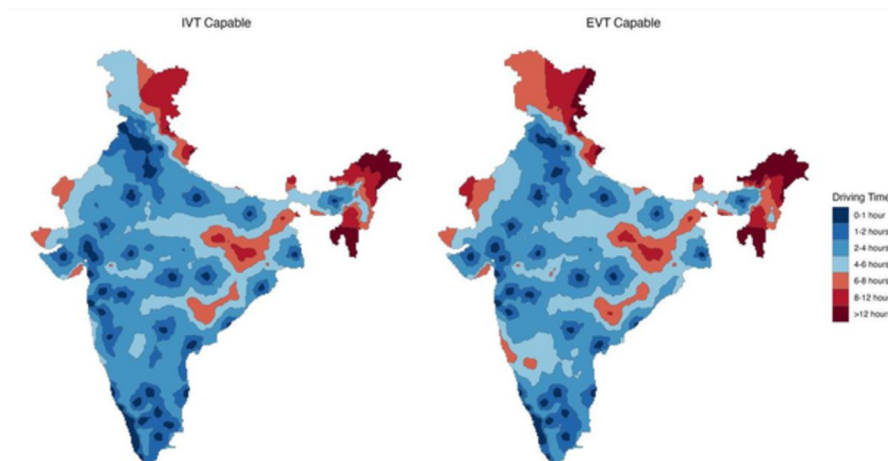


EDITORIAL

THE PROMISE AND PERIL OF A REVOLUTION: MECHANICAL THROMBECTOMY FOR STROKE IN INDIA



For decades, acute ischemic stroke, a devastating "brain attack," left a trail of death and disability in its wake. The advent of intravenous thrombolysis offered a glimmer of hope, but its narrow time window and limitations in large vessel occlusions (LVO) left a significant treatment gap. The last 12 years, however, have witnessed a seismic shift in stroke care, a revolution heralded by a series of landmark mechanical thrombectomy (MT) trials. For a nation like India, which bears a disproportionately high burden of stroke, these advancements are not just academically interesting; they represent a critical, albeit challenging, path forward.

The revolution began with a cascade of positive trials in 2015 – MR CLEAN, ESCAPE, SWIFT PRIME, EXTEND-IA, and REVASCAT. These studies unequivocally demonstrated the overwhelming benefit of endovascular thrombectomy, the mechanical removal of a clot from a brain artery, for LVO strokes within a 6-hour window.

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STROKE IN INDIA

The effect was so profound that it became one of the most powerful treatments in all of medicine, with a number needed to treat (NNT) for reduced disability of just 2.6. This initial wave established MT as the standard of care for early-presenting LVO stroke.

However, the story did not end there. For late-arriving patients—a common scenario in a vast country like India—the DAWN and DEFUSE 3 trials were a game-changer. Using advanced imaging to identify salvageable brain tissue, they extended the treatment window up to 24 hours. More recently, trials like SELECT2 and TESLA showed that even patients with large established strokes can benefit, further expanding eligibility.

These advances are profoundly relevant for India, with 1.8 million new strokes annually. The extended time window and large core trials offer hope, especially given common delays in patients reaching hospitals. However, this promise is tempered by a harsh reality on the ground. The availability of MT is largely confined to a few metropolitan centers due to deep systemic challenges:

1. **Infrastructure & Manpower:** A critical lack of "stroke-ready" hospitals and trained interventional specialists.
2. **Economic Barriers:** Prohibitive costs for a population with high out-of-pocket health expenditure.
3. **Awareness & Logistics:** Poor public recognition of stroke symptoms and an underdeveloped "hub-and-spoke" system for patient transfers.

The Way Forward: From Trial to Transformation
Translating trial success into nationwide benefit requires a concerted, multi-pronged effort. This includes a national stroke program to bolster infrastructure, scaled-up specialist training, cost-effective device manufacturing, and massive public awareness campaigns to drive home the message that "time is brain." The science is clear; the challenge for India is implementation. The journey from trial data to transformation is an arduous one, but it is a journey that must be undertaken with urgency.

MANISHA JOSHI

THE ACCESS CRISIS:
MECHANICAL THROMBECTOMY, A LIFE-SAVING TREATMENT FOR SEVERE STROKES, IS SEVERELY LIMITED IN INDIA, WITH MOST PROCEDURES AVAILABLE ONLY IN A FEW URBAN CENTERS, CREATING A SIGNIFICANT TREATMENT GAP FOR THE MAJORITY OF THE POPULATION.

THREE MAIN BARRIERS HINDER WIDESPREAD ADOPTION:

- LACK OF "STROKE-READY" HOSPITALS AND TRAINED SPECIALISTS
- HIGH PROCEDURE COSTS FOR FAMILIES
- POOR PUBLIC AWARENESS OF STROKE SYMPTOMS, CAUSING DELAYS IN TREATMENT.

TO OVERCOME CHALLENGES, A UNIFIED NATIONAL STRATEGY IS NEEDED THAT FOCUSES ON:

- BUILDING HEALTHCARE INFRASTRUCTURE VIA A NATIONAL STROKE PROGRAM
- RAPIDLY SCALING SPECIALIST TRAINING
- MAKING TREATMENT AFFORDABLE
- LAUNCHING PUBLIC AWARENESS CAMPAIGNS FOR TIMELY PATIENT TREATMENT

INVITED ARTICLE

OPTIMISING IMAGING IN STROKE

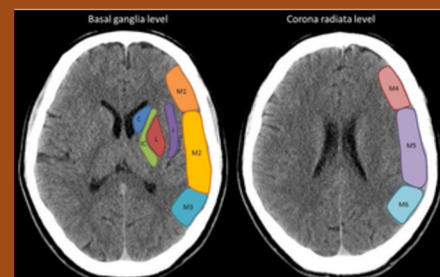
Traditionally, stroke imaging has been minimalistic in its approach. A few decades back, most places considered a plain CT scan of the brain sufficient for the workup of acute stroke. It helped differentiate ischaemic stroke from hemorrhagic type because of its high sensitivity in the detection of acute bleeds. Following the latest endovascular trials from 2015, a plain CT scan was no longer sufficient for the evidence-based management of acute ischaemic stroke. Vascular imaging had to supplement plain scan for the detection of large vessel occlusion. A CT angiogram of the head and neck, covering from the arch to the vertex, was incorporated as the minimum imaging standard for comprehensive stroke centers providing mechanical thrombectomy. This involved the addition of a contrast study to the plain scan given by the IV injector. Guidelines suggested that routine checking of renal function was no longer necessary before the acute stroke workup in the emergency room. Nowadays, modern iterations of the CT angiogram include additional phases to look at collateral circulation in patients with large vessel occlusion. Multiphasic CTA is now the standard of care in the evaluation of stroke patients in the ER.

MRI-capable centers can also have fast stroke protocols, which can be completed in 10–15 minutes. MRI is more sensitive for the detection of even minor strokes and in patients presenting with giddiness, since evaluation of the brainstem is suboptimal on CT. MRI can be used to extend intravenous thrombolysis (clot-buster injection) even in patients presenting beyond the traditional window period of 3–4.5 hours.

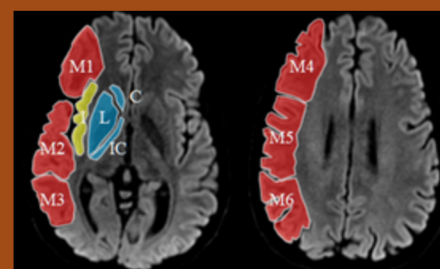
Advancements in imaging have made it possible to evaluate patients with unknown time of stroke onset, as well as those waking up with stroke symptoms (wake-up stroke). Tissue window using imaging has replaced the traditional time window-based nature of hyperacute stroke treatment. Advanced imaging can

DR. SHRIRAM V

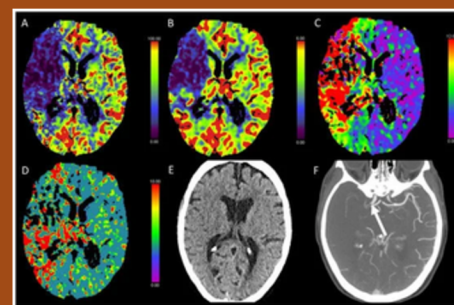
KAVERI, CHENNAI



A FEW DECADES BACK, MOST PLACES CONSIDERED A PLAIN CT SCAN OF THE BRAIN SUFFICIENT FOR THE WORKUP OF ACUTE STROKE



MRI IS MORE SENSITIVE FOR THE DETECTION OF EVEN MINOR STROKES



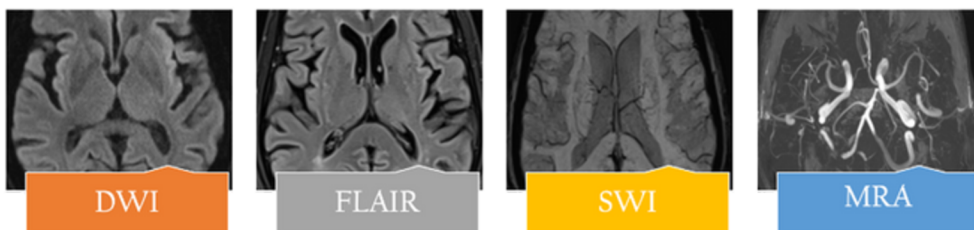
ADVANCED IMAGING CAN LIKE PERFUSION SCANS CLEARLY DEMARCAT THE SALVAGABLE BRAIN TISSUE, PENUMBRA

INVITED ARTICLE

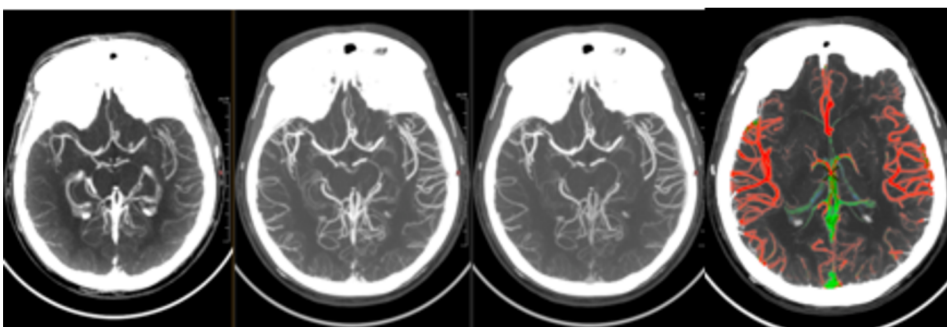
OPTIMISING IMAGING IN STROKE CONT...

determine the salvageability of brain parenchyma, referred to as the penumbra, and help differentiate it from the permanently damaged brain, known as the core. These methods utilize perfusion-based techniques for identifying and selecting patients for revascularization, with those having a small core and a large penumbra being ideal candidates for intervention therapies. MRI-based non-contrast perfusion studies, using a technique called arterial spin labeling, are now available across multiple vendors for stroke patients. Many vendor-neutral software are available for quick processing of stroke imaging with AI-based detection of bleeds, large vessel occlusion, and penumbral estimates using perfusion.

Thus, stroke imaging has undergone a significant transformation over the last few decades and is the cornerstone of any acute stroke program for triaging and patient selection for acute stroke interventions, as well as for aetiology, pathogenesis, and prognostication. Advanced Stroke centers have all the above-discussed modern imaging modalities and capabilities to provide comprehensive care to the patients.



MRI FAST STROKE PROTOCOL



MULTIPHASIC CTA

DR. SHRIRAM V

KAVERI CHENNAI

CT IS NO LONGER CONSIDERED SUFFICIENT FOR MODERN STROKE MANAGEMENT.

THE NEW STANDARD IS CTA: CT ANGIOGRAPHY (CTA) HAS BECOME THE MINIMUM STANDARD FOR DETECTING LARGE VESSEL OCCLUSIONS. TODAY, MULTIPHASIC CTA IS THE STANDARD OF CARE, AS IT ALSO ALLOWS FOR THE EVALUATION OF COLLATERAL BLOOD FLOW.

THE FOCUS OF TREATMENT HAS SHIFTED FROM A RIGID "TIME WINDOW" TO AN IMAGING-BASED "TISSUE WINDOW"⁵. THIS ALLOWS FOR THE EVALUATION OF PATIENTS WITH AN UNKNOWN TIME OF ONSET, SUCH AS THOSE WHO EXPERIENCE A "WAKE-UP STROKE".

ADVANCED IMAGING DIFFERENTIATES THE PERMANENTLY DAMAGED BRAIN (THE CORE) FROM THE SALVAGEABLE TISSUE (THE PENUMBRA).

OPTIMIZING PATIENT SELECTION: PERFUSION-BASED TECHNIQUES ARE USED TO IDENTIFY THE BEST CANDIDATES FOR INTERVENTION—SPECIFICALLY, PATIENTS WITH A SMALL CORE AND A LARGE PENUMBRA.

AI-POWERED SOFTWARE ACCELERATES THE PROCESSING OF STROKE IMAGING TO QUICKLY DETECT BLEEDS, OCCLUSIONS, AND PENUMBRA ESTIMATES. ADDITIONALLY, NON-CONTRAST MRI PERFUSION STUDIES ARE NOW AVAILABLE TO ASSIST IN PATIENT EVALUATION.

THE DOUBLE STENT RETRIEVER TECHNIQUE: FROM RESCUE TO FIRST LINE FOR MECHANICAL THROMBECTOMY

Acute ischemic stroke (AIS) due to large vessel occlusion (LVO) is a leading cause of disability and mortality. For decades, treatment options were limited, but the advent of mechanical thrombectomy has fundamentally transformed the prognosis for a significant portion of these patients. Large-scale randomized trials have firmly established MT as the standard of care, proving its efficacy over intravenous thrombolysis alone and extending the treatment window for eligible patients up to 24 hours from the last known well time. This paradigm shift is driven by the principle of rapid and complete revascularization, which is directly correlated with improved clinical outcomes and reduced long-term disability.

Despite the high overall success rates, which see recanalization achieved in 85% to 90% of cases, conventional mechanical thrombectomy with a single device or a combination of suction and stent retriever is not without its limitations. A considerable number of procedures require multiple passes to successfully remove the clot, particularly when the occlusion involves the bifurcation of a large vessel, like the Internal carotid artery (ICA), the Basilar artery (BA), or the middle cerebral artery (MCA) in a "saddle" fashion, or if the clot is fibrin-rich. This can prolong procedural times, elevate the risk of complications such as intimal injury or distal clot fragmentation, and ultimately lead to a worse functional outcome for the patient. The concept of the "first-pass effect" (FPE)—defined as complete recanalization in a single pass—has gained paramount importance as a key indicator of procedural efficiency and a strong predictor of superior clinical outcomes. However, the FPE rate with current conventional devices is suboptimal, ranging from 30% to 60%, indicating substantial room for improvement.

This procedural gap has spurred the exploration of new techniques and devices designed to enhance the efficacy of clot retrieval. The double stent retriever (DSR) technique, which involves the simultaneous deployment and retrieval of two stent retrievers (SR), has emerged as a direct response to these challenges. It was designed to overcome the limitations of single-device approaches, particularly for complex clot anatomies or compositions that are known to be resistant to conventional methods.

Acute ischemic stroke from a large vessel occlusion (LVO) is a primary cause of death and disability. The standard of care is mechanical thrombectomy (MT), a procedure to physically remove the clot, which has transformed patient prognosis.

While generally successful, standard single-device thrombectomy often requires multiple attempts to remove a clot, especially with complex occlusions (e.g., at vessel bifurcations) or with firm, fibrin-rich clots. These delays can lead to worse outcomes for the patient.

Achieving complete recanalization in a single attempt, known as the "first-pass effect," is a strong predictor of better clinical results. However, conventional techniques only achieve this in 30% to 60% of cases, highlighting a need for improvement.

The double stent retriever (DSR) technique was developed to address these limitations. It involves deploying and retrieving two stent retrievers simultaneously to improve clot removal efficiency.

The Procedural Rationale: A Biomechanical Approach to Thrombectomy:

The fundamental principle behind the DSR technique is to improve the mechanical interaction between the device and the clot. While a conventional stent retriever works by entangling the thrombus within its struts and pulling it out of the vessel, this can be ineffective with large, firm, or long clots.

The DSR technique addresses these shortcomings by employing two self-expanding stent retrievers concurrently. This involves the parallel deployment of both devices side by side into the clot, either in a Bifurcation Y configuration or in a parallel fashion, followed by their retrieval as a single unit. There are various mechanisms by which the DSR technique enhances clot retrieval efficiency.

1. The surface area for interaction between the SR and the clot is increased by adding a second SR, creating a wider "fishing net" effect that lowers the risk of clot fragmentation during removal.
2. While single SRs drag Fibrin clots in a rolling manner, there is a "pincer effect" that traps the clot between the two SRs in DSR technique.
3. In bifurcation occlusions, the DSR works in two ways - Firstly, in an MCA bifurcation occlusion, where the distal clot location is uncertain, targeting two different branches increases the chances that the SR will fully cover the thrombus. Secondly, in an ICA T occlusion, the second SR in the ACA prevents embolisation of a clot fragment into the ACA branches due to its "Filter effect" during retrieval.
4. In a long clot spanning two or more orders of vessels, like the ICA and MCA together, where a single SR is disadvantaged by its length, the addition of a second overlapping SR in "series" can result in effective integration of the whole length of the clot, thereby enhancing its retrieval in toto.

The DSR strategy can be accomplished in more than one way. The following are some examples:

1. Directly through a Balloon guide catheter (BGC), two parallel 0.027"/ 0.021" microcatheters can be placed in a Y bifurcation fashion into the branches or parallel into the same branch if the other branch cannot be cannulated.
2. Through a long guide sheath/BGC suction catheter (>0.070" ID), which accommodates two 0.021" microcatheters in series/ parallel/ Y configuration.

The stents are then deployed, either simultaneously or sequentially, before both devices are retrieved as a single unit, typically under continuous aspiration.

The DSR technique enhances thrombectomy by:

1. Creating a wider "fishing net" to better capture the clot and reduce fragmentation.
2. Producing a "pincer effect" that traps the clot between the two devices.
3. Acting as a "filter" in certain situations to prevent clot pieces from traveling to other arteries.

When standard single-stent methods fail, DSR has proven to be a highly effective rescue option. In these difficult cases, it achieves successful recanalization over 92% of the time.

The TWIN2WIN clinical trial, which was stopped early due to clear positive results, showed DSR's superiority as a first-line approach. It nearly doubled the rate of first-pass complete recanalization compared to the single-device method (47% vs. 24%).

An alternative, less common approach is the "crossing" technique, where one stent is deployed through the mesh of a previously deployed stent. This method is associated with a greater risk of shear stress and potential endothelial damage; therefore, it is used with greater caution.

Technical aspects:

The procedural evolution of mechanical thrombectomy is deeply intertwined with the continuous refinement of device technology. The quest to achieve higher FPE rates is fundamentally a problem of optimizing the "device-clot-vessel interaction". The DSR technique is a mechanical solution to this challenge, using a dual-device approach to improve clot engagement and retrieval. It underscores a broader understanding within the neurointerventional community: the ideal thrombectomy device or technique is not a one-size-fits-all solution. Instead, the future of treatment is moving toward a precision-based approach where procedural strategy and device selection are tailored to specific clot characteristics and vascular anatomy.

Clinical Evidence and Efficacy Outcomes:

DSR as a Rescue Strategy:

Early systematic reviews and meta-analyses provide a clear picture of the DSR technique's efficacy when used as a bailout option after conventional methods have failed. Pooled data suggest that in cases refractory to single-device thrombectomy, DSR is highly successful in achieving recanalization. In a systematic review and meta-analysis of 128 patients, DSR was used as a rescue strategy in 68.7% of cases, predominantly for anterior circulation occlusions. The results demonstrated that the technique achieved a very high rate of overall final successful recanalization (modified TICI $\geq 2b$) in 92.6% of cases. Furthermore, the FPE rate was reported to be 76.6%, which is substantially higher than the FPE rates observed in the general population of MT patients treated with conventional devices.

Comparing First-Line DSR vs. Single Stent Retriever:

While the efficacy of DSR as a rescue technique is well-documented, its use as a primary, first-line strategy has only recently been evaluated in a randomized setting. The TWIN2WIN trial (NCT05632458) was a randomized, multicenter study designed to assess the safety and efficacy of first-line DSR compared to a single-device approach in patients with LVO stroke. The trial was stopped early by the data safety monitoring board after a preplanned interim analysis, as the DSR group had reached a predefined efficacy boundary.

Despite using two devices, the DSR technique's safety is comparable to conventional methods. Studies and trials found no statistically significant increase in major complications like symptomatic intracranial hemorrhage or vessel dissection.

The development of DSR reflects a shift in stroke treatment towards a more tailored approach. The choice of technique is increasingly based on the specific characteristics of the clot and the patient's vascular anatomy rather than a one-size-fits-all solution.

By improving mechanical engagement with the thrombus, the DSR technique represents a significant advancement in treating acute ischemic stroke. It leads to faster and more complete recanalization, especially for challenging clots.

The results of the interim analysis are particularly compelling. First-pass complete recanalization (defined as eTICI grade 2c-3) was achieved in 47% of patients in the DSR group compared to only 24% in the single-SR group. This represents a statistically significant difference, with an adjusted odds ratio of 2.72 ($P = 0.02$) in favor of the DSR technique. The DSR technique also resulted in a lower mean number of passes (1.7 ± 1) compared to the single-SR group (2 ± 1.3), although this difference did not reach statistical significance ($P = 0.09$). While DSR demonstrated a clear superiority in achieving FPE, there was no significant difference between the two groups in terms of final successful recanalization (eTICI $\geq 2b-3$) within three attempts (89% vs. 84%, respectively).

Safety Profile and Risk

A primary concern with the use of the dual stent retriever technique is the potential for an increased risk of complications due to the greater number of devices and the potential for vessel injury and symptomatic intracranial hemorrhage. The current body of evidence suggests that the DSR technique maintains a safety profile comparable to conventional single-stent methods. In the TWIN2WIN trial, the rate of symptomatic intracranial hemorrhage occurred in 10% of patients in the DSR group compared to 6% in the single-SR group. While this represents a higher incidence, the difference was not statistically significant. Other procedural complications were also not significantly different, with a rate of 9% in the DSR group versus 6% in the single-SR group. Furthermore, a systematic review and meta-analysis reported very low complication rates, with 0.37% for dissection and 1.56% for subarachnoid hemorrhage, which are consistent with rates seen in the broader literature on mechanical thrombectomy. While the theoretical risk of vessel injury, such as endothelial damage or dissection, is a valid concern with the presence of two devices, the limited available literature suggests the technique is well-tolerated with a comparable risk profile.

Conclusion: DSR's Place in the Thrombectomy Armamentarium:

The dual stent retriever technique represents a significant advancement in the quest for faster, more complete, and safer recanalization in acute ischemic stroke. By leveraging a dual-device approach, it enhances the mechanical engagement of the thrombus, achieving superior first-pass recanalization rates, particularly in complex clot anatomies, such as those found at arterial bifurcations and in resistant clots that are fibrin-rich.

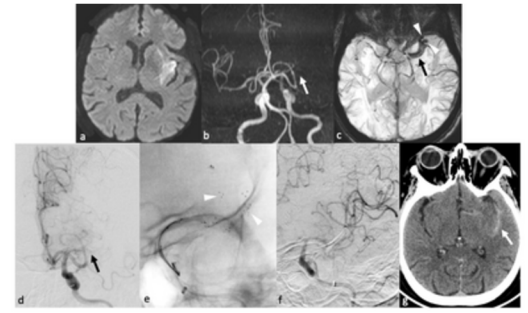


Figure 1. Double stent retriever (DSR) technique for occlusion of middle cerebral artery (MCA) bifurcation. A 74-year-old lady who presented with right sided weakness and aphasia for three hours. (a) Diffusion weighted imaging showed acute infarcts in left MCA territory. (b) Time of flight imaging showed occlusion of left MCA (arrow). (c) Susceptibility weighted imaging showed blooming in the M1 segment of left MCA (arrow) with extension into both its divisions (arrowheads). (d) Left internal carotid artery angiogram confirmed occlusion of left MCA (arrow). Following failed recanalization after using Solitaire technique with single SR, Double SR technique was used as rescue. (e) Fluoroscopic image showing two SRs deployed in the two divisions of left MCA (arrowheads). (f) Angiogram after thrombectomy with multiple SR technique showed mTICI 2b recanalization. (g) Computed tomography performed after 24 hours showed thin subarachnoid hemorrhage in left Sylvian fissure (arrow) with no new infarcts or reperfusion hemorrhage. Patient had a good functional outcome with modified Rankin scale score of 0 at 90 days.

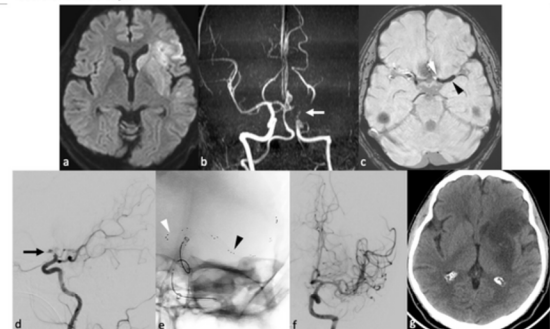


Figure 2. Double stent retriever (DSR) technique for occlusion of internal carotid artery (ICA) bifurcation. A 39-year-old man with right-sided weakness and aphasia for 2 hours. (a) Diffusion weighted imaging showed acute infarcts in left middle cerebral artery (MCA) territory. (b) Time of flight imaging showed occlusion of left terminal ICA (arrow). (c) Susceptibility weighted imaging showed blooming in the terminal ICA extending into the M1 segment of left MCA (black arrowhead) and A1 segment of left anterior cerebral artery (ACA) (white arrowhead). (d) Left ICA angiogram confirmed occlusion of left terminal ICA (arrow). Double SR technique was used for the first pass. (e) Fluoroscopic image showing two SRs deployed in the left MCA and ACA (arrowheads). (f) Post-thrombectomy angiogram showed mTICI 3 recanalization. (g) Computed tomography performed after 24 hours showed no new infarcts or reperfusion hemorrhage. Patient had modified Rankin scale score of 5 at 90 days due to underlying severe congestive heart failure.

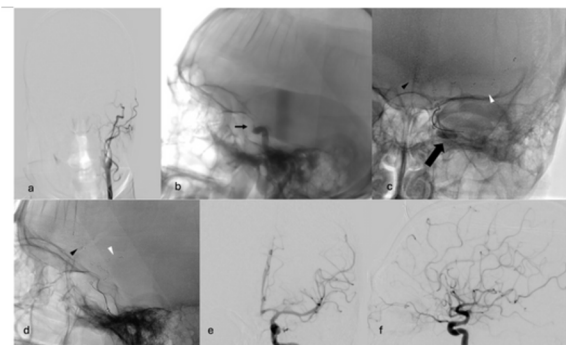


Figure 3: Double stent retriever (DSR) technique for large volume clot causing ICA "T" occlusion. A 58-year-old man, recent pacemaker insertion, with in hospital stroke of 30 min duration, right hemiplegia and aphasia. (a) Left CCA angiogram shows Left ICA pseudo-occlusion with stasis. (b) Angiogram from BGC in the petrous ICA shows bulky clot occluding the cavernous ICA and beyond (arrow) (c) and (d) Double SRs in left MCA (white arrowhead) and left ACA (black arrowhead) and BGC inflated in petrous ICA (thick arrow). (e) and (f) TICI 3 reperfusion after first pass.

References:

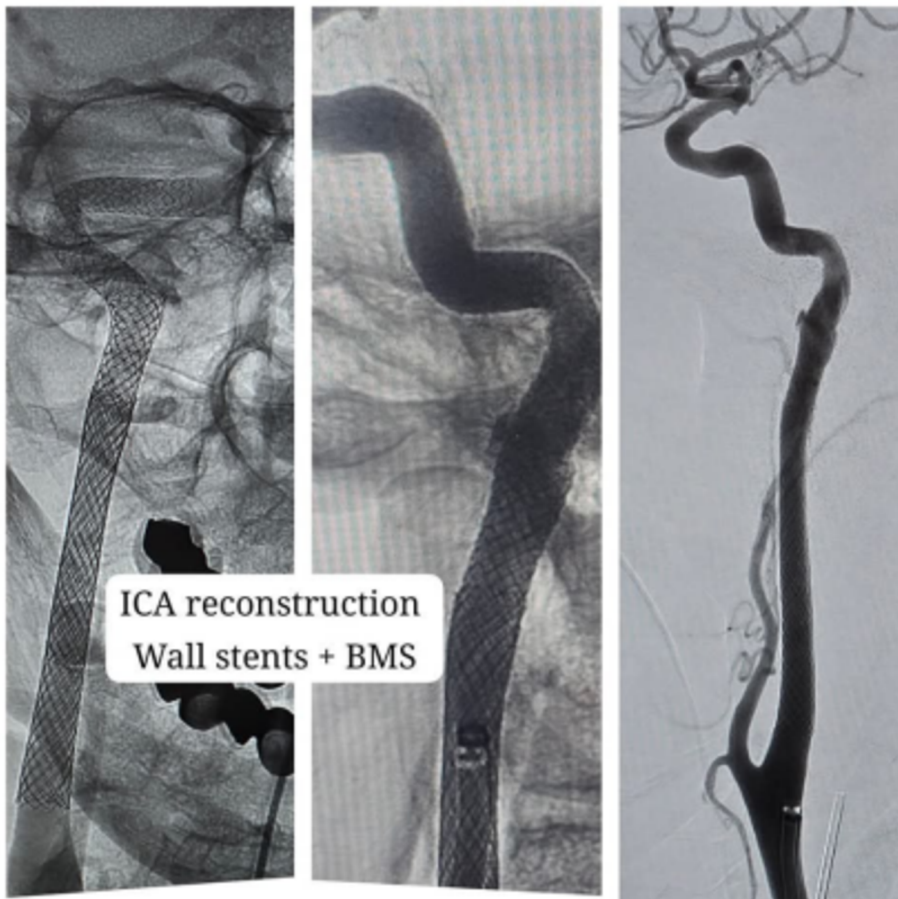
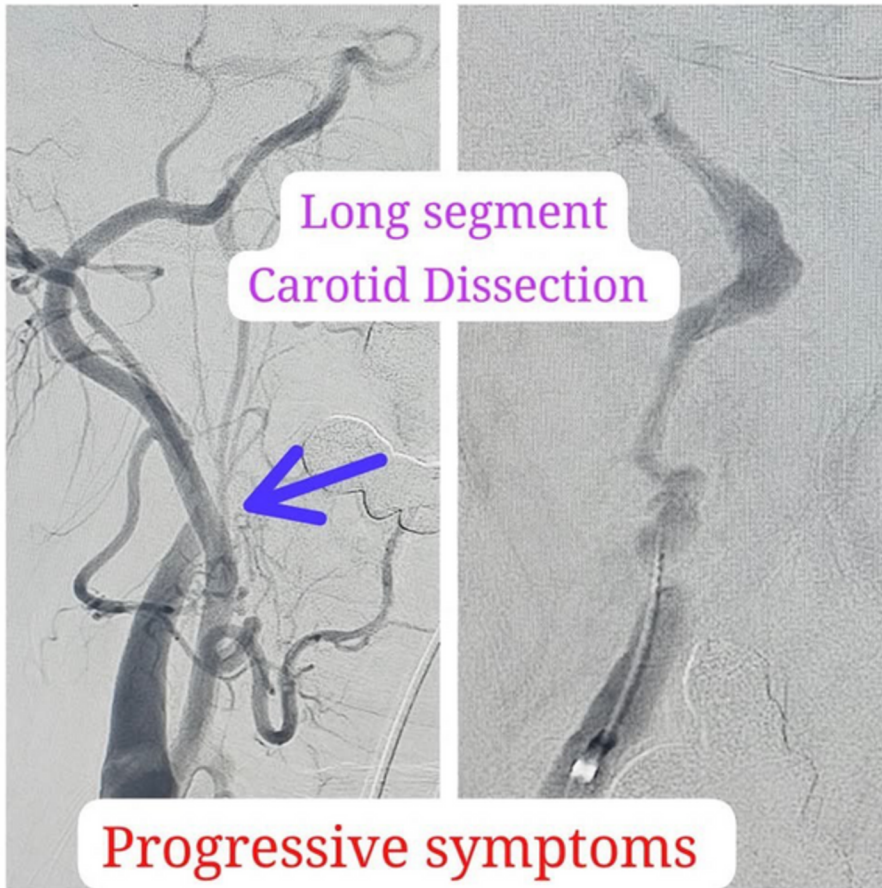
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- Tomasello, Alejandro, et al. 'Randomized Study Comparing First-Line Dual Versus Single-Stent Retriever Technique: TWIN2WIN'. *Stroke*, vol. 56, no. 2, Feb. 2025, pp. 326-34. DOI.org (Crossref), <https://doi.org/10.1161/STROKEAHA.124.048496>.

CASE REPORT-1

STENTING IN CAROTID DISSECTION WITH STROKE

DR SARATH K GG

St. Johns medical college
Bengaluru



COMPLETE
RECONSTRUCTION OF A
LONG SEGMENT
DISSECTED CAROTID
ARTERY BY STENTING IN A
PATIENT WITH
PROGRESSIVE LEFT
HEMIPARESIS.
PATIENT IMPROVED
CLINICALLY WELL AND
HELD ON WITH DAPT.

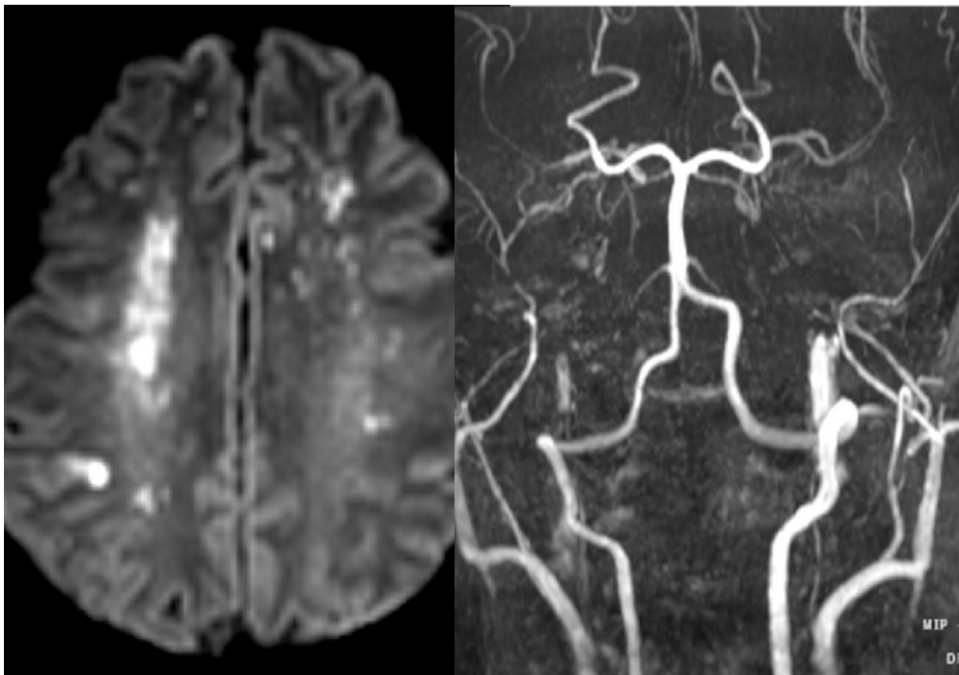
SPONTANEOUS CAROTID
ARTERY DISSECTION (SCAD) IS
A TEAR IN THE INNER LAYER OF
THE NECK'S MAIN ARTERY,
OFTEN AFFECTING YOUNGER
ADULTS WITHOUT OBVIOUS
TRAUMA. PRESENTING WITH
SUDDEN NECK OR HEAD PAIN, IT
CAN ALSO CAUSE STROKE-LIKE
SYMPTOMS OR A DROOPY
EYELID (HORNER'S SYNDROME).
THE PRIMARY DANGER IS A
STROKE, CAUSED BY A BLOOD
CLOT FORMING AT THE TEAR
AND TRAVELING TO THE BRAIN.
INITIAL MANAGEMENT FOCUSES
ON PREVENTING THIS WITH
ANTIPLATELET DRUGS OR
ANTICOAGULANTS TO HELP THE
ARTERY HEAL. IN SEVERE CASES
WHERE MEDICAL THERAPY FAILS,
ENDOVASCULAR STENTING MAY
BE REQUIRED TO REPAIR THE
VESSEL. PROMPT DIAGNOSIS IS
CRUCIAL FOR A FAVORABLE
OUTCOME AND PREVENTING
LONG-TERM DISABILITY.

CASE REPORT-2

BILATERAL SPONTANEOUS DISSECTION IN YOUNG MANAGED WITH MULTI-STENT RECONSTRUCTION

JEYASEELAN N

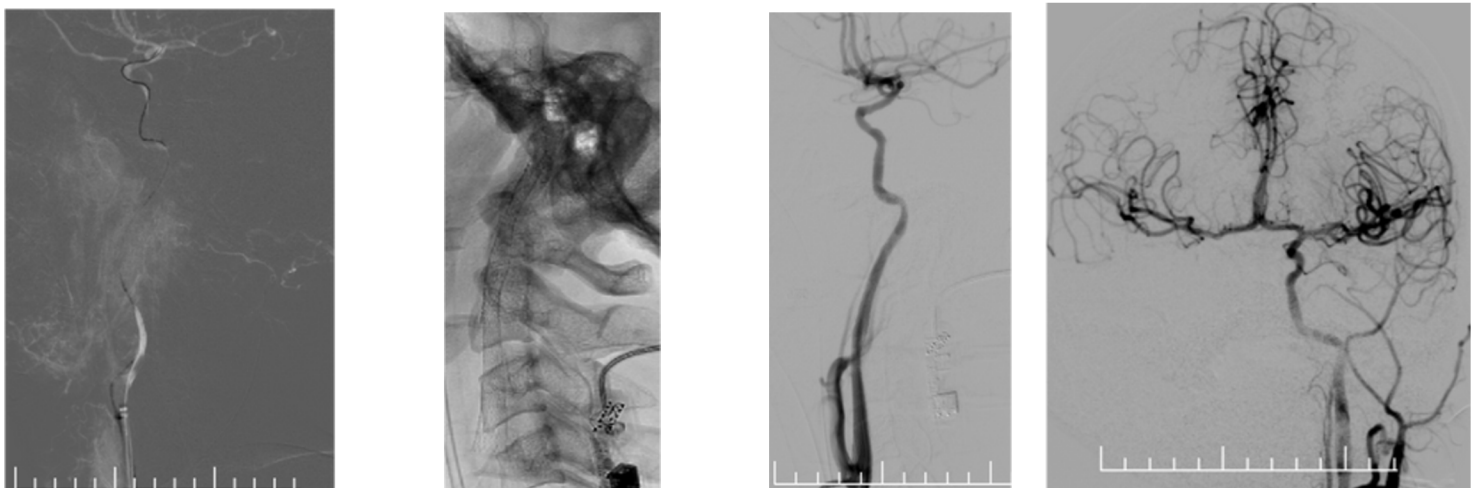
MOSC Medical College hospital,
Ernakulam, kerala, India



Bilateral hemodynamic infarct with occluded ICA's



bilateral ICA occlusion with inadequate PCOM



Rt. carotid reconstructed with coronary stents distally and carotid stents proximally

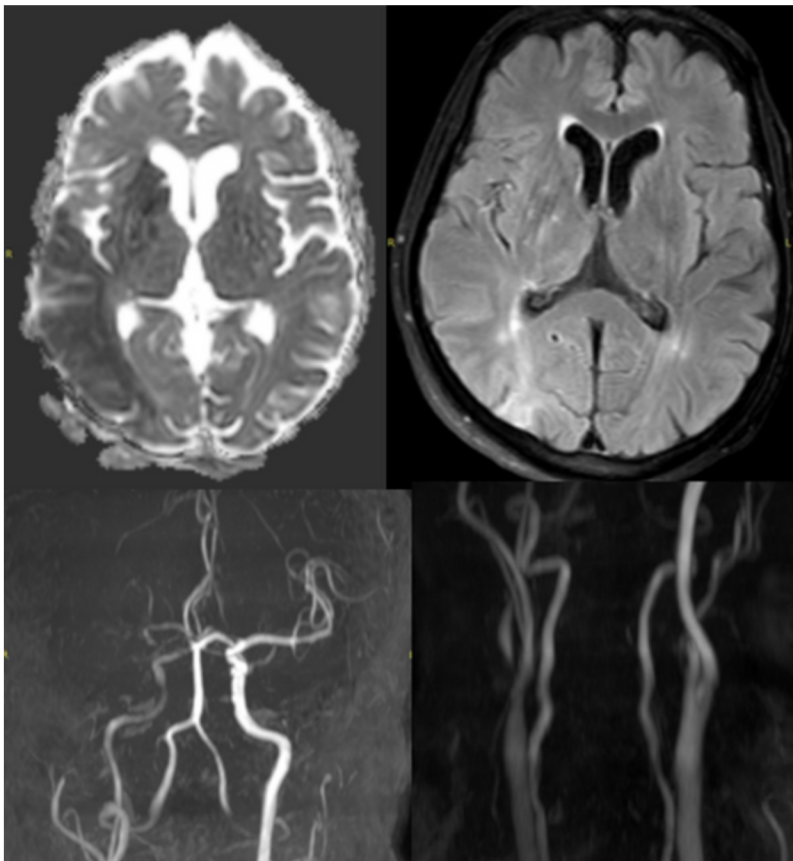
A YOUNG MALE EXPERIENCED TRANSIENT NUMBNESS, NECK PAIN, AND HEADACHE, LATER DETERIORATING TO SEIZURES AND ALTERED CONSCIOUSNESS. INITIALLY, HIS CT SCAN WAS NORMAL, BUT FURTHER INVESTIGATION REVEALED BILATERAL INTERNAL CAROTID ARTERY (ICA) DISSECTION. DUE TO POOR COLLATERAL BLOOD FLOW, HE UNDERWENT URGENT RECONSTRUCTION OF THE LEFT ICA WITH STENTS, RESTORING BLOOD FLOW AND LEADING TO GRADUAL RECOVERY, THOUGH SOME WEAKNESS REMAINED. FLAME SHAPED OCCLUSION OF THE CAROTID ARTERY IS A HALLMARK OF DISSECTION AND SHOULD NOT BE IGNORED

CASE REPORT-3

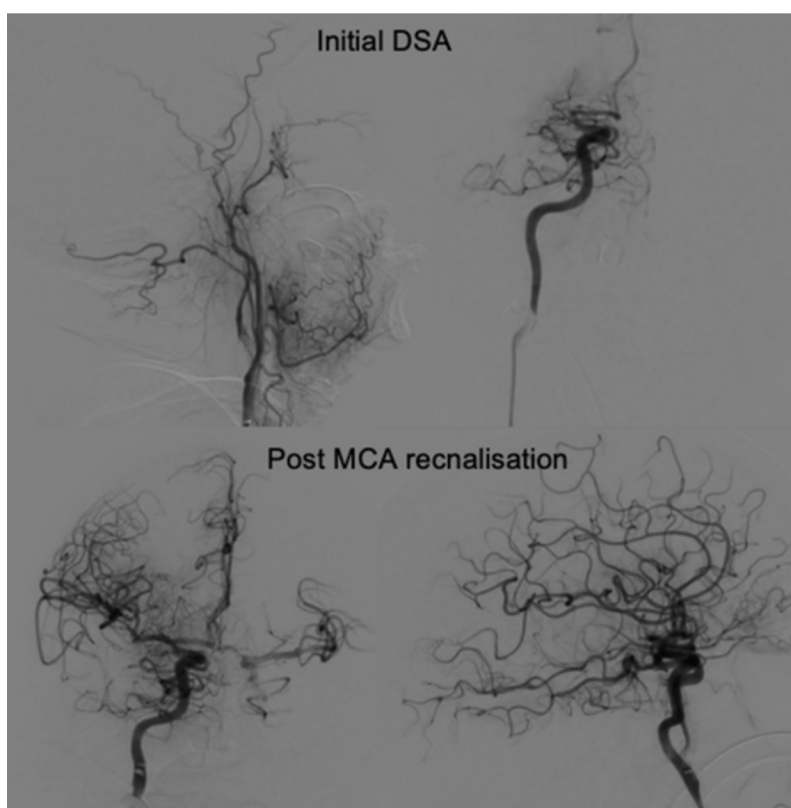
STROKE WITH FLOATING THROMBUS: USE OF UMBRELLA TO PREVENT DISTAL SHOWER

MANISHA J

RAJAGIRI HOSPITAL, KOCHI



RIGHT MCA INFARCT WITH OCCLUDED MCA AND FAINT ICA



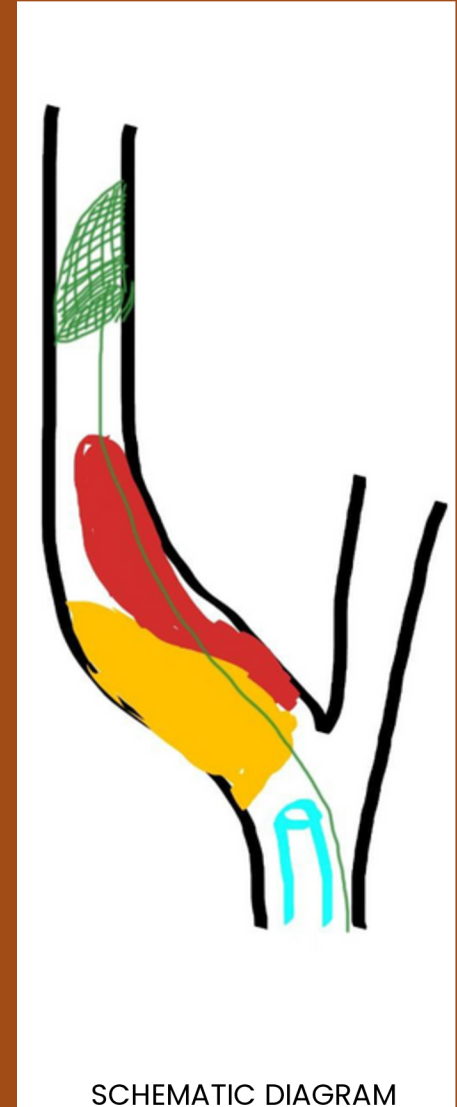
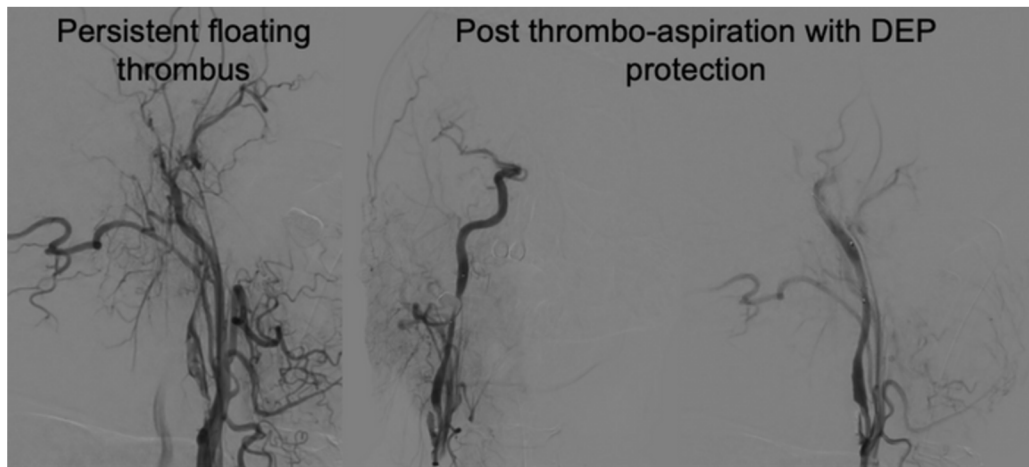
62-YEAR-OLD MALE WITH ACUTE ONSET OF LEFT HEMIPARESIS, POWER 1/5 IN BOTH UPPER AND LOWER LIMBS. MRI SHOWED RIGHT MCA TERRITORY DWI RESTRICTION, RIGHT MCA OCCLUSION, AND FAINT FLOW IN THE RIGHT ICA. DSA SHOWED SEVERE PROXIMAL RIGHT ICA STENOSIS WITH FLOATING THROMBUS AND M1 MCA OCCLUSION. BALLOON ANGIOPLASTY WAS DONE FOR ICA STENOSIS, AND THE GUIDE SHEATH WAS ADVANCED OVER THE BALLOON. THEN, MECHANICAL THROMBECTOMY WAS DONE FOR THE RIGHT MCA WITH TICI-3 RECANALISATION. PERSISTENT FLOATING THROMBUS WAS NOTED IN THE PROXIMAL RIGHT ICA. TO PREVENT FURTHER RISK OF THROMBUS MIGRATION AND STROKE, ASPIRATION THROMBECTOMY WAS DONE FOR ICA THROMBUS WITH A DISTAL EMBOLIC PROTECTION (DEP) DEVICE (SPIDER FX) PLACED DISTAL TO THE THROMBUS. LATER, THE PATIENT UNDERWENT ELECTIVE STENTING OF THE CAROTID AFTER 3 MONTHS. ON FOLLOW-UP, HE CAN WALK WITHOUT SUPPORT WITH RESIDUAL UPPER LIMB PARESIS.

CASE REPORT-3

STROKE WITH FLOATING THROMBUS: USE OF UMBRELLA TO PREVENT DISTAL SHOWER

MANISHA J

RAJAGIRI HOSPITAL, KOCHI



ALTHOUGH FILTERS ARE USUALLY UTILIZED IN ELECTIVE CAROTID STENTING, THEY CAN ALSO BE APPLIED IN RARE CASES WHERE THERE IS CAROTID STENOSIS ACCOMPANIED BY A FREE-FLOATING THROMBUS.

NEWS UPDATE

TOWARDS THE FUTURE AT ISNR 2025

The 26th Annual Conference of the Indian Society of Neuroradiology (ISNR 2025) took place from February 20th to 23rd, 2025, at the NIMHANS Convention Centre in Bangalore. The event was a major success, attracting over 700 delegates including neuroradiologists, neurologists, neurosurgeons, and trainees from India and abroad. This strong attendance highlighted ISNR's status as the leading platform for collaboration in neuroradiology.

Academic Program and Faculty

The conference boasted a distinguished faculty of over 200 speakers. This included approximately 30 international experts from renowned institutions in North America, Europe, and Asia, such as Dr. Markus Möhlenbruch, Dr. Timo Krings, and Dr. Andrea Rossi, alongside more than 170 leading national faculty members.

The scientific program was extensive, covering all subspecialties of neuroradiology like brain tumors, stroke, pediatric neuroradiology and AI applications. The sessions provided a blend of cutting-edge research and practical clinical knowledge. The main conference was preceded by hands-on workshops focused on advanced imaging and interventional techniques, offering practical training for residents and early-career radiologists.

Special Events and Highlights

Several special events enhanced the conference experience:

- * The Cortex Club: This unique meet-and-greet event facilitated networking and mentorship between the world's leading neuroradiologists and trainees in an informal setting.
- * Quizzes: Highly popular and competitive quiz sessions were held for Adult, Pediatric, and Interventional Neuroradiology, hosted by prominent international quiz masters.
- * Dr. Prashant Shetty Memorial Oration: This awaited oration was delivered by Prof. T. R. Kapilamoorthy, offering an inspiring and insightful lecture.

Honoring Founders: A special session gratefully acknowledged the senior and founding members of ISNR who laid the groundwork for neuroradiology in India. Their presence, both in-person and virtual, forged a lasting connection between the society's legacy and its current generation.

Conclusion

ISNR 2025 in Bangalore stood out for its large scale, rich scientific content, and engaging special events. The conference successfully blended international expertise with national academic strength, leaving delegates with updated knowledge and stronger professional networks. It will be remembered as a landmark edition that reinforced the society's vital role in advancing neuroradiology both in India and globally.

TEAM ISNR 2025

NIMHANS, Bengaluru



THE CORTEX CLUB



PEDIATRIC NEUROIMAGING
QUIZMASTERS



HEAD AND NECK QUIZ MASTER,
UNIVERSITY OF WISCONSIN



ADULT NEUROIMAGING QUIZ
MASTERS, UPENN AND MAYO CLINIC,
ROCHESTER

NEWS UPDATE

OPTIMISING IMAGING IN STROKE – MID TERM CME

DR. RASMIRANJAN P

GKNM, COIMBATORE



THE ISNR MIDTERM CME, ORGANIZED BY DR. RASMIRANJAN P ON JULY 11TH AND 12TH AT THE RESIDENCY HOTEL IN COIMBATORE, WAS A TREMENDOUS SUCCESS, HIGHLIGHTED BY THE PRESENCE OF THE ESTEEMED "MOON MAN OF INDIA," DR. MYLSWAMY ANNADURAI, AS THE CHIEF GUEST. THE THEME OF THIS CONFERENCE WAS "UNVEILING THE FUTURE OF STROKE CARE." DURING THE EVENT, THE CHIEF GUEST LAUNCHED A BOOK ON STROKE AIMED AT THE GENERAL PUBLIC.

THIS GATHERING UNITED NEURORADIOLOGISTS, RADIOLOGISTS, NEUROLOGISTS, NEUROSURGEONS, GENERAL PHYSICIANS, AND INDUSTRY PARTNERS ON A SHARED PLATFORM. THE PROGRAM INCLUDED A LIVE WORKSHOP, HANDS-ON TRAINING SESSIONS, AND DIDACTIC LECTURES, PROVIDING PARTICIPANTS WITH BOTH PRACTICAL SKILLS AND ACADEMIC INSIGHTS. WITH ITS FOCUS ON INNOVATION AND MULTIDISCIPLINARY PARTICIPATION, THE CONFERENCE SERVED AS A VIBRANT FORUM TO EXPLORE GROUNDBREAKING DEVELOPMENTS IN STROKE CARE AND SHAPE FUTURE DIRECTIONS.

NEWS UPDATE

ASFNR COLLABORATION

ISNR and ASFNR Forge a Landmark Partnership to Advance Neuroradiology in India

We are thrilled to announce a significant milestone for our community! The Indian Society of Neuro Radiology (ISNR) has officially entered into a strategic relationship with the prestigious American Society of Functional Neuroradiology (ASFNR). This landmark collaboration is set to open new frontiers for our members and elevate the practice of neuroimaging across India.

A cornerstone of this exciting partnership is an exclusive and generous offer from ASFNR: all ISNR members are now eligible for a 50% discount on ASFNR membership. This incredible opportunity provides direct access to a wealth of world-class resources, including leading journals, cutting-edge educational materials, webinars, and reduced registration fees for the ASFNR annual meeting.

This collaboration is more than just a membership discount; it is a bridge connecting two vibrant communities of neuroradiology experts. By fostering a closer bond, we aim to facilitate a dynamic exchange of knowledge, promote joint research initiatives, and integrate global best practices into our clinical work. This synergy will be instrumental in improving diagnostic accuracy, enhancing patient care, and driving innovation in neuroradiology throughout India.

This momentous achievement would not have been possible without the vision and tireless dedication of one individual. We extend our deepest and most special thanks to Professor Rajan Jain from ASFNR. His instrumental role and unwavering support were crucial in bringing our two societies together, and we are immensely grateful for his commitment to advancing global neuroradiology.

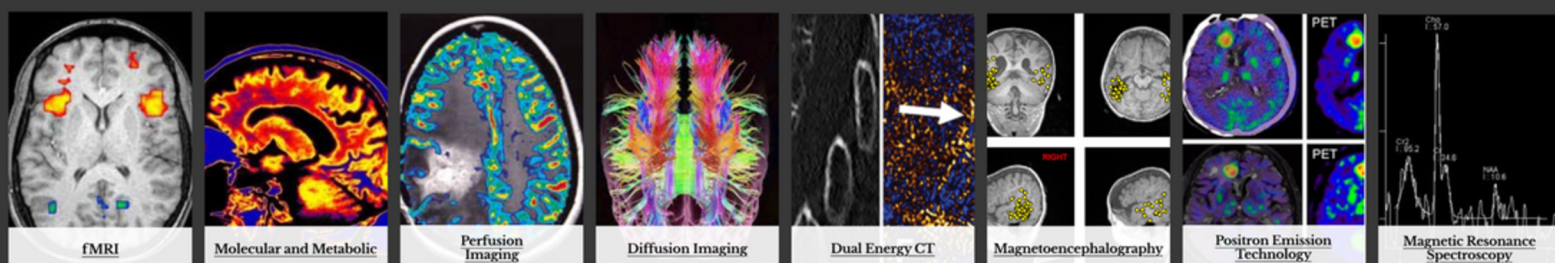
We encourage all ISNR members to seize this exceptional opportunity to join ASFNR and help us build a stronger, more collaborative future for our specialty.

THE INDIAN SOCIETY OF
NEURO-RADIOLOGY (ISNR)
HAS PARTNERED WITH THE
ASFNR, OFFERING A 50%
MEMBERSHIP DISCOUNT TO
ALL MEMBERS. THIS
COLLABORATION AIMS TO
ELEVATE NEUROIMAGING IN
INDIA BY PROVIDING ACCESS
TO PREMIER RESOURCES AND
FOSTERING KNOWLEDGE
EXCHANGE. WE EXTEND
SPECIAL THANKS TO
PROFESSOR RAJAN JAIN,
WHOSE EFFORTS WERE
CRUCIAL IN ESTABLISHING THIS
VALUABLE PARTNERSHIP



RAJAN.JAIN@NYULANGONE.ORG

Key Areas of Focus



NEWS UPDATE

ISNR ANNUAL CONFERENCE 2026

27TH ANNUAL CONFERENCE OF ISNR

The 27th annual conference of ISNR will be organized in Chandigarh, the city beautiful, by the division of Neuroimaging and Interventional Neuroradiology, Department of Radiodiagnosis & Imaging, PGIMER from 27th -29th March 2026. The city Chandigarh is one of the first well planned city by the famous French architect Le Corbusier. The institute has been at the forefront in the field of neuro radiology and interventions. Multiple global eminent speakers from the field of Neuroimaging and Intervention have agreed upon to participate in the event. The meeting is planned to be organized at Hyatt Regency, which is centrally located, easily approachable, premier property of Chandigarh.



Mark your calendar
MARCH / 27th-29th, 2026

CHANDIGARH
THE CITY BEAUTIFUL

PGIMER
स्नातकोत्तर चिकित्सा शिक्षा एवं
अनुसंधान संस्थान, चण्डीगढ़

**Indian Society of
Neuroradiology**

**27th ANNUAL CONFERENCE
of
INDIAN SOCIETY OF NEURORADIOLOGY**

HOST
DIV. OF NEUROIMAGING & INTERVENTIONAL NEURORADIOLOGY
DEPARTMENT OF RADIODIAGNOSIS & IMAGING
PGIMER, CHANDIGARH, INDIA 160012



ISNR: OBJECTIVES

ISNR

The Indian Society of Neuroradiology (ISNR) is a prominent academic body dedicated to the advancement of neuroradiology in India..

Activities and Mission

The primary objective of the ISNR is to foster education and the practice of neuroradiology. The society is committed to ensuring that trainees and practicing neuroradiologists are well-versed in the latest techniques and can deliver the highest standard of care. To achieve this, the ISNR organizes a variety of academic activities:

- Annual Conferences:
- Continuing Medical Education (CME) and Regional Conference
- webinars
- Newsletters

CURRENT OFFICE BEARERS

PRESIDENT : DR MATHEW CHERIAN

PAST PRESIDENT : PROF SHAILESH GAIKWAD

VICE PRESIDENT : MAJ GEN DR HIRDESH SAHNI (RTD)

SECRETARY: PROF AJAY KUMAR

JOINT SECRETARY: DR DEB K BORUAH

TREASURER: DR SAMEER VYAS

EXECUTIVE MEMBERS: DR ARVINDA HR, DR NIHAR KATHRANI, DR RASMIRANJAN PADHI, DR ROOPA SESHADRI, DR SHRIRAM VARADHARAJAN, DR COL SOMNATH PAN, DR COLONEL UDAY BHANU, DR VIVEK SINGH

JUNIOR WING

The Young NeuroRadiologists Forum (YNRF), a junior branch of the Indian Society of Neuroradiology (ISNR), has been established with Dr. Shriram Varadharajan as convenor. It includes eight members—four from Diagnostic Neuroradiology and four from Interventional Neuroradiology—and aims to enhance educational activities and social media initiatives under ISNR's guidance. The YNRF will be inaugurated at the ISNR Midterm CME in Raipur this October, with notable attendees. Current ISNR academic activities include monthly webinars and a "Case of the Month" feature. The YNRF will foster the growth of future neuroradiologists, with further guidelines to be discussed at the Annual ISNR conference next year.

