

# Peel-Away Sheath Introducer



A **peel-away sheath introducer** is a **flexible medical device** used primarily in **vascular access procedures**. It consists of a thin-walled plastic tube (the **sheath**) and an internal dilator that allows the sheath to be introduced into a vessel or body cavity. Once access is achieved, the sheath enables the introduction of catheters, pacemaker leads, or other devices.

What makes it unique is its **“peel-away” capability**: After insertion, the sheath can be **split longitudinally and removed** without displacing the indwelling catheter or device. This is done by pulling apart the two pre-scored halves of the sheath using small side wings or tabs.

## Typical Uses

- Central venous catheter placement
- Peritoneal dialysis catheter introduction
- Temporary pacing wire insertion
- Electrophysiology procedures

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A **ventriculoatrial shunt** (VAS) proves to be an excellent **alternative** in the **hydrocephalus treatment**. Its usage is a viable **option** when **ventriculoperitoneal shunt** (VPS) is contraindicated in any age of patients.

A report highlights a successful case involving a 6-month-old patient who underwent VAS catheter positioning. The child presented with hydrocephalus and biliary atresia, making him a candidate for a liver transplant. Notably, a VPS was considered a relative contraindication in this scenario.

The VAS emerges as a viable option for patients in whom a VPS might be contraindicated. This case demonstrates the successful application of a VAS in a pediatric patient <sup>1)</sup>.

## Not Designed For

- Brain surgery
- Structural tissue retraction
- Intracranial trajectory control

## Synonyms

- Splittable introducer sheath
- Tear-away sheath
- Disposable vascular sheath

## Reference Example

Common sizes: 7F to 24F  
Materials: Medical-grade polyurethane or PTFE  
Sterile, single-use  
Often included in vascular access kits

## Technical note and retrospective case series

In a technical note and retrospective case series Siomin et al. <sup>2)</sup> propose a low-cost, minimally invasive technique for resecting deep-seated brain lesions using a 19F peel-away sheath introducer and so-called “dynamic” retraction.

### □ Conceptual Weaknesses

#### • Improvised Device Misuse:

The 19F peel-away sheath is a vascular introducer, not a neurosurgical retractor. Its intraaxial use is **unsafe and non-validated**, and its deployment in delicate brain regions borders on reckless.

#### • “Dynamic Retraction” = Euphemism:

This term conceals the absence of trajectory control or stable visualization. Manual dynamic retraction lacks the biomechanical integrity of dedicated MIS systems, increasing the risk of cortical and subcortical injury.

### □ Methodological Flaws

#### • Small, Heterogeneous Cohort:

Combining diverse pathologies (GBM, metastases, cysts) in one case series prevents any meaningful extrapolation. The sample is too small to reach safety or efficacy conclusions.

- **No Objective Outcomes:**

Gross total resection is claimed without imaging confirmation protocols. Functional outcomes are anecdotal. No mention of validated scales (e.g., mRS, KPS, RANO).

- **No Comparator Arm:**

Without parallel use of standard tubular retractors or image-guided MIS systems, claims of equivalence or superiority are speculative at best.

- **No Real Cost Analysis:**

“Cost-effective” is asserted without breakdowns of device pricing, hospital stay, complication management, or reinterventions.

## □ Academic Theater

- **Performative Minimalism:**

The procedure is labeled “minimally invasive,” yet lacks essential MIS elements: rigid tubular control, navigated access, and standardized closure techniques.

- **Marketing Disguised as Science:**

The article has the tone of a promotional piece rather than an objective technical report. It risks encouraging **substandard neurosurgery** in low-resource settings.

## □ Final Judgment

This publication represents a **dangerous oversimplification** of MIS principles. Far from offering a viable alternative, it **undermines surgical safety** in favor of expediency. The technique should **not be adopted without rigorous validation** and biomechanical studies.

## Recommendation

'Do not recommend for clinical adoption.'

'Further research required with ethical oversight, controls, and functional imaging.'

<sup>1)</sup>

Isaza JPL, Vallejo S, Aristizabal JH, Rosales-Camargo SA, Perilla-Estrada JP, Rueda DQ. The “[peel-away technique](#)” for a [ventriculoatrial shunt](#) in a 6-month-old patient: A case report. Surg Neurol Int. 2024 Jan 19;15:16. doi: 10.25259/SNI\_724\_2023. PMID: 38344081; PMCID: PMC10858777.

<sup>2)</sup>

Siomin E, McDermott M, Castaldi A, Siomin V. Minimally Invasive and Cost-Effective Access to Deep-Seated Intracranial Lesions Using 19F Peel-Away Sheath Introducer and “Dynamic” Retraction: Technical Note and a Case Series. Oper Neurosurg (Hagerstown). 2024 Nov 4;29(1):118-124. doi: 10.1227/ons.0000000000001403. PMID: 40522350.

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