

## Introduction

Cerebral arteriovenous malformation (AVM) is a common form of cerebral vascular malformation and consists of a nidus of vessels with arteriovenous shunting. Conventional cerebral angiography is the gold standard to evaluate any residual after surgical resection. However, it is costly, invasive and carries risks. So the purpose of the study is to evaluate the feasibility and efficacy of intraoperative Computed Tomography Angiography (ICTA) as a method of immediately evaluating the Surgical results of AVM resection and compare it to the postoperative digital subtraction angiography (DSA).

## Methods

This is a retrospective study, investigating all cases of surgically resected AVM at King Fahad Medical City, Saudi Arabia, from 2005 to 2017, who underwent an ICTA. ICTA was used in combination with neuro navigation software in all those cases to aid localization and ensure complete AVM resection. All included patients underwent A postop cerebral angiogram, and the results were compared to the ICTA.

## Results

We analyzed 10 cases that met all the inclusion criteria of our study, out of these 10 cases, 8 cases (80%), the ICTA showed complete resection, and in 1 case the ICTA showed incomplete obliteration of the AVM, in all these 9 cases the results were consistent with the post-operative DSA results. But in 1 case the ICTA showed complete removal of the AVM where the follow-up DSA showed a near complete removal due to blushing in the surgical cavity site. The ICTA sensitivity in our study was 90 % sensitive.

## Conclusions

Intraoperative assessment of the surgical results with an ICTA prior to skin closure offers the neurosurgeon the opportunity to resect the AVM entirely and decrease the need for a second operation. With improving quality of intraoperative CTA in the future, the need for postoperative angiogram will likely be eliminated.

## Learning Objectives

By the conclusion of this session, participants should be able to understand that

1-Complete resection of the AVM can eliminate the risk of future bleeding

2- Intra operative CTA can aid in the complete surgical resection of the AVM and confirming it during the operation and decreases the need for re dos or second surgery in the future for residuals

3-Using the intra operative CTA has numerous advantages, including less invasive in comparison to DSA where you need a specialized neurointerventionist at each case which is usually difficult and non-practical ,

4-CTA has less radiation exposure in compare to DSA

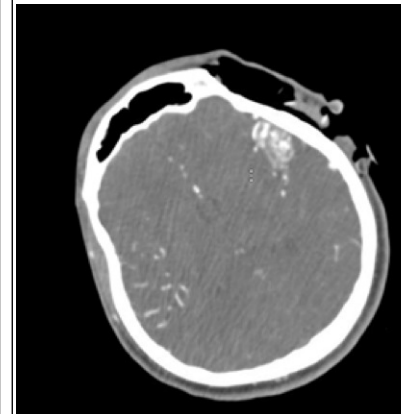
5-Doing the CTA intraop takes less time and much faster than intraoperative DSA or MRI .

**Figure 1**



Operative room with intra operative CT machine

**Figure 2**



Intraoperative CTA before bone opening showing a left insular AVM supplied by left MIDDLE CEREBRAL ARTERY

**Figure 3**



Intraoperative CTA showing complete resection of the AVM

## References

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