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Pounce™ Thrombectomy Platform: Physician-designed for simplicity and effectiveness

By Gary Ansel, MD, and Chad Stark

Acute limb ischemia (ALI) is associated with 30-day amputation rates as high as 30%.[1] Prompt revascularization is essential for limb salvage, and the history of ALI treatment is marked by innovations that have reduced time to limb perfusion. No such innovation changed the course of treatment more than the Fogarty balloon catheter, which inspired the development of the endovascular Pounce™ Thrombectomy Platform.

Before becoming a vascular surgeon, Thomas J. Fogarty was a scrub tech, intimately familiar with the difficulties surgeons faced restoring flow in ALI when delay could mean amputation. Challenged by a surgeon mentor to create a better solution, Fogarty conceived his novel catheter. Introduced in the early 1960s, the elegantly simple, easy-to-use Fogarty catheter revolutionized ALI treatment, improving outcomes compared with previous methods[2] while significantly reducing the complexity of treatment.[3] Sixty years on, the Fogarty catheter remains a frontline tool for surgical ALI treatment.

As the inventors and developers of the Pounce Platform, our vision was to create a simple-to-use percutaneous device—one that did not require surgical cutdown, capital equipment, or use of thrombolytics—modeled on the Fogarty catheter's mode of action, with basket deployment distal to thrombus and withdrawal back. The driving need was to make it easier for more physicians, across specialty lines, to remove arterial emboli and thrombi right on the angiographic table through their preferred sheaths, without transferring patients to tertiary care centers. In an era of understaffed, overburdened health care systems, simplicity of use would be critical.

Ambitious Goals

The original design specifications for the Pounce System,* which date to 2008, called for use of wall-apposed, clot-engagement baskets effective at removing organized thrombi and emboli without aspiration and its associated blood loss. The device had to be atraumatic to the vessel wall and capture clot into a proximal enveloping funnel with low risk of distal embolization while removing the clot-burdened system through a conventional access sheath. It had to be long enough for the baskets to reach below-the-knee arteries within its indicated diameter range from contralateral access, and be compatible with 035 PTA balloon catheters, which could be introduced over the basket wire to aid with clot disruption. These attributes are realized in today's Pounce Platform (Figure 1).

The question arises how a simple, readily deployable device could meet these ambitious design goals. The answer lies in dedicated effort spanning several years of rapid prototyping, continual design improvements, and ongoing physician feedback.

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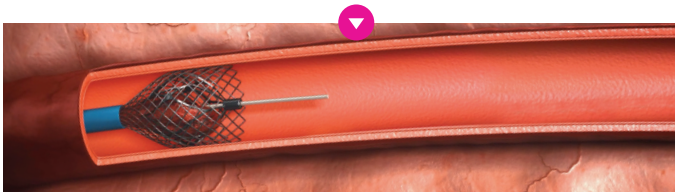
Figure 1. Pounce Platform mode of action.

The basket wire is delivered distal to the location of the thrombus, deploying two nitinol self-expanding baskets.

The baskets capture the clot and are retracted into a nitinol collection funnel.



With the clot entrained, the system is retracted into a minimum 7 Fr guide sheath and removed from the body.

Efficient Clot Capture With Low Risk of Embolization

In terms of clot capture, a central principle of the Pounce Platform is to have a two-basket design in which the baskets are spaced longitudinally and rotationally offset against each other. The baskets are welded to the basket wire only on their proximal ends; this allows their distal ends to remain "floating" on the wire. The longitudinal spacing between baskets allows the distal basket to pick up clot that the proximal basket may have missed. Importantly, the rotational offset of these self-expanding nitinol baskets creates a dense mesh pattern for clot capture (Figure 2). The use of two baskets instead of one, the cell design of the baskets, and the spacing between the baskets are the result of testing on multiple design prototypes. For benchtop testing of design iterations, considerable scientific and engineering diligence went into the development of a range of physician-vetted, blood-derived acute, subacute, and chronic clot morphologies meant to represent clinical conditions.

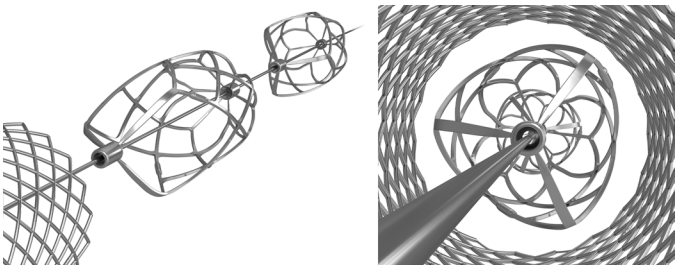


Figure 2. Lateral (left) and axial (right) view of Pounce™ Thrombectomy System showing basket offset and dense mesh pattern for clot capture.

This basket design works in tandem with the Pounce Platform's 6.5 cm double-layer, nitinol wire-braided funnel, which encloses the baskets and their thromboembolic load before retraction into the procedural access sheath. As the baskets begin to enter the sheath and collapse, their grip on the entrained clot tightens—an effect somewhat similar to a Chinese finger trap. The pressure within this mesh pattern compresses and dehydrates the clot, facilitating clot removal through a standard 7 Fr sheath of the operator's choosing.

The speed and efficiency of this proprietary basket-funnel mechanism is supported by emerging data from the Pounce Platform PROWL registry. In a January 2025 interim analysis[4] of 74 patients with native infrainguinal vessel limb ischemia in this all-comers registry, the median number of system passes was 2.5 (N = 56), while the average Pounce thrombectomy use time was 20.3 minutes. There were no reports of device-related distal embolization.†

For additional PROWL results, scan the QR code

Visualization

Good fluoroscopic visibility was another specification for the Pounce Platform at the concept stage and remains a notable feature. In addition to the radiopaque spring-coil tip on the basket wire, the baskets themselves are dotted with radiopaque markers. This allows operators to visualize the longitudinal span and wall apposition of the baskets as they move through the vessel. The funnel catheter has a marker at the distal tip, and the deployed funnel component is also radiopaque for confirmation and clarity of funnel placement.

Clot Removal Throughout the Lower and Upper Extremities

Since the 2021 introduction of the Pounce Thrombectomy System, intended for use in 3.5–6 mm peripheral arteries, Surmodics has expanded the vessel diameter range for the Pounce Platform with the addition of the Pounce LP (Low–Profile) and Pounce XL Thrombectomy Systems, intended for 2–4 mm and 5.5–10 mm peripheral arteries, respectively. These progressive product iterations fulfill our intention of providing a standalone solution for rapid removal of peripheral arterial thrombi and emboli throughout the lower and upper extremities. Notably, the Pounce LP System provides a solution for rapid removal of emboli and thrombi in distal tibial arteries, long a major concern for interventionalists,[5] or in like-sized peripheral arterial vessels.

The growing use of the Pounce Platform, as well as data emerging from the PROWL registry, suggest we were on the right track in 2008. In the aforementioned interim analysis,[4] 79.7% of patients received no additional clot removal treatment of the target lesion after Pounce Platform use; device-related adverse events were limited to one flow-limiting dissection.‡ Four in 10 (40.5%) PROWL patients had experienced symptoms for >14 days, suggesting a complex population with a wide range of clot chronicity. Of the clots removed, 73.6% were thrombotic and 24.4% were embolic. As of today, the registry continues to enroll patients in centers across the US.

The original goals for the Pounce Platform were driven by clinical need and realized through diligent engineering. The result is a groundbreaking solution for flow restoration in ALI—one that seamlessly integrates into physician workflows, prioritizes user-friendliness, and offers a cost-effective approach to treatment. In today's overburdened health care landscape, inundated with novel devices, we believe these attributes are critical for driving meaningful improvements in patient care.

The Pounce Thrombectomy Platform—Key Takeaways

- Rapidly removes acute or chronic peripheral arterial clot—20.3 minutes average use time in PROWL[4]
- No capital equipment or thrombolytics required
- Uses no aspiration for clot removal, minimizing blood loss
- Associated with low risk of distal embolization[4†]
- Atraumatic—low risk of flow-limiting dissection[4‡]
- Compatible with 035 PTA balloon catheters for clot disruption and conventional ≥7 Fr access sheaths

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*Then called the Ansel Trumpet Device.

†Distal embolization requiring surgical procedure or obstructing one of the major downstream vessels >70% (at the end of the procedure).

‡Device-related adverse events tracked in the registry were flow-limiting dissection, distal embolization, perforations, or major bleeding (requiring transfusion).