

Case study: Use of Stryker Bidirectional 8.5 F and 12 F Steerable Introducer Sheath during an atrial flutter and atrial fibrillation ablation

A review by Dr. Fahad Ali, MD

Patient history:

76-year-old male, past history of paroxysmal atrial fibrillation and atrial flutter, CAD, HTN was brought to the EP lab for ablation procedure of paroxysmal atrial fibrillation and atrial flutter.

Assessment:

Patient was first diagnosed with atrial fibrillation about one and a half years ago. He had symptoms of palpitations and fatigue associated with atrial fibrillation. He was started on beta blockers by the primary physician with partial improvement in his symptoms. He was also found to have atrial flutter during a clinical encounter. During the course of treatment his symptoms became progressively more frequent, and he was then referred to the EP service. He was seen in the EP office and after a thorough discussion about risks and benefits it was mutually decided to proceed with the ablation procedure.

Procedure and treatment:

The patient arrived to the procedure room in normal sinus rhythm (NSR). General anesthesia was induced. The right and left femoral regions were prepped and draped in sterile fashion. 1% lidocaine was infiltrated into the right and left femoral region. Access was obtained to the right femoral vein (RFV) x 2 and left femoral vein (LFV) x 1 using the modified Seldinger technique with vascular ultrasound guidance. The RFV and LFV were patent. One long and one short J-tipped guidewires were positioned into the RFV and one long J wire into the LFV. An 8.5 F Stryker sheath and a short 7 F venous sheath were positioned over the guidewires into the RFV and a 10 F long sheath into the LFV.

The Stryker reprocessed intracardiac echocardiography (ICE) catheter was positioned at the level of the right atrium (RA) via the LFV. A general echocardiographic survey showed trivial pericardial effusion. Under fluoroscopic and 3D Mapping guidance, the Stryker reprocessed coronary sinus (CS) catheter was positioned into the CS via the RFV.

RF ablation of atrial flutter using 8.5 F Stryker Steerable Introducer Sheath

The RF ablation catheter was positioned through the 8.5 F Stryker sheath at the level of the

cavotricuspid isthmus (CTI). The patient was administered a 4,000-unit bolus of Heparin IV. Under fluoroscopic and 3D mapping guidance, radiofrequency ablation (RFA) was performed at the RA CTI region with the open irrigated, force monitoring ablation catheter at 35W. Bidirectional block was confirmed by differential pacing across the CTI line using the ablation catheter and the CS catheter. Another Heparin bolus of 5,000 units was then administered intravenously.

Cryoablation of atrial fibrillation using 12 F Stryker Steerable Introducer Sheath

The ablation catheter was then removed from the 8.5 F Stryker sheath and the J wire along with the dilator were reinserted into the Stryker sheath. The J wire was advanced up to the superior vena cava (SVC) and the sheath along with the dilator were advanced over the wire into the SVC region under ICE and fluoroscopic guidance. The J wire was then removed and the BRK needle along with the stylet was inserted into the dilator and the sheath, but the tips of the stylet and needle remained inside the tip of the dilator. The sheath, dilator, BRK needle and stylet assembly was then dragged down from SVC into the fossa ovalis region of the interatrial septum under ICE and fluoroscopic guidance. Tenting of the septum was confirmed on ICE. A single transseptal puncture was performed by advancing the stylet and the needle assembly across the septum into the left atrium (LA) and this was confirmed on the ICE images. The dilator was then advanced over the needle into the LA and then the sheath was advanced over the dilator and needle assembly into the LA. Dilator and needle were then removed out of the sheath. The J tip guide wire was then advanced through the sheath into the LA and was parked into the LSPV. Stryker 8.5 F sheath was then removed and Stryker 12 F sheath along with the dilator was then advanced over the wire. The sheath and dilator assembly passed through the skin and interatrial septum smoothly without much resistance.

Once in the LA, the sheath and the dilator were then disconnected and the dilator along with the guide wire were then pulled out slowly. After carefully aspirating the sheath to remove any air bubbles, the sheath was then connected with the heparinized saline infusion line with continuous flow. Infusion line was also aspirated and checked carefully to avoid infusion of any air bubbles. Activated clotting time (ACT) was scheduled to be checked at 10 minute intervals. The cryo balloon catheter along with the circular mapping

catheter were prepped as per the standard technique and were then advanced through the Stryker 12 F sheath up to the first white mark on the sheath. The circular mapping catheter was then gently advanced and 3D geometry along with voltage map of the LA were created.

The patient had two pulmonary veins (PVs) on the right side and two PVs on the left side. With the patient in NSR, cryoablation was performed around each pulmonary vein while monitoring esophageal temperature with the esophageal temperature probe. Entrance block and exit block were noted to develop in each pulmonary vein following cryoablation. Pacing in the SVC for phrenic nerve capture was performed while ablating the right sided pulmonary veins using the steerable decapolar CS catheter. Entrance and exit block were demonstrated for each PV following cryo ablation. Additional voltage mapping was performed of the LA posterior wall. The transeptal catheters were then pulled back into the RA. CS catheter was then placed back into the CS.

All the catheters were then removed. Intravenous protamine was given for anticoagulation reversal. A figure of eight stitch was applied at the right groin for hemostasis using the non-absorbable suture. Direct pressure was held over both regions for approximately 10 minutes upon sheath removal. The patient was awakened from general anesthesia and transferred to the anesthesia recovery area in stable condition.

Clinical outcome:

Pacing was performed from the RA, LA (via CS). The patient remained in normal sinus rhythm. Persistent bidirectional block was demonstrated by differential pacing across the CTI. There continued to be no induced atrial fibrillation or atrial flutter at this time with RA or LA pacing via the CS. A repeat echo survey showed no interval change.

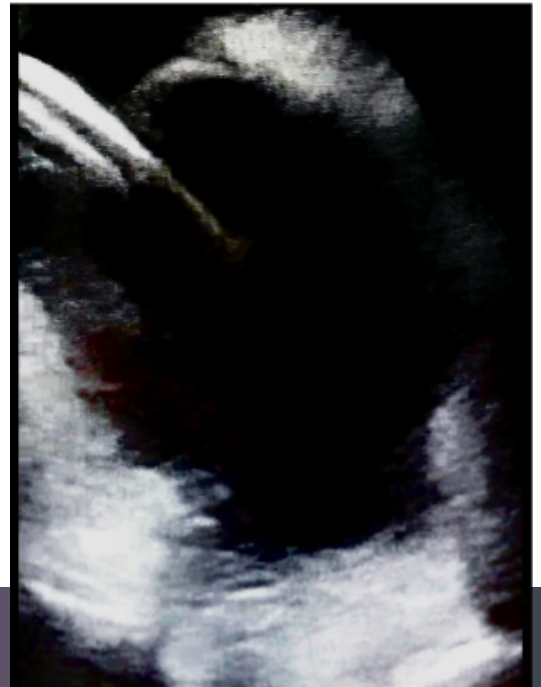
Conclusion

In my experience, desirable ablation and clinical end points were achieved by using the Stryker 8.5 F and 12 F Bidirectional Steerable Introducer Sheaths. The sheaths provided increased stability, smoother transition in percutaneous and transeptal course with minimal resistance, better grip and handling of the ergonomically designed handle compared to the market leading sheaths. The 12 F Stryker Steerable Introducer Sheath also provides the advantage of bidirectionality which is helpful in complex cases.

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Fluoro image of the Stryker Steerable 12 F sheath and reprocessed CS catheter



Reprocessed ViewFlex ICE image of the Stryker Steerable 12 F Introducer Sheath

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