
Pulmonary Embolism (PE)	0.0% [0.0%, 0.0%]	0.0% [0.0%, 0.0%]	0.0% [0.0%, 0.0%]
Myocardial Infarction (MI)	0.5% [0.0%, 1.5%]	0.5% [0.0%, 1.5%]	1.6% [0.0%, 3.3%]
Hematoma	0.5% [0.0%, 2.8%]	*N/A*	*N/A*
Stent Thrombosis	3.5% [1.0%, 6.0%]	9.0% [5.1%, 13.0%]	15.8% [10.7%, 20.9%]

Data presented as (n/N) % where n is the number of subjects experiencing at least 1 event and N is the number of subjects.

Venous Outcomes

The definition of a DVT is any organized clot that is occluded within the deep venous system and results in a lack of flow and a lack of compressibility of the vein. This definition is distinct from catheter-related thrombosis or protein/fibrin deposition that have typically been reported with the use of indwelling central venous catheters and cardiac implantable electronic devices, which are largely asymptomatic, do not occlude the vein, and can be found in the vicinity of the device. Venous events are described below based on CEC adverse event definitions and clinical relevance. The methodologies of categorization of these events are not mutually exclusive.

Table 13 categorizes venous events based upon the CEC definitions of serious and non-serious.

Serious DVTs are those that resulted in either death, life-threatening illness/injury, permanent impairment of a body structure of a body function, inpatient or prolonged hospitalization, or medical or surgical intervention to prevent life-threatening illness or injury or permanent impairment.

Non-serious DVTs are those that did not result in death, life-threatening illness/injury, permanent impairment of a body structure or a body function, inpatient or prolonged hospitalization, or medical or surgical intervention to prevent life-threatening illness or injury or permanent impairment. These may include fibrin sheaths which did not occlude the vein, are largely asymptomatic, and can be found in the vicinity of the device.

Table 13: Deep Vein Thrombosis (DVT) - ITT Population

Event	30 Days % (95% CI) {n/N} [m]	6 Months % (95% CI) {n/N} [m]	12 Months % (95% CI) {n/N} [m]
Non-serious DVT	10.9% (7.0, 16.0) {22/202) [22]	13.9% (9.4, 19.4) {28/202} [30]	13.9% (9.4, 19.4) {28/202} [30]
Non-serious Device Related DVT	6.9% (3.8, 11.4) {14/202} [14]	8.9% (5.4%, 13.7%) {18/202} [18]	8.9% (5.4%, 13.7%) {18/202} [18]
Non-serious Procedure Related DVT	10.9% (7.0, 16.0) {22/202} [22]	10.9% (7.0, 16.0) {22/202} [22]	10.9% (7.0, 16.0) {22/202} [22]
Serious DVT (or Endpoint DVT)	2.5% (0.8, 5.7) {5/202} [5]	4.0% (1.7, 7.7) {8/202} [8]	4.0% (1.7, 7.7) {8/202} [8]

Event	30 Days % (95% CI) {n/N} [m]	6 Months % (95% CI) {n/N} [m]	12 Months % (95% CI) {n/N} [m]
Serious Device Related DVT	1.5% (0.3, 4.3) {3/202} [3]	2.5% (0.8, 5.7) {5/202} [5]	2.5% (0.8, 5.7) {5/202} [5]
Serious Procedure Related DVT	2.5% (0.8, 5.7) {5/202} [5]	3.0% (1.1, 6.4) {6/202} [6]	3.0% (1.1, 6.4) {6/202} [6]
All DVT **Events** (serious and non-serious, regardless of relation to device or procedure)	27 events	38 events	38 events

Data presented as (95% exact CI) {n/N} [m] where n is the number of subjects experiencing at least 1 event, N is the number of subjects, and m is the total number of events.

Figure 5 below organizes the venous events by clinical relevance. The events were categorized as symptomatic DVT, which are venous events that are occlusive within a deep vein and associated with clinical symptoms, and those that are not. Symptomatic DVTs (or endpoint DVTs) were considered as part of the safety endpoint. Venous events that are not symptomatic are likely the result of fibrin deposition/sheath. Details on gender and treatment are also reported.

There were a total of 38 venous events reported in 36 patients from patients reporting symptoms and venous duplex surveillance at follow-up visits. Most were found incidentally on follow-up imaging. All of these events were reviewed by an independent Clinical Events Committee and Medical Monitor. There were eight (8) symptomatic DVTs in eight (8) patients that were considered as part of the safety endpoint. However, one (1) was later assessed to be an arterial occlusion in the bypass graft. Symptomatic DVT occurred in 7.5% (4/53) of females and 2.0% (3/147) of males. All 7 symptomatic DVTs resolved.

There were a total of 30 venous events in 28 patients that were not considered symptomatic or occlusive, and most were found incidentally on follow up imaging. One (1) was later assessed to be an arterial occlusion of the SFA and popliteal artery, Venous events occurred in 15.1% (8/53) of females and 12.9% (19/147) of males; 14 patients started on anticoagulation and 13 patients had no additional treatment. All but one (1) of the venous events resolved within 6 months. The one venous event was resolved by year 2, without any further reintervention.

Overall, there were no significant interventions (e.g., lysis, thrombectomy) used in the treatment of any of the venous events. There was no progression in size, or progression to pulmonary embolism.

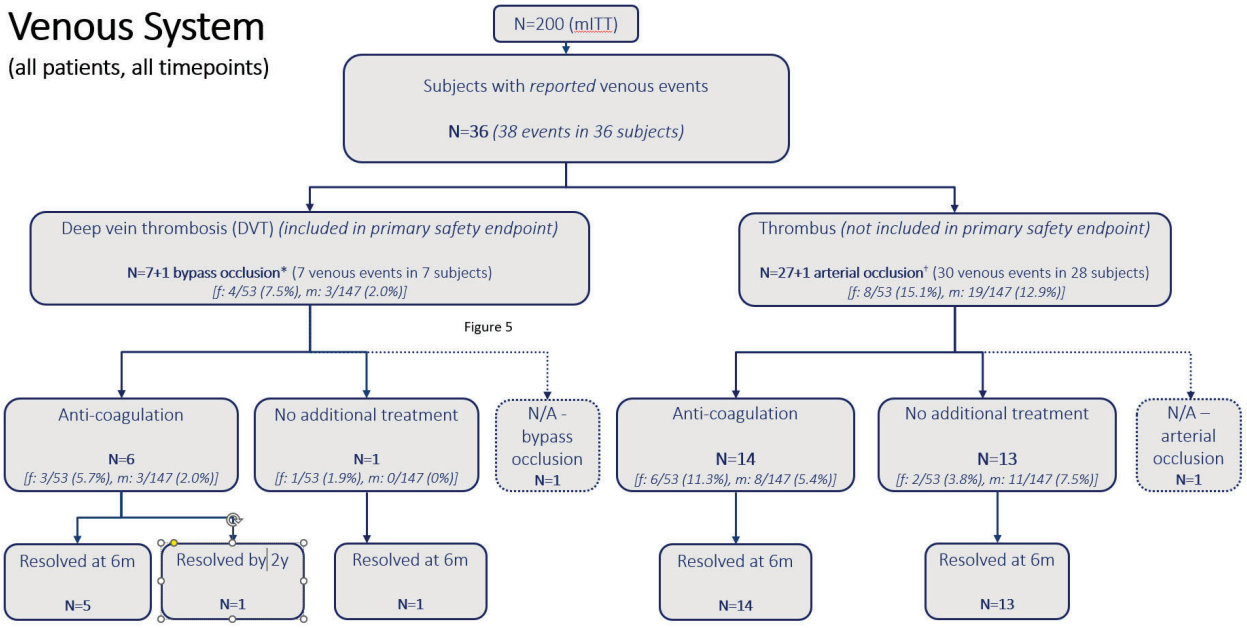


Figure 5: Deep Vein Thrombosis - MITT Accountability

**N=8 events were counted against the primary safety endpoint (i.e., freedom from MAEs at 30 days), however N=1 event was later determined to be a bypass occlusion*

†N=28 events were reported as venous events but not counted against the primary safety endpoint, however N=1 event was an arterial occlusion

Duplex Venous Observation Scale (DVOS)

Duplex Venous Observation Scale was performed at 30 days, 6 months and 12 months, as shown in Table 14 in the ITT Cohort. The analysis demonstrates a DVOS of 0 for the majority of subjects indicating the vein was patent with no presence of fibrin or thrombus.

Table 14: Duplex Venous Observation Scale - ITT

DVOS	30 Days (N=173[1])	6 Months (N=175)	12 Months (N=171)
0	83.2% (144)	94.3% (165)	96.5% (165)
1	0.6% (1)	1.1% (2)	0.0% (0)
2	1.7% (3)	0.0% (0)	0.6% (1)
3	0.6% (1)	0.0% (0)	0.0% (0)
4	11.0% (19)	4.0% (7)	2.3% (4)
5	2.9% (5)	0.6% (1)	0.6% (1)

[1]*Missing imaging assessment from the expected ITT Cohort group (202 at 30 days)*

Venous Clinical Severity Scale (VCSS) and Villalta Scale Results

Results for the VCSS scales at baseline and for each visit interval (30 days, 6 months, 12 months, 24 months and 36 months) are summarized in Table 15. The VCSS instrument provides a general assessment for patients with chronic venous disease. A negative change from baseline indicates improvement in the parameter assessed. At 30 days, 6 months and 12 months, patients reported less pain. In the patients that have reached the 24- and 36-months follow-up, the pain and varicose veins were improved. However, overall VCSS score at 1 year was 0.3 ± 1.98, indicating on average the study subjects had a decline in their status with regard to their preexisting chronic venous disease.

Table 15: Venous Clinical Severity Score - ITT

Visit	All Available	Change from Baseline (Follow-up – Baseline)
Baseline	0.9 ± 0.89 (202) 1.0 (0,2)	--
30 Day	1.7 ± 2.23 (194) 1.0 (0. 14)	0.7 ± 2.11 (194) 0.0 (-2, 12)
6 Months	1.2 ± 2.08 (189) 1.0 (0, 19)	0.3 ± 1.99 (189) 0.0 (-2, 17)
12 Months	1.3 ± 1.97 (173) 1.0 (0, 12)	0.3 ± 1.98 (173) 0.0 (-2, 11)

Data presented as mean ± SD (N) median (min, max) where N is the number of subjects with available data.

Results for the Villalta scales scores for each visit interval (30 days, 6 months, 12 months, 24 months and 36 months) are summarized in Table 16. The Villalta score is used for post-thrombotic syndrome. It combines a patient self-assessment of symptoms and a healthcare assessment of clinical signs of post-thrombotic syndrome. A negative change from baseline indicates improvement in the parameter assessed. At 30 days, 6 months, 12 months, the overall Villalta score showed an improvement. The overall change in score at 1 year was -0.6 ± 3.23. In the patients who had reached 24- and 36-months follow-up, an improvement remains.

Table 16: Villalta Scale - ITT

Visit	All Available	Change from Baseline (Follow-up – Baseline)
Baseline	2.0 ± 3.08 (202) 1.0 (0.17)	--
30 Day	1.7 ± 2.86 (194) 0.5 (0, 19)	-0.4 ± 3.29 (194) 0.0 (-12, 17)
6 Month	1.3 ± 2.37 (189) 0.0 (0, 16)	-0.8 ± 3.16 (189) 0.0 (-14, 13)
12 Month	1.5 ± 2.76 (173) 0.0 (0.17)	-0.6 ± 3.23 (173) 0.0 (-13, 11)

Data presented as mean ± SD (N) median (min, max) where N is the number of subjects with available data.

Stent Graft Separation and Migration

Assessment of Stent Graft Separation and Migration was performed at 30 days, 6 months, 12 months, 24 months and 36 months, as shown in Table 17, through differing imaging modalities. One ultrasound detected stent graft separation and migration at the 12-month follow-up visit. One 12-month X-ray detected three (3) migrations (1.8%; 3/169) and one stent separation (0.6%; 1/169). There were no stent graft fractures at 12-months, and no additional separations, migrations, or fractures have been seen in patients who have reached follow-up through 36 months.

Table 17: Stent Graft Separation and Migration via Ultrasound and X-ray - ITT

		30 Days	6 Months	12 Months
Ultrasound	Stent Graft Separation	0.0% (0/192) [0.0%, 1.9%]	0.0% (0/188) [0.0%, 1.9%]	0.6% (1/180) [0.0%, 3.1%]
	Stent Graft Migration	0.0% (0/192) [0.0%, 1.9%]	0.0% (0/188) [0.0%, 1.9%]	0.6% (1/180) [0.0%, 3.1%]
	Stent Graft Separation or Migration	0.0% (0/192) [0.0%, 1.9%]	0.0% (0/188) [0.0%, 1.9%]	0.6% (1/180) [0.0%, 3.1%]

		30 Days	6 Months	12 Months
X-Ray	Stent Graft Separation	N/A	N/A	1.8% (3/169) [0.4%, 5.1%]
	Stent Graft Migration	N/A	N/A	0.6% (1/169) [0.0%, 3.3%]
	Stent Graft Separation or Migration	N/A	N/A	1.8% (3/169) [0.4%, 5.1%]

Data presented as % (n/N) [95% CI] where N is the number of subjects with available data.

Effectiveness Endpoints

The analysis of effectiveness was based on the 188 evaluable patients at the 12-month time point. The primary effectiveness endpoint was primary patency, defined as freedom from clinically driven target lesion revascularization (CD-TLR) and absence of recurrent target lesion restenosis of >50% diameter reduction by imaging (duplex ultrasound peak systolic velocity ratio of >2.5 or angiography) within the stent or 1cm immediately above or below the treated segment at 12 months. When both imaging modalities are available, angiography takes precedence.

Primary patency at 12 months was 68.1% (128/188). The lower bound of an exact one-sided 97.5% confidence interval is 60.9%. As this is above the prespecified 60.4% threshold of the null hypothesis, the null hypothesis is rejected, and the evidence supports that the primary effectiveness is met. The primary effectiveness outcomes are summarized in Table 18. Information on the 12-month primary patency rate with the roll-in cohort is limited by a low number of patients available for analysis (n=18). The primary patency Kaplan-Meier estimate is 57.1% and is within the 95% confidence band of the roll-in cohort

Table 18: Primary Effectiveness Endpoint, Primary Patency at 12 Months - MITT

	All Subjects	Lower 97.5% Exact Confidence Limit
Absence of CD-TLR[1] and absence of recurrent target lesion diameter stenosis >50%	68.1% (128/188) Patency failures 30% (60/200) CD-TLR: 14% (28/200) [35] PSVR >2.5: 24% (48/200)	60.9% > 60.4%

[1]*Target lesion revascularization performed due to target lesion diameter stenosis >50% (e.g., duplex ultrasound peak systolic velocity ratio of >2.5 or invasive angiography) within the stent or immediately 1cm above or below the treated segment, AND either evidence of clinical or functional ischemia (e.g., recurrent/progressive intermittent claudication, critical limb ischemia) OR recurrence of the clinical syndrome for which the initial procedure was performed.*

In order to meet the criteria for Clinically Driven (CD), the CEC members reviewed the reported TLR source documentation against the CD-TLR definition. To meet the definition of CD-TLR, at least two (2) reviewers must have determined that the event met at least two of the first three criteria. It is noted that the criteria did not need to be the same between the reviewers, only that at least two clinical criteria are met. All TLR are described in Figure 6 below.

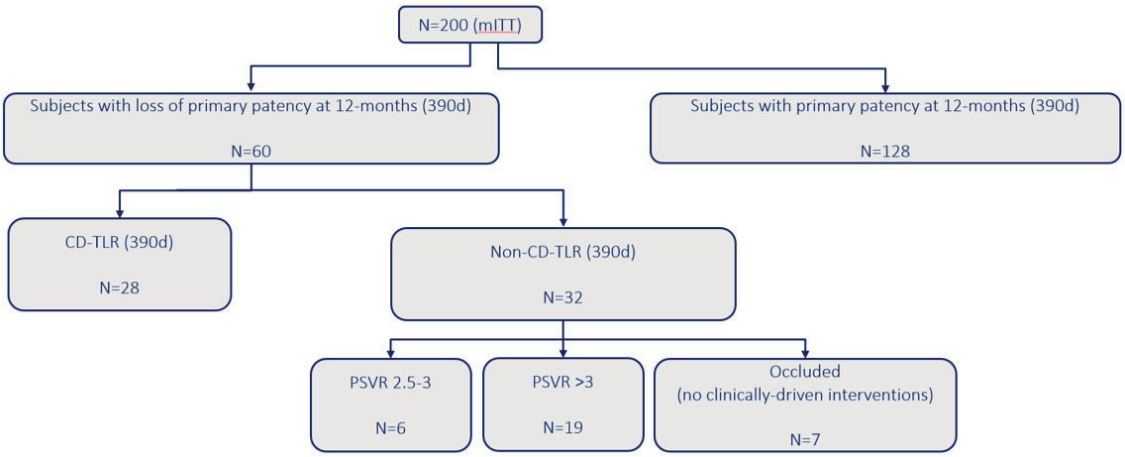


Figure 6: Arterial System at 1 Year - MITT Accountability

Secondary Effectiveness Endpoints

All secondary effectiveness analyses were performed on the primary analysis cohort, the MITT analysis set.

Table 19: Secondary Effectiveness Endpoints – MITT Population

	30 Days	6 Months	12 Months
Clinical Success	92.9% (182/196) [88.3%, 96.0%]	94.8% (182/192) [90.6%, 97.5%]	97.2% (173/178) [93.6%, 99.1%]
Primary Patency*	96.5% [93.9%, 99.0%]	87.9% [83.4%, 92.4%]	72.3% [66.0%, 78.6%]
Secondary Patency*	100.0% [100.0%, 100.0%]	95.4% [92.5%, 98.4%]	89.1% [84.7%, 93.5%]
Major Index Limb Amputations Over Time*	0.0% [0.0%, 0.0%]	0.5% [0.0%, 1.5%]	1.6% [0.0%, 3.3%]

Data presented as % (n/N) Kaplan Meier Estimates rate [95% CI] where N is the number of subjects with available data.

Table 20: Secondary Effectiveness Baseline Comparison - MITT Population

			Baseline	30 Days	6 Months	12 Months
Limb Ischemia: Rutherford Clinical Category (continuous) - MITT						
	All Available		3.3 ± 0.53 (200) 3.0 (3,5)	0.6 ± 1.04 (196) 0.0 (0, 5)	0.5 ± 1.05 (192) 0.0 (0, 5)	0.6 ± 0.96 (178) 0.0 (0, 5)
	Paired Data	Baseline	--	3.2 ± 0.50 (196) 3.0 (3, 5)	3.3 ± 0.53 (192) 3.0 (3, 5)	3.3 ± 0.54 (178) 3.0 (3, 5)
	Paired Data	Follow-up	--	0.6 ± 1.04 (196) 0.0 (0, 5)	0.5 ± 1.05 (192) 0.0 (0, 5)	0.6 ± 0.96 (178) 0.0 (0, 5)
	Paired Data	Change from	--	-2.7 ± 1.12 (196)	-2.7 ± 1.07 (192)	-2.7 ± 1.05 (178)

			Baseline	30 Days	6 Months	12 Months
		Baseline (Follow-up – Baseline)		-3.0 (-5, 1)	-3.0 (-5, -2)	0.0 (0, 5)
Ankle-Brachial Index (ABI) - MITT						
Target Limb	All Available		0.61 ± 0.22 (191) 0.60 (0.00, 1.55)	0.99 ± 0.18 (183) 1.00 (0.00, 1.71)	0.99 ± 0.21 (173) 1.00 (0.37, 1.98)	0.95 ± 0.21 (170) 0.97 (0.00, 1.97)
	Paired Data	Baseline	--	0.61 ± 0.22 (178) 0.61 (0.00, 1.55)	0.61 ± 0.22 (169) 0.59 (0.00, 1.55)	0.60 ± 0.22 (166) 0.59 (0.00, 1.55)
	Paired Data	Follow-up	--	0.99 ± 0.18 (178) 1.00 (0.00, 1.71)	0.98 ± 0.21 (169) 1.00 (0.37, 1.98)	0.96 ± 0.21 (166) 0.97 (0.00, 1.97)
	Paired Data	Change from Baseline (Follow-up – Baseline)	--	0.38 ± 0.25 (178) 0.38 (-0.66, 1.20)	0.38 ± 0.24 (169) 0.38 (-0.49, 1.12)	0.36 ± 0.27 (166) 0.37 (-0.74, 1.04)
Contralateral Limb	All Available		0.81 ± 0.26 (187) 0.81 (0.00, 1.63)	0.87 ± 0.24 (181) 0.90 (0.21, 1.88)	0.89 ± 0.24 (170) 0.93 (0.28, 1.97)	0.88 ± 0.25 (163) 0.89 (0.02, 1.97)
	Paired Data	Baseline	--	0.82 ± 0.26 (172) 0.82 (0.00, 1.63)	0.83 ± 0.26 (163) 0.82 (0.00, 1.63)	0.82 ± 0.26 (157) 0.82 (0.00, 1.63)
	Paired Data	Follow-up	--	0.87 ± 0.24 (172) 0.90 (0.21, 1.88)	0.89 ± 0.24 (163) 0.92 (0.28, 1.97)	0.88 ± 0.25 (157) 0.89 (0.02, 1.97)
	Paired Data	Change from Baseline (Follow-up – Baseline)	--	0.05 ± 0.21 (172) 0.04 (-0.44, 1.16)	0.06 ± 0.23 (163) 0.04 (-0.53, 1.25)	0.06 ± 0.28 (157) 0.04 (-1.51, 1.25)
6 Minute Walk Test (6MWT) - MITT						
	All Available		208.8 ± 133.18 (142) 194.5 (18, 800)	259.7 ± 147.84 (131) 229.8 (0, 864)	--	288.4 ± 141.51 (118) 291.5 (0, 1004)
	Paired Data	Baseline	--	213.4 ± 132.63 (130) 199.6 (23, 800)	--	209.8 ± 118.73 (117) 198.0 (23, 650)
	Paired Data	Follow-up	--	260.3 ± 148.26 (130) 230.7 (0, 864)	--	289.4 ± 141.76 (117) 292.0 (0, 1004)
	Paired Data	Change from Baseline	--	46.8 ± 105.29 (130)	--	79.6 ± 144.71 (117)

			Baseline	30 Days	6 Months	12 Months
		(Follow-up – Baseline)		30.2 (-270, 427)		61.0 (-366, 913)

Categorical variables presented as % (n/N) and continuous variables presented as mean ± SD (N) median (min, max) where N is the number of subjects with available data.

Secondary Effectiveness assessments of the MITT group were performed at 30 days, 6 months, 12 months, 24 months and 36 months as shown in Table 19 and Table 20.

Clinical success as defined by subjects showing a ≥1 category improvement in RCC was 92.9% (182/196), and the percentage of subjects with an improvement in RCC remained high through 36 months for those who have completed their 3-years visits. Limb ischemia, identified using the RCC, is reported as change from baseline. A negative value for change from baseline indicates an improvement in RCC.

At each time point in the study, the change from baseline showed RCC improved. At 30 days, 6 months, and 12 months, RCC improved by an average score of 2.7. At 24 months and 36 months, RCC improved by a score of 2.8 and 2.9.

Using Kaplan Meier methodology, the primary patency at 1 year was 72.3%, and the secondary patency at 1 year was 81.8%. Ankle-Brachial Index (ABI) change from baseline on the target limb averaged a 0.4 (±0.25) change at 30 days and a 0.4 (±0.27) change as 12 months. 6 Minute Walk Test (6MWT) change from baseline averaged a 46.8 (±105.29) change at 30 days and a 79.6 (±144.71) change at 12 months.

Reinterventions

Interventions were classified as TVR, TLR, or CD-TLR, as presented in Table 21. TVR and TLR were further classified as lysis or non-lysis procedures. Lysis was defined as the use of thrombolytic drug therapy during the intervention or reporting of thrombolytic techniques by the site. It is noted that some patients may have had multiple procedures, therefore counts may not sum across rows or columns.

Table 21: Reinterventions

	# Events in Interval Up to 30 Days (0-30 days) % (n/N)[m][1]	# Events in Interval 6 Months (31-180 days) % (n/N)[m][1]	# Events in Interval 12 Months (181-390 days) % (n/N)[m][1]	Total Events to 12 Months (390 days) (n/N)[m][1]
All TVR	2% (4/200) [4]	6.5% (13/200) [15]	13% (26/200) [33]	21.5% (43/200) [52]
TVR (excluding lysis only)[2,3]	2% (4/200) [4]	5% (10/200) [12]	13% (26/200) [30]	19% (38/200) [46]
TVR (including lysis only)	0% (0/200) [0]	1.5% (3/200) [3]	1.5% (3/200) [3]	2.5% (5/200) [6]
All TLR	2% (4/200) [4]	6% (12/200) [14]	11.5% (23/200) [29]	19.5% (39/200) [47]
TLR (excluding lysis only)[2,3]	2% (4/200) [4]	4.5% (9/200) [11]	11% (22/200) [26]	16.5% (33/200) [41]
TLR (including lysis only)	0% (0/200) [0]	1.5% (3/200) [3]	1.5% (3/200) [3]	2.5% (5/200) [6]

	# Events in Interval Up to 30 Days (0-30 days) % (n/N)[m][1]	# Events in Interval 6 Months (31-180 days) % (n/N)[m][1]	# Events in Interval 12 Months (181-390 days) % (n/N)[m][1]	Total Events to 12 Months (390 days) (n/N)[m][1]
CD-TLR	1.5% (3/200) [3]	5% (10/200) [12]	9% (18/200) [20]	14% (28/200) [35]

1 Data presented as % (n/N) [m] where n is the number of subjects experiencing at least 1 event, N is the number of subjects, and m is the total number of events.
2 Target Vessel Revascularization (TVR) – Any repeat percutaneous intervention (excluding lysis only) or surgical bypass of any segment of the target vessel.
3 Target Lesion Revascularization (TLR) – A repeat percutaneous intervention (excluding lysis only) or surgical bypass of the target lesion site or immediately 1cm above or below the treated arterial segment.

Subgroup Analyses

The following subgroups were assessed for impact on Primary Safety and Primary Effectiveness: gender and region. Please note that the stratification of the study into these smaller cohorts reduces the sample size available to accurately assess estimates and may impact interpretability.

Gender

The subgroup analysis by gender showed that females had a greater risk of primary patency failure at one year compared to males.

Table 22: Primary Patency at 12 Months by Gender - MITT

Subgroup	All Subjects	Lower 97.5% Exact Confidence	P-value
Female	49.0% (24/49)	34.4%	0.001
Male	74.8% (104/139)	66.8%	

Data presented as % (n/N) where N is the number of subjects with available data. P-value based on generalized Fisher's Exact test.

There are multifactorial issues that impact the assessment of study outcomes for the female gender. Further information is available below on the post hoc, multivariate regressions analysis, completed to provide additional information. There are large studies that show that female gender does not contribute to graft failure and reduced patency. It has been hypothesized that reasons for poorer outcomes in women are multifactorial, including anatomical variables (e.g., smaller vessels), presentation with more advanced disease, and biological characteristics that influence the long-term outcomes of revascularization.

Region

Additionally, the analysis showed that primary patency was significantly better in the OUS patients compared with the US patients.

Table 23: Primary Patency at 12 Months by Region - MITT

Subgroup	All Subjects	Lower 97.5% Exact Confidence Limit	P-value
OUS sites	89.4% (42/47)	76.9%	<0.001
US sites	60.1% (86/143)	51.6%	

The US population had higher rates of ISR patients [21.6% (33/153) vs. 4.1% (2/49); p=0.004], a shorter patent length of the above knee popliteal section [79.53 ± 44.2 (146) vs 99.15 ± 53.2 (44); p=0.015], more CFA disease present (9.2% vs 0%; p=0.024), and smaller distal CFA diameters [7.65 ± 1.7 (150) vs. 8.73 ± 1.4 (48); p<0.001]. These lesion characteristics may have contributed to a lower primary patency for the US cohort. Post-hoc multivariate logistic regression analyses, (Table 24) were conducted to select the covariates that best explain the variability in primary endpoints.

In summary, it was found that smaller distal CFA diameters, shorter height/heavier weight, longer CTO length and history of smoking were predictors of poor patency. When accounting for these variables, gender became a statistically insignificant predictor.

When evaluating the differences between the US and OUS cohorts, each of these predictor variables provided the OUS with an advantage. That is, the European participants were taller and had larger vessels. Therefore, it is uncertain whether outcomes for these cohorts are more directly correlated to anatomic and lesion characteristics. However, with small numbers in these groups, it is difficult to draw definitive conclusions.

Table 24: Odds Ratio Estimates for Patency Model

Odds Ratio Estimates			
Effect	**Point Estimate**	**95% Wald Confidence Limits**	
Region: OUS vs US	0.403	0.154	1.057
Distal CFA Diameter	0.754	0.595	0.954
Height	0.924	0.881	0.968
Weight	1.031	1.005	1.058
CTO Length	1.046	0.999	1.094
Smoking Status (current vs former)	2.707	1.323	5.538

Directions for Use

The DETOUR System is supplied sterile and is intended for Single Use Only.

1.0 OVERVIEW OF THE PROCEDURE USING THE DETOUR SYSTEM

The DETOUR System is utilized to perform the procedure using the DETOUR System. The procedure using the DETOUR System is an endovascular femoral-popliteal bypass using the femoral vein as a conduit for TORUS Stent Grafts which provides a bypass of the diseased arterial segment. Utilizing standard endovascular techniques, the ENDOCROSS Device is used to create an arterio-venous connection above the diseased arterial segment, and then a veno-arterial connection below the diseased arterial segment. TORUS Stent Grafts are then placed from distal to proximal sequentially to provide the bypass. Multiple TORUS Stent Grafts may be utilized during a procedure using the DETOUR System.

A graphical representation of the procedure using the DETOUR System is provided in Figure 7.

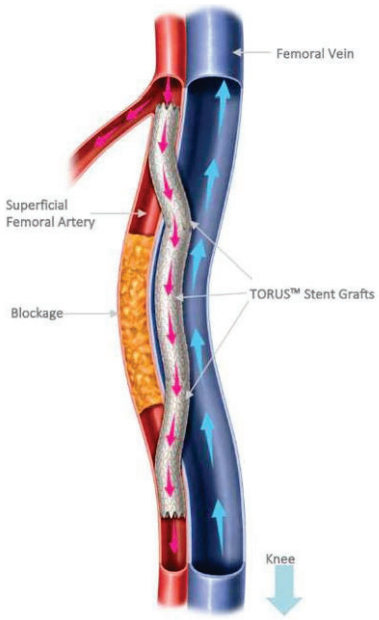


Figure 7: TORUS Stent Graft Placement - Procedure Utilizing the DETOUR System

2.0 MATERIALS REQUIRED FOR THE PROCEDURE USING THE DETOUR SYSTEM

- Commercially available vascular snare (e.g., EN Snare® Endovascular Snare (Merit Medical), Amplatz Goose Neck™ snare (Medtronic)
- 0.014" guidewires, 300cm length (2x) and a 180cm length (1x)
- 0.035" guidewire, at least 300cm in length
- 8F introducer sheath (at least 45cm in length) for contralateral arterial access
- 4F or 6F introducer sheath for venous access
- 4F or 5F Sizing/Marker and/or Exchange Catheter
- Angioplasty balloons of various diameters and lengths
- Inflation device for use with angioplasty balloons
- Ancillary tools to gain arterial and venous access using standard technique

PRECAUTION: To minimize wire differentiation it is recommended to use a 180cm long 0.014" guidewire through the ENDOCROSS Device RX guidewire lumen.

3.0 ENDOCROSS DEVICE USE AND ANASTOMOSIS CREATION

ENDOCROSS Device Set Up

1. Inspect the ENDOCROSS Device pouch for damage. Do not use device if the package has been opened or damaged.

   WARNING: Do not use the ENDOCROSS Device if the package is opened or damaged. Prior to use, perform a thorough examination of the pouch materials and seals to ensure there is no visually detectable damage.

   WARNING: Do not use the DETOUR System beyond the stated use-by date on the package label.

2. Using sterile technique, remove the ENDOCROSS Device from the package and transfer to the sterile field. Inspect the catheters for any visible signs of damage.

   WARNING: Inspect the DETOUR System prior to use. Do not use if the device appears to

be bent, kinked, or damaged in any way. The ENDOCROSS Device should be test fired prior to use in the patient to ensure proper functionality. Do not use if the device does not function properly when tested, or if the device appears to be bent, kinked, or damaged in any way because vessel damage and/or inability to advance or withdraw the device may occur.

3. Flush the ENDOCROSS Device with heparinized saline through the ports and advance the outer handle to ensure the Stabilizer deploys and Needle can be deployed by depressing the Button.
4. After deploying the needle, flush with heparinized saline through the rear needle guidewire port, then retract the needle and the outer handle until collapsing the stabilizer and returning needle to the "locked" position. The "locked" position is indicated when a "click" is heard upon retraction of the outer handle.

WARNING: Do not place finger or other body parts near distal tip of the ENDOCROSS Device prior to deploying the Needle.

Isolate Vascular Targets

WARNING: The distal CFA must be measured; the DETOUR System is contraindicated for patients with a distal common femoral artery (CFA) <7mm in diameter.

1. Gain tibial venous access and place an appropriately sized introducer sheath.
2. Advance a snare per the product's instructions for use into the femoral vein (FV) at a level just above the arterial lesion.
3. Gain contra-lateral common femoral arterial access using standard technique and place an 8Fr sheath.
4. Load a 300cm 0.014" guidewire through the rear Needle guidewire port of the ENDOCROSS Device and advance until the distal tip is just visible then retract approximately 5cm.
5. Backload the 0.014" guidewire in RX Port and advance ENDOCROSS Device 3-4cm distal from the SFA ostium.

Create Proximal Anastomosis

1. Rotate imaging to superimpose the ENDOCROSS Marker Band positioned in the superficial femoral artery (SFA) over the FV, adjusting both lateral and cranial/caudal planes to optimize overlap of the FV and SFA.
2. If desired, rotate 90 degrees in either direction to obtain orthogonal views.
3. Once the ENDOCROSS Device is superimposed over the snare in the FV, orient the ENDOCROSS Marker Band to a posterior image. (Figure 5).
4. On the ENDOCROSS Device, pull back the outer handle until it clicks into the starting position. Then advance the outer handle forward until the stabilizer is deployed and the needle is spring-loaded, then rotate the outer handle to load the needle in place. Re-confirm orientation of the ENDOCROSS Device marker band. If orientation is not adequate retract the Outer Handle and repeat until appropriate orientation is achieved with Stabilizer deployed.

WARNING: Do not rotate the ENDOCROSS Device while Stabilizer is deployed.

5. Depress the Deployment Button to deploy the Needle into the adjacent FV with the ENDOCROSS marker band in the posterior crossing position.

WARNING: Place hand and fingers on the inner handle (not on the guidewire port area) of ENDOCROSS Device during needle deployment to avoid pinching gloves during needle deployment.

6. Rotate to an orthogonal view, advance the 300cm 0.014" guidewire through the Needle to confirm FV access. Repeat Steps 2-5 until venous access is confirmed.

WARNING: Do not advance the guidewire significantly through the Needle tip prior to Needle deployment. Doing so may damage the device and/or guidewire tip.

7. NOTE: If the ENDOCROSS Device Needle extends through both walls of the target vein, partially retract Needle using the Outer Handle and advance guidewire into snare to gain venous access.
8. Once the 300cm 0.014” guidewire position within the venous lumen is confirmed, snare the floppy to stiff transition portion of the 0.014” guidewire, and retract the needle using the outer handle on the ENDOCROSS Device until it “clicks” into the locked position.
9. Withdraw the snare and the 300cm 0.014” guidewire through the venous access site. Secure guidewire with hemostat or torque device.
10. Withdraw the ENDOCROSS Device while ensuring the distal portion of the guidewire remains externalized at the ipsilateral venous access site.
11. Re-prep the ENDOCROSS Device by flushing with heparinized saline through the ports and advance the outer handle to ensure the Stabilizer deploys and Needle can be deployed by depressing the Button.
12. After deploying the needle, flush with heparinized saline through rear needle guidewire port then retract the needle and the outer handle, collapsing the stabilizer and returning needle to the “locked” position.

WARNING: Ensure the Stabilizer and Needle are retracted prior to removing the ENDOCROSS Device.

13. Use an appropriately sized PTA balloon to dilate the anastomosis between the SFA and FV.

Figure 8: Crown Marker Band System Needle Direction
(Directions are noted from the perspective of the device in a supine patient)

Create Distal Anastomosis

1. Backload the proximal end of the externalized 300cm 0.014” guidewire into the tip of the ENDOCROSS Device until it exits the rapid-exchange (RX) port and re-advance the ENDOCROSS Device to the newly created proximal anastomosis.
2. Load a 300cm 0.014” guidewire through the needle guidewire port of the ENDOCROSS Device and advance until the distal tip is just visible then retract approximately 5cm.
3. While maintaining tension on the 0.014” guidewire at both access sites, gently advance the ENDOCROSS Device through the proximal anastomosis into the FV.

WARNING: Do not deploy the Stabilizer prior to advancing through the proximal anastomosis.

WARNING: Do not exert excessive force while advancing the ENDOCROSS Device through the anastomosis. Ensure tension is applied to the guidewire at both access sites and gently advance the ENDOCROSS Device until FV access is confirmed fluoroscopically. Re-dilate anastomosis if significant resistance is encountered.

PRECAUTION: A knee prosthesis may prevent successful and accurate ENDOCROSS Needle deployment.

4. Continue advancing the ENDOCROSS Device until the Crown Marker Band is at the desired crossing location in the Popliteal vein that corresponds to the area distal to the lesion in the Popliteal artery.
5. Visualize the target artery (either distal SFA or proximal Popliteal Artery) and rotate C-arm with fluoroscopy to superimpose the Femoral/Popliteal vein at the target artery re-entry location. To optimize the overlap of the popliteal artery and popliteal vein both lateral and cranial/caudal planes adjustment may be needed. Verify overlap with angiography.
6. If desired, rotate 90 degrees in either direction to obtain orthogonality of the vessels.
7. In the superimposed position, while injecting contrast, using the ENDOCROSS Marker Band, orient the marker band to the anterior position towards the artery.
8. Advance and rotate the Outer Handle until the stabilizer is deployed. Re-confirm orientation of the ENDOCROSS Marker Band and adjust as necessary.
9. Maintain tension on the externalized 0.014" guidewire prior to Needle deployment.
10. Depress the Button to deploy the needle through the venous and arterial walls and into the adjacent SFA/Popliteal artery.

WARNING: If the ENDOCROSS Device Needle extends through both walls of the target artery, partially retract Needle using the Outer Handle and advance guidewire until you are able to advance the guidewire to gain arterial access.

11. Advance the 300cm 0.014" guidewire through the Needle to confirm arterial access. Repeat Steps 6-9 as necessary until 0.014" guidewire placement is confirmed in target artery.
12. Withdraw the ENDOCROSS Device while ensuring distal arterial 0.014" guidewire position is maintained.

WARNING: Ensure the Stabilizer and Needle are retracted prior to removing the ENDOCROSS Device.

13. Use an appropriately sized PTA balloon to dilate the distal and proximal anastomosis sites.
14. Using an exchange catheter replace the 0.014" guidewire with a 0.035" 300cm guidewire.
15. Remove the externalized 300cm 0.014" guidewire.

4.0 TORUS STENT GRAFT SYSTEM USE

Sizing and Selection of the TORUS Stent Graft

1. Prior to opening the sterile package, check to ensure that the diameter and length of the TORUS Stent Graft are correct and confirm that the product has not reached the expiration date.
2. Select the appropriate stent graft diameters for the distal and proximal vessels using **Table 1** and **Table 2** above.
3. Select the appropriate stent graft lengths based on the length of the proposed bypass.
   A. The lengths provided in "Sizing" are the nominal stent graft lengths.
   B. It is important that the stent graft occupy at least 3cm of the arterial lumen on both the distal and proximal sides of the lesion.
4. When overlapping (telescoping) grafts, at least 60mm of overlap is required.
   C. A 5.5mm stent graft may only be overlapped within a 5.5mm stent graft.
   D. A 6.0mm stent graft may be proximally overlapped within a 5.5mm or 6.0mm stent graft.
   E. A 6.7mm stent graft may be proximally overlapped within a 6.0mm or 6.7mm stent graft.

Set Up

1. Inspect the TORUS Stent Graft System pouch for damage. Do not use the device if the package has been opened or damaged.

2. Using sterile technique, remove the device from the package and transfer to the sterile field. Inspect the device for any visible signs of damage.

   PRECAUTION: Do not deploy the stent graft prior to insertion. The stent graft is self-expanding and cannot be re-loaded on the delivery system.

3. Flush Guidewire Lumen using the luer-lock connector on the proximal end of the device using heparinized saline until fluid exits the catheter tip.
4. Flush the stent graft Lumen using the flush port on the device handle until fluid exits the sides of the TORUS Stent Graft System, proximal to the stent graft location.

Stent Graft Placement

1. Insert the TORUS Stent Graft System over the 300cm 0.035" guidewire and advance to the treatment site.

   PRECAUTION: Do not use excessive force when manipulating the device through an introducer. Excessive force may damage the device.

2. Advance the TORUS Stent Graft System through the proximal and distal anastomoses to the intended target landing zone in the artery

   WARNING: Do not exert excessive force while advancing the TORUS Stent Graft System through the anastomosis. Gently advance the TORUS Stent Graft System until distal arterial access is confirmed fluoroscopically. Re-dilate anastomosis if significant resistance is encountered.

3. Advance the distal marker band of the TORUS Stent Graft System a minimum of 3cm distal to the distal anastomosis, leaving the proximal marker band within the Femoral Vein.
4. Hold the TORUS Stent Graft Delivery System deployment handle flat on the table with the knob facing up and turn the knob counterclockwise (i.e., in the direction of the arrow) to deploy the stent graft.
5. Once the stent graft is completely deployed, remove the TORUS Stent Graft Delivery System.

   PRECAUTION: When removing the delivery system avoid displacing the Stent Graft by removing the delivery system under fluoroscopy.

   PRECAUTION: When deploying multiple TORUS Stent Grafts, it is recommended to have at least 60mm of overlap of each stent graft.

6. If needed, insert a subsequent TORUS Stent Graft System over the same 0.035" guidewire and advance through the proximal anastomosis to the level of the first stent graft placed.
7. Position the distal marker band on the TORUS Stent Graft Delivery System inside the deployed TORUS Stent Graft allowing for approximately 60mm of overlap.
8. For the final TORUS Stent Graft placement, ensure the proximal marker band is at least 3cm above the proximal anastomosis in the SFA and at the bifurcation of the SFA and profunda. Ensure that there is at least 60mm of overlap when deploying a stent graft inside of a previously placed stent graft.
9. After confirming position at both locations, deploy the stent graft completing the bypass, remove the TORUS Stent Graft Delivery System.

   WARNING: When deploying the proximal stent graft please ensure that the proximal edge (exposed end) of the stent graft is 1-2mm above the ostium of the superficial femoral artery (Figure 4).

10. Dilate each stent graft along its entire length using the balloons designated in **Table 1** of the Sizing section above, ensuring that full dilatation of both anastomosis sites is performed so that optimal laminar flow is achieved.

WARNING: Do not dilate outside the margins of the deployed stent graft(s).

11. Perform final angiogram and venogram.
12. Remove the 0.035" guidewire and proceed with hemostasis techniques (i.e., vessel closure devices, manual compression).

Patient Surveillance

1. Refer to AHA and SVS guidelines and recommendations for antiplatelet and/or anticoagulation medication in the post-operative period.
2. Refer to AHA and SVS guidelines on patient surveillance.

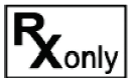
Disposal

After use, dispose of product and packaging in accordance with hospital, administrative and/or local government policy.

Storage and Handling

Store devices in a cool, dry environment away from direct sunlight.

Definitions of Symbols

 Batch code	 e-IFU Consult electronic instructions for use	 Manufacturer
 Do not resterilize	 Do not reuse	 Sterilized using ethylene oxide
 Catalogue number	 Caution	 Keep away from sunlight
 Use-by date	 Do not use if package is damaged	 Contains or Presence of Phthalate
 Keep dry	 MR Conditional	 Single sterile barrier
 Medical device	 Quantity	 Prescription only
 Serial Number	 Unique Device Identifier	 Diameter

Manufacturer 

Endologix LLC
1971 Milmont Drive
Milpitas, CA 95035
U.S.A.
www.endologix.com
(800) 983-2284 (949) 595 7200