

# ADVANCING EMERGENCY DIAGNOSTICS: THE EVOLVING ROLE OF RADIOGRAPHERS IN ACUTE CARE

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# Introduction

Emergency diagnostics play a critical role in the healthcare system by enabling rapid and accurate identification of medical conditions that require immediate attention or intervention.

- Rapid identification of life threatening condition
- Guiding immediate clinical decisions
- Triage and prioritization
- Preventing complications and reducing mortality
- Supporting disaster and mass casualty response

- ~100 000 emergency cases registered in UMMC Emergency Medicine Department in 2024
- 90 000 patient need X-ray examination - around 7 000 request per month.
- 10 000 patient need CT - around 800 request per month
- Radiographers play vital role in emergency department.



# Role of Radiographers in Acute Care

Acute care refers to the immediate and urgent treatment of patients with sudden or life-threatening conditions.

- Rapid imaging for critical diagnosis
- Supporting triage and clinical decisions
- Radiation safety in emergencies

Time to diagnosis -> Time to treatment



## Mobile Digital Radiography in Acute Care

- Less patient movement in emergency setting - Red zone
- Faster image acquisition - ED physician can review image immediately.
- With integrated system, image can be upload to PACS and can be review by specialist from other discipline anytime, anywhere - better patient management



# Drivers of Role Evolution

- Technological advancement - AI, smart device, integrated system
- Increased demand for emergency and acute care imaging
- Expanded clinical responsibilities
- Interdisciplinary collaboration
- Radiation safety and quality standards
- Continuous Professional Development  
specialization



# Emerging Role in Acute Setting

01

Rapid, High-Quality  
Imaging in Critical  
Timeframes

02

Advanced Clinical  
Decision Support

03

Integration into  
Multidisciplinary  
Emergency Teams

04

Point-of-Care Imaging  
Technology

05

Radiation Safety  
Leadership

06

Expanded Scope into  
Interventional Support

07

Use of Artificial  
Intelligence (AI) and  
Workflow Optimization

08

Patient Advocacy and  
Communication



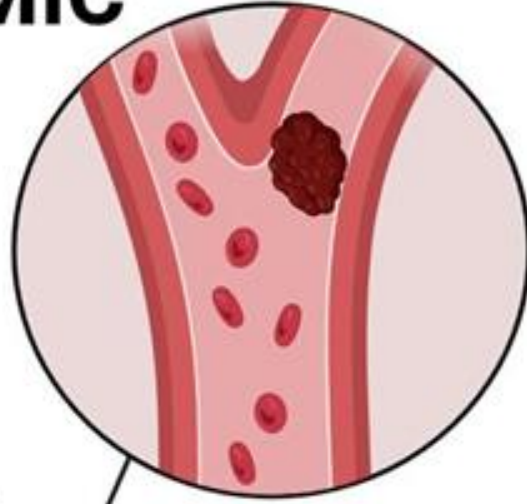
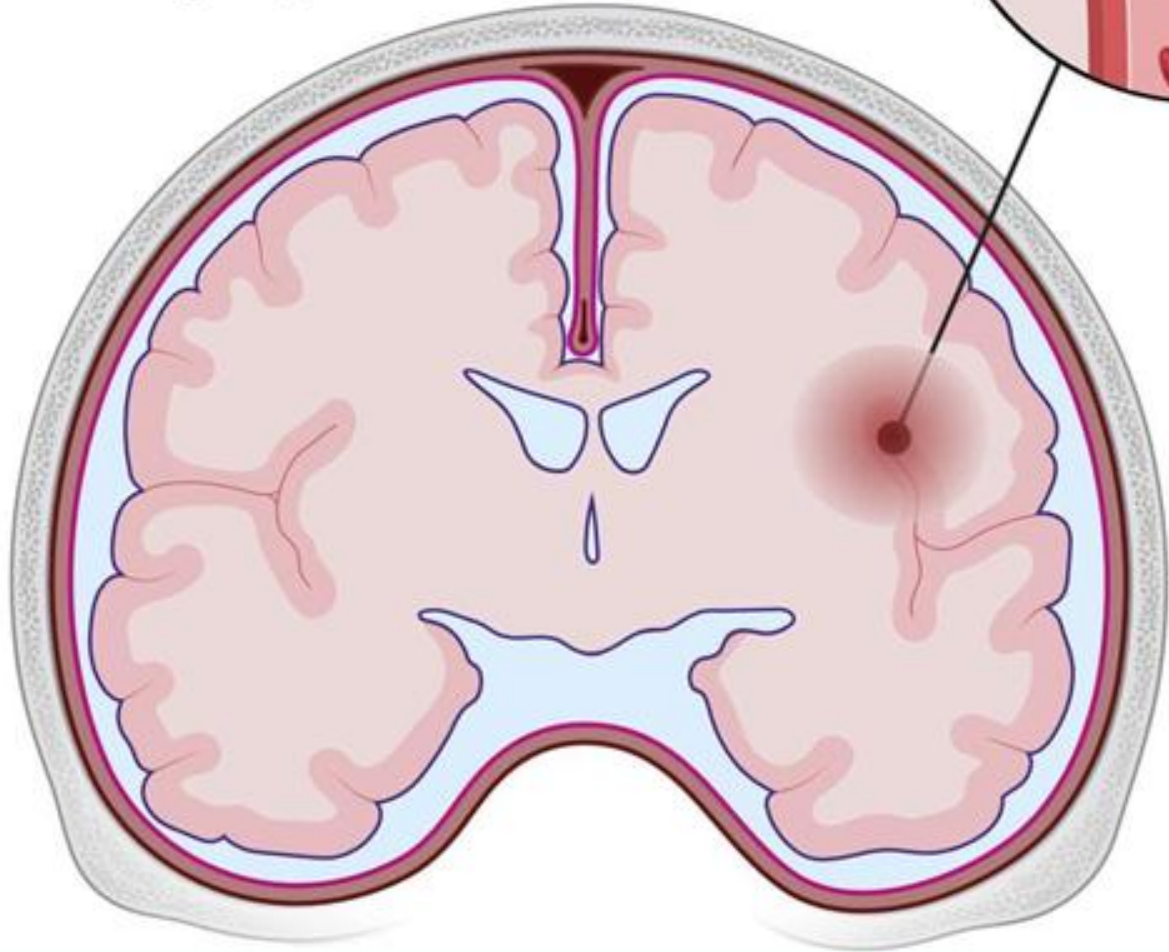
# Case Example

- 67 years old lady, underlying DM, HPT.
- Sudden onset of right sided weakness at 9.30 pm. Arrive at ED 2 hours later (11.30 pm) by ambulance.
- On examination: facial asymmetry, aphasic, tongue deviated to the left side. Right upper limb 0/5, GCS: E4V1M5.



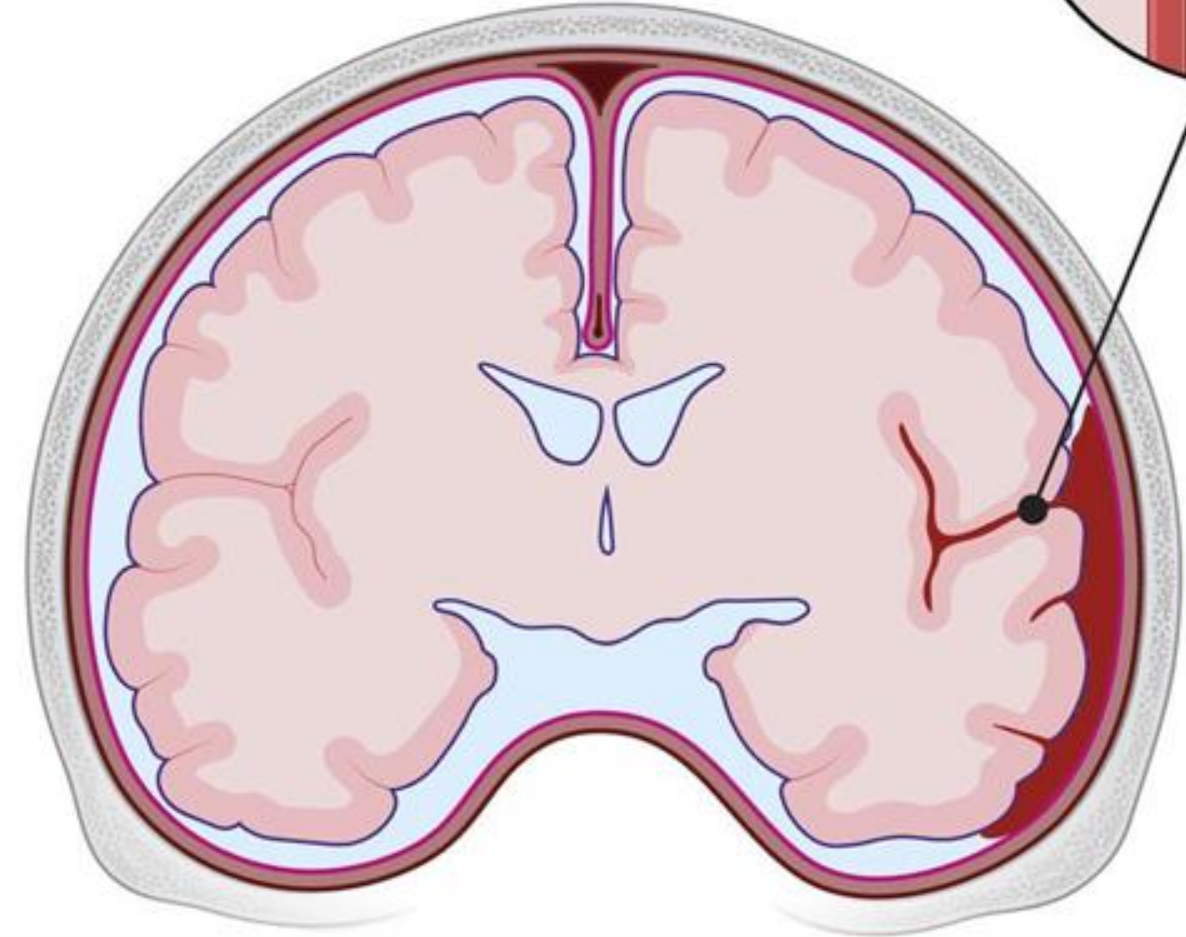
## THROMBOTIC or ISCHEMIC STROKE

Permanent or temporary blockage of an artery by a blood clot.



## HEMORRHAGIC STROKE

Rupture of an intracerebral or subarachnoid artery causing bleeding in the brain.



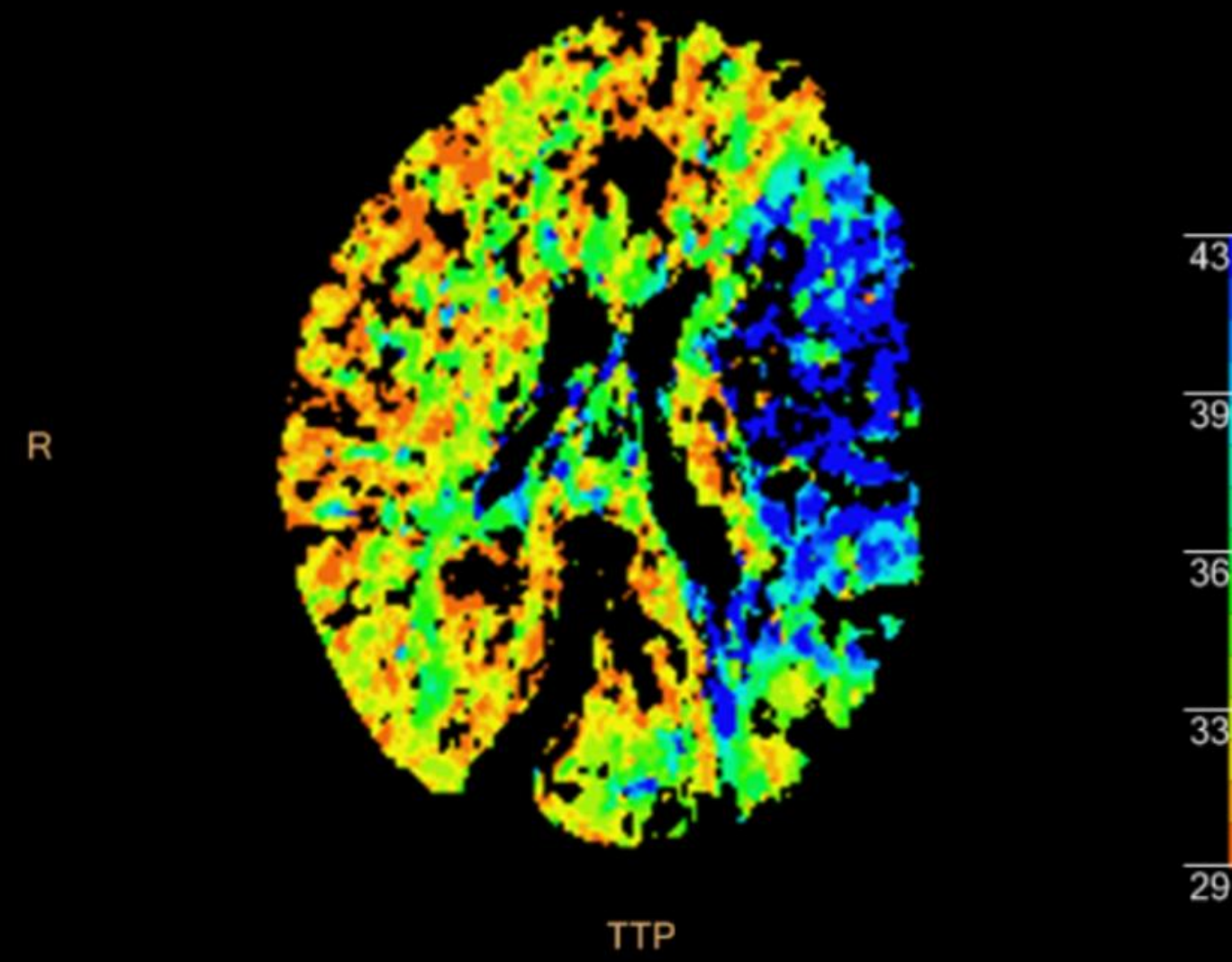
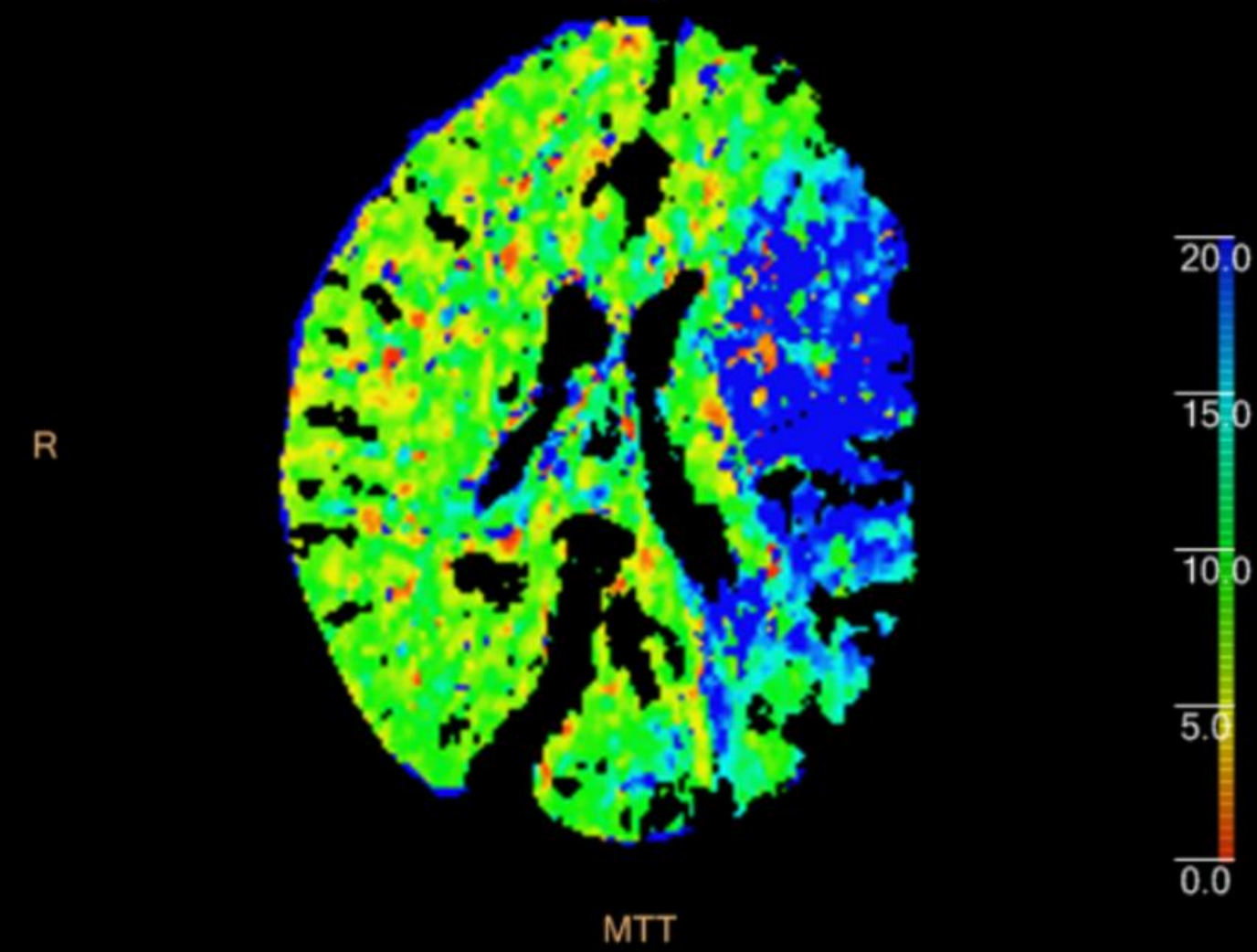
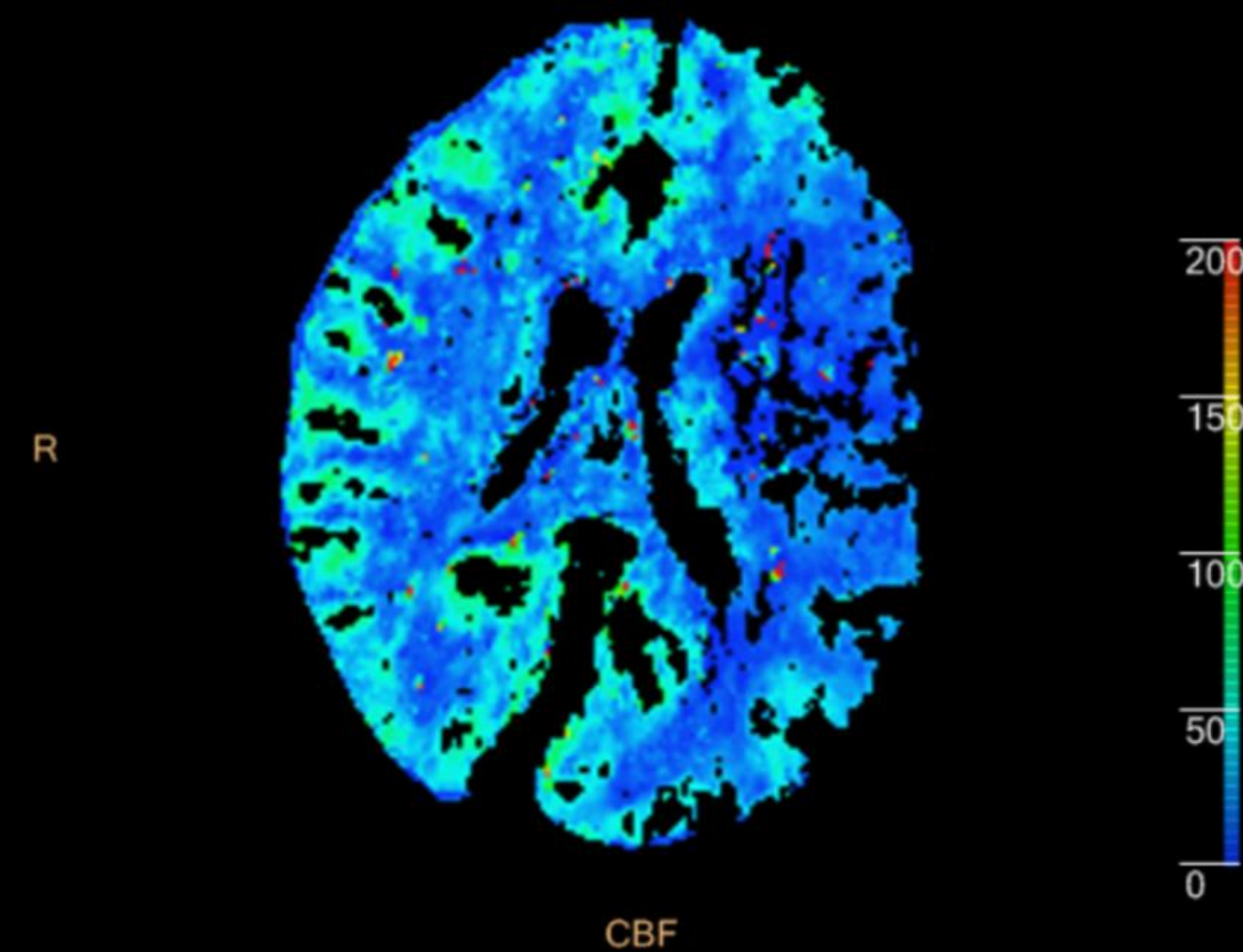
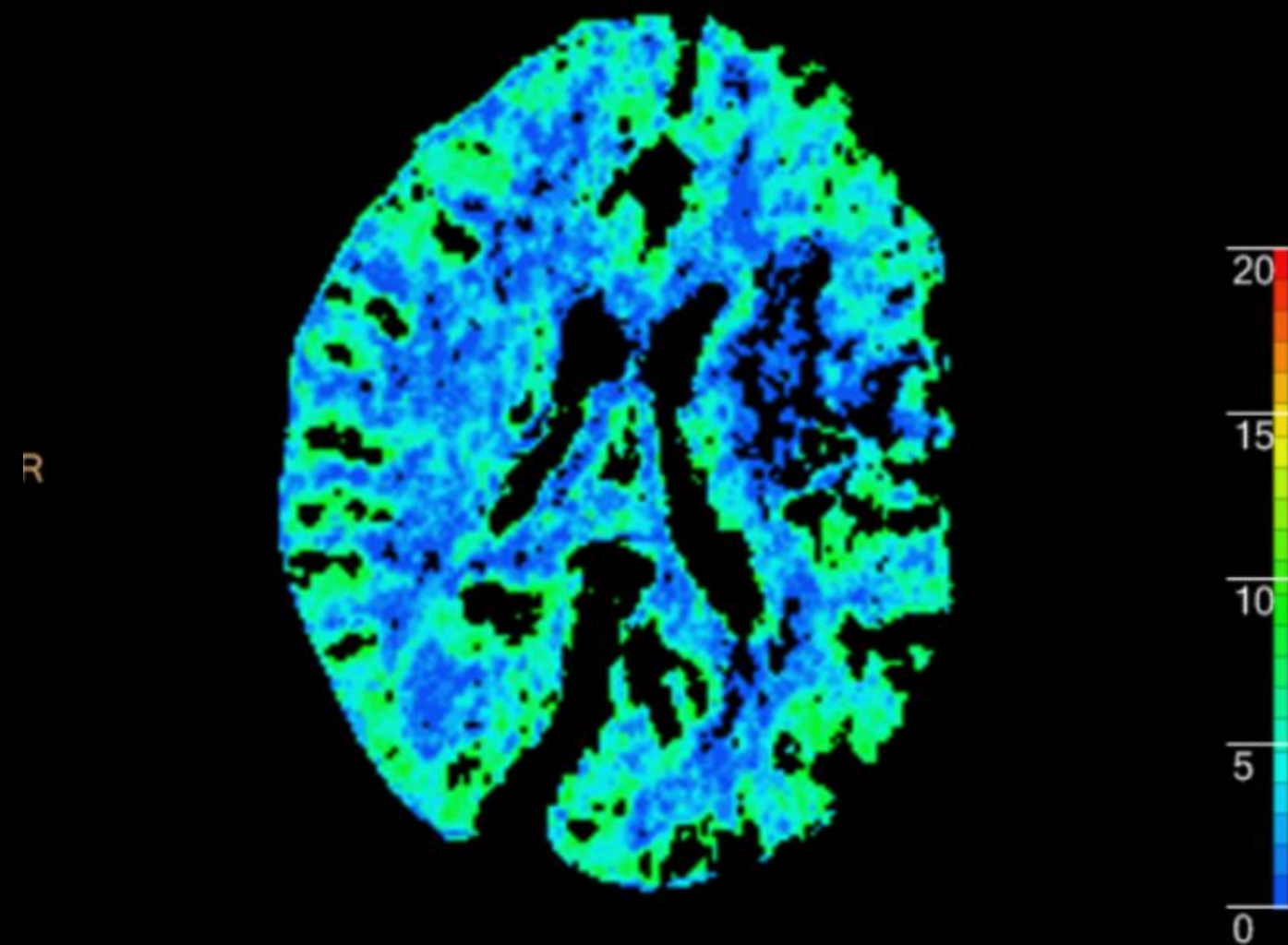




- No acute intracranial bleed
- Suspicious fairly ill defined hypodensities noted at Lt MCA territory infarct (M1, M4 and M5 areas) - likely in suggestive of acute infarct.
- Dense Lt MCA sign noted.



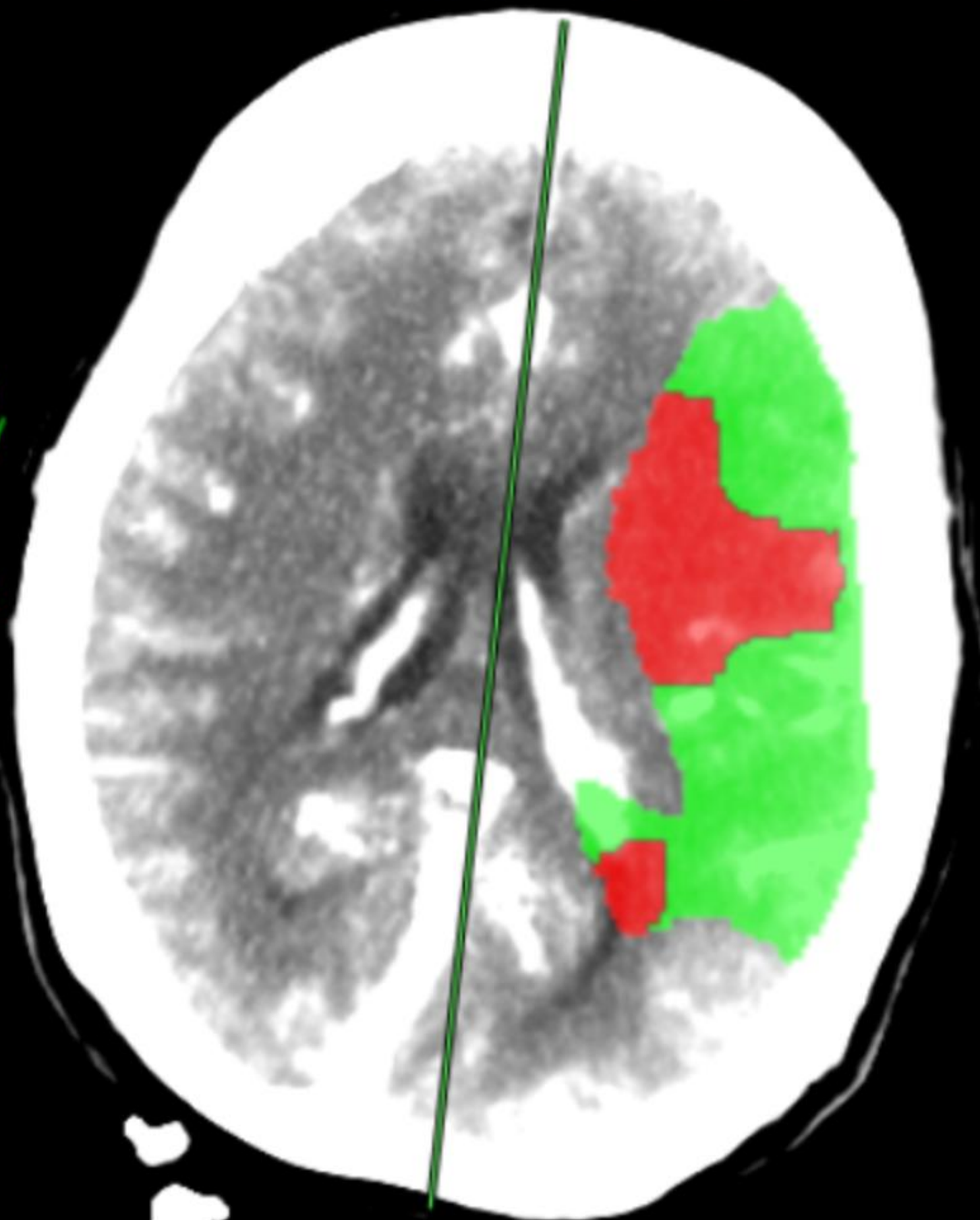
- Beaded appearance of Lt MCA
- Lt PCom, Lt SCA are not visualized
- No evidence of aneurysm or AVM



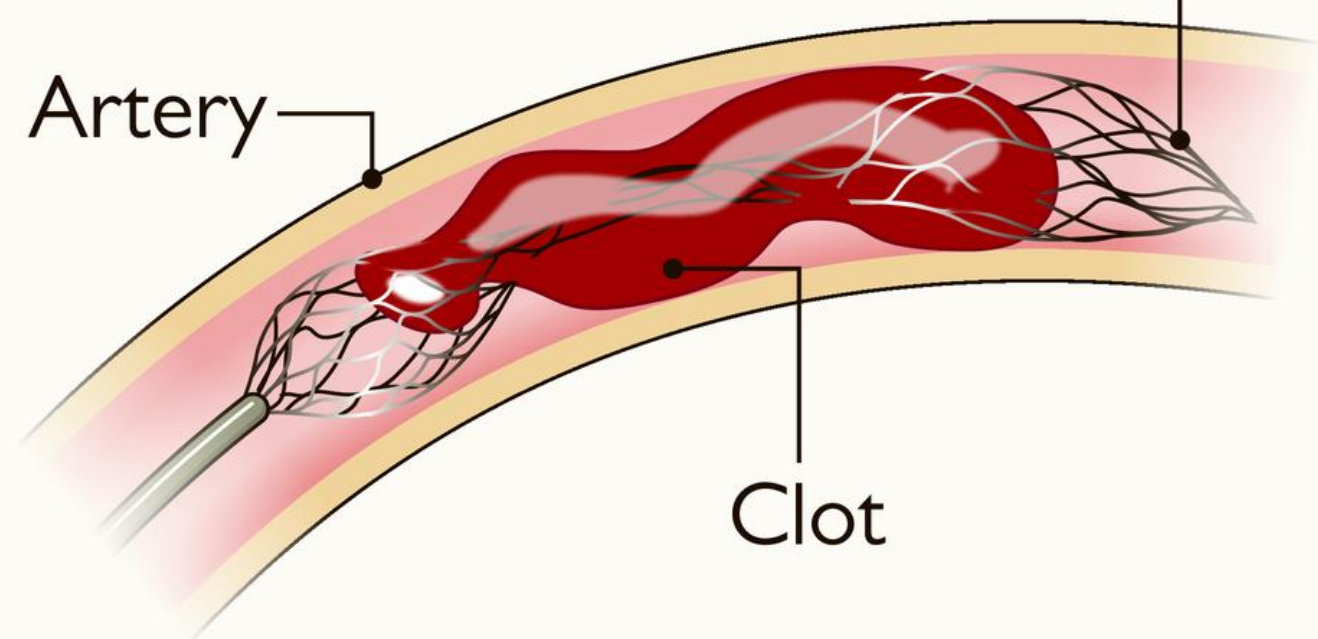
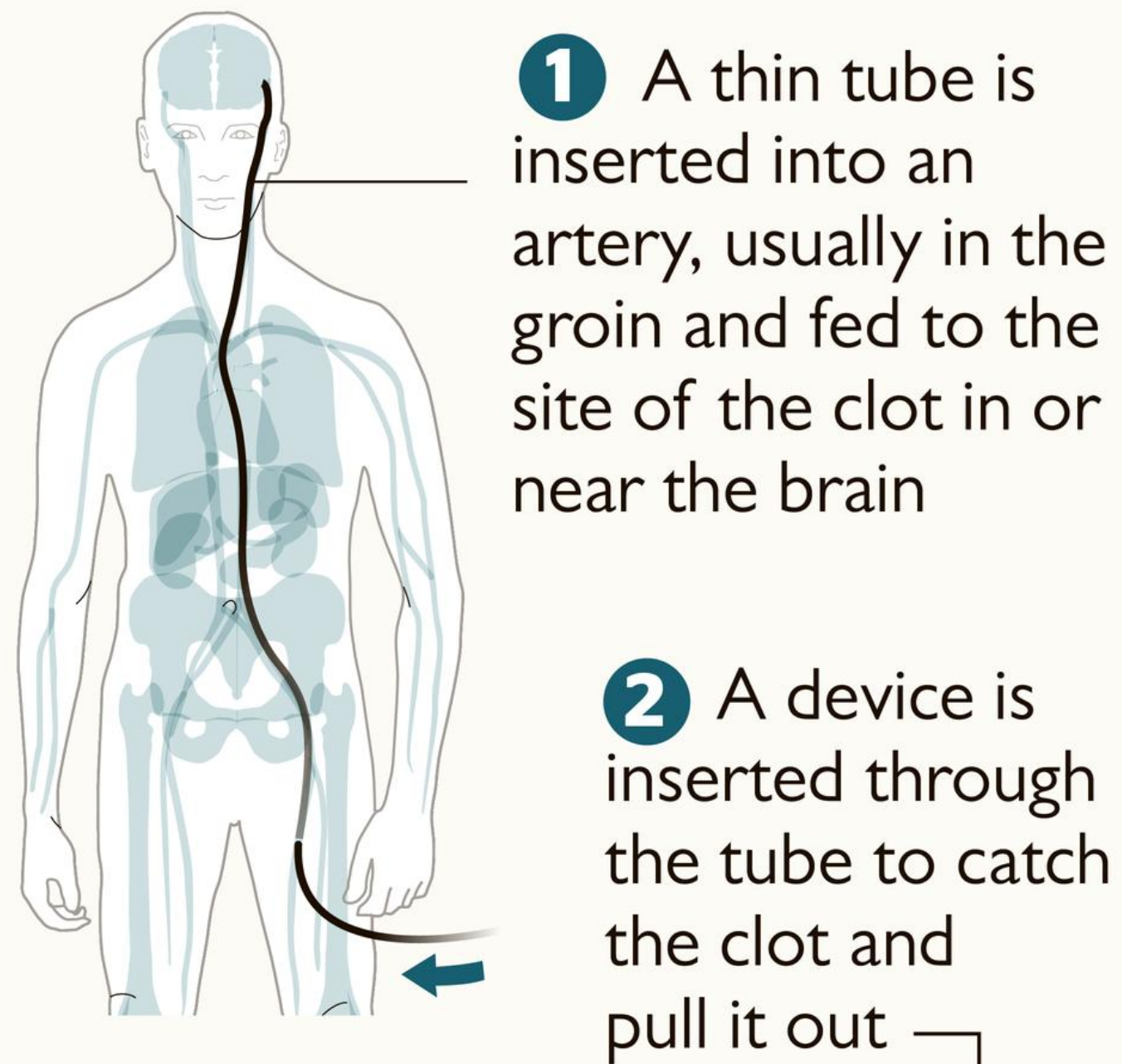
Detected issues: [Motion](#)

Inc. MTT &  
Norm. CBV

Inc. MTT &  
Red. CBV



## How it works



# Endovascular Mechanical Thrombectomy

# Required Competencies for Radiographers

- Technical and clinical imaging skills
- Critical thinking and clinical judgement
- Interprofessional communication
- Adaptability and resilience
- Radiation protection expertise
- Technological competence
- Patient-centered care
- Continuous Professional Development (CPD)



# Challenges & Barriers

- Workload and time pressure
- Limited staffing and resources
- Training and skill gaps
- Role recognition and scope of practice limitations
- Technology integration barriers
- Radiation safety challenges
- Communication and coordination issues





# Conclusion

- The role of radiographers in acute and emergency care has undergone a significant transformation.
- This expanded role demands a broad set of competencies.
- This expanded scope is not without challenges.

The background of the image is a futuristic medical room. On the right, a large white CT scanner is visible. In the center, a patient bed is positioned. The walls and floor are covered with various medical data visualizations, including DNA helices, human skeletons, brain scans, and line graphs. The overall color scheme is a cool blue. The text "Thank You" is centered in the middle of the image in a large, white, sans-serif font.

# Thank You



# Get in Touch



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