CLINICAL EVIDENCE - TRACKING

Sniper® Balloon Microcatheter
Superselective Tracking in Tumor & Prostate Artery Embolization

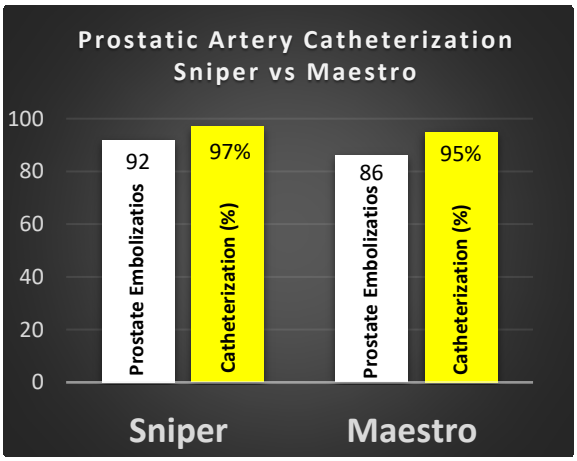
Sniper is commonly used in superselective TACE, Y90 and PAE. Studies have demonstrated that Sniper can reach distal targets in small vasculature and is comparable to conventional microcatheters.

It is counterintuitive that a balloon microcatheter can successfully track to distal targets in difficult anatomy. As such, a common question is: "Does a standard microcatheter have tracking advantage?" Our answer is "Not really". The evidence is presented herein. Sniper comprises a new technology in microcatheter design and performance. The catheter has two distinct sections, a very floppy distal 30 cm and a proximal section that is very stiff. This makes Sniper *the most pushable microcatheter on the market*. Although the presence of a balloon may lessen the ability to turn around sharp angles, the extra pushability makes up for it.

Four published studies illustrate the remarkable tracking of the Sniper Balloon microcatheter. In these studies, Sniper completed 177 prostate embolizations and tracked into the prostatic artery 98% of the time. In one of the studies, the standard end-hole microcatheter reached the prostatic artery 95% of the time. *For sure, a balloon microcatheter will feel different and there is a learning curve, however, if you are patient, Sniper will get just about anywhere and improve the efficacy of your procedures*.

Clinical Data:

In 2017, Keasler studied the use of Balloon Occlusion on 12 PAE patients and angiographically demonstrated protection from non-target embolization by both elimination of reflux and flow redistribution of anastomosis leading to surrounding organs. Sniper reached the desired location in all 24 prostate sides (1). **In 2018**, Isaacson demonstrated the same result in a 12-patient study where non-target flow was eliminated, there was no coiling needed, and no complications were recorded. Bilateral embolization was achieved in all but 1 patient due to and the presence of a prostatic arteriovenous fistula. Excluding the fistula case, *Sniper reached the desired location in every attempt* (2).



In 2019, Acharya demonstrated that 2 times the number of particles can be delivered to the prostate using balloon occlusion. The study included 20 patients. Ten patients were presented in a poster at SIR 2019. Bilateral embolization was performed in all cases (3). **In 2019**, Bilhim compared a conventional microcatheter (n=42) to Sniper (n=42). This study demonstrated that the Sniper microcatheter was able to reach the desired position in the prostatic artery 89 of 92 treatments or 97% of the time. The conventional microcatheter reached the desired position in 82 of 86 treatments or 95% of the time (4).

The evidence demonstrates that the tracking capability of Sniper is equivalent to a standard microcatheter.

Tables 1 and 2 show the results of 4 studies. Three were published in JVIR[1] and one was a poster at SIR 2019

Table 1: Sniper Prostatic Artery Catheterizations

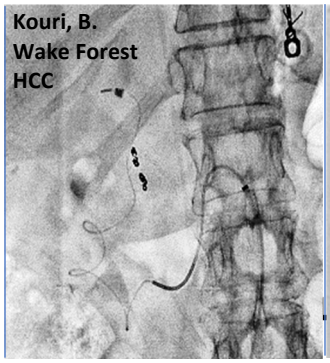
Study	Patients	Prostate Sides	Successful Catheterizations	Success Rate
Keasler	12	24	24	100%
Isacson	12	23	23	100%
Acjarua	10	40	40	100%
Bilhim	46	92	89	97%
Overall	80	179	176	98%

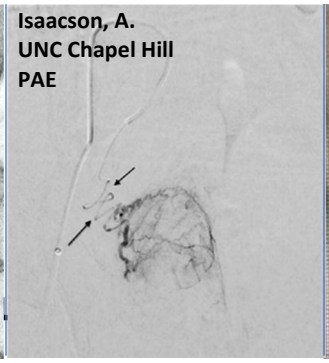
Table 2: Sniper vs Maestro Prostatic Artery Catheterizations

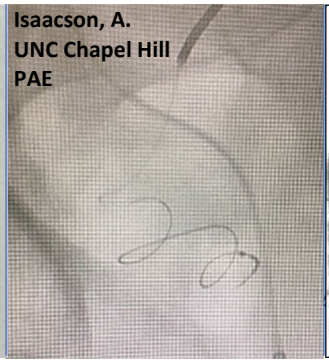
	Patients	Prostate Sides	Successful Catheterizations	Success Rate
Sniper	46	92	89	97%
Maestro	43	86	82	95%

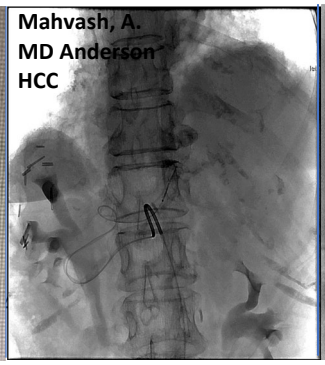
Table 1 shows the Sniper prostate artery cannulation rate in each study.

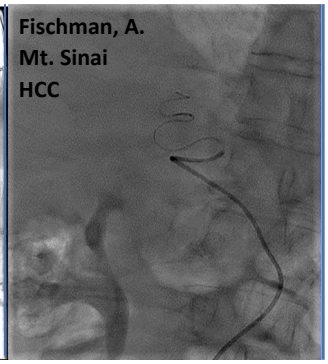
Table 2 shows the results from the Bilhim study and compares Sniper to the Merit Maestro.











References:

Available upon request or can be found at https://embolx.com/publications/

1. Keasler E, Isaacson A. Changes in Prostatic Artery Angiography with Balloon Occlusion. J Vasc Interv Radiol (2017) 28:1276-1278.
2. Isaacson A, Hartman T, Bagla S, Burke C. Initial Experience with Balloon-Occlusion Prostatic Artery Embolization. J Vasc Interv Radiol (2018) 29: 85-89.
3. Shah K, Acharya V, Bhatia S. Utility of the Sniper Occlusion Balloon Microcatheter in Prostate Artery Embolization: Early Institutional Experience. SIR Abstract. March 23-28 2019.
4. Bilhim T, Costa NV, Torres D, Pisco J, Carmo S, Oliveira AG. Randomized Clinical Trial of Balloon Occlusion versus Conventional Microcatheter Prostatic Artery Embolization for Benign Prostatic Hyperplasia. J Vasc Interv Radiol (2019) 30:1798-1806.

EMBOLX | 530 Lakeside Dr. #200, Sunnyvale, CA 94085 | +1-408-990-2949 | hmcgregor@embolx.com