

ASL-contrast-free acquisition technique is ideal for patients in whom contrast is contraindicated. It gives a simple and fast automated image post processing. 3D ASL helps to rule out focal or global perfusion defects, in geriatric as well as pediatric patients. ASL generates excellent image quality with whole brain coverage

A case of Clinical Benefits of Arterial Spin Labeling (ASL)

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"Arterial Spin Labeling (ASL) is an effective and non invasive technique for follow up of tumors in the brain"

Patient history

- A 55-year-old female
- Recently operated case of Haemangio-Pericytoma grade II tumor
- Right Parieto-occipital craniotomy and complete tumor resection done

Technique & findings

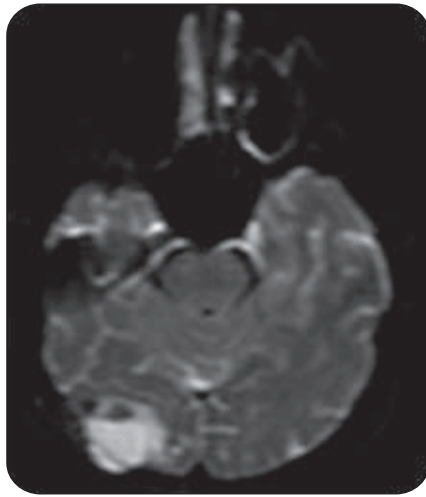
A small post surgical cavity in right occipital region with foci of blood products at periphery and mild surrounding edema with minimal peripheral enhancement were seen. ASL showed low CBF in the enhancing small nodule at the periphery of the surgical cavity suggesting hypoperfusion of inflammatory enhancement and not the residual tumor.

Acquisitions Parameters: ASL

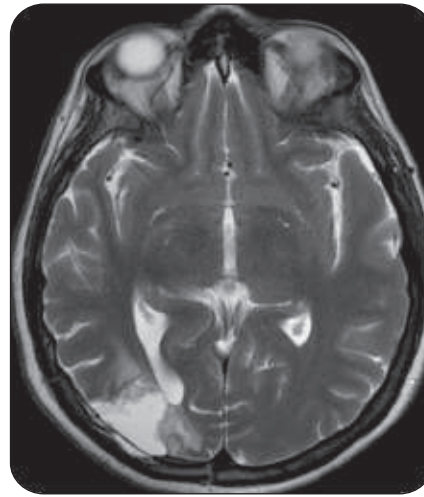
| | |
|-------------------|-------------|
| Imaging Mode: | 3D |
| FOV: | 24cm |
| Slice Thickness: | 4 mm |
| Frequency: | 512 |
| Phase: | 8 |
| Band width: | 62.50 Nex-2 |
| Location perslab: | 30 |



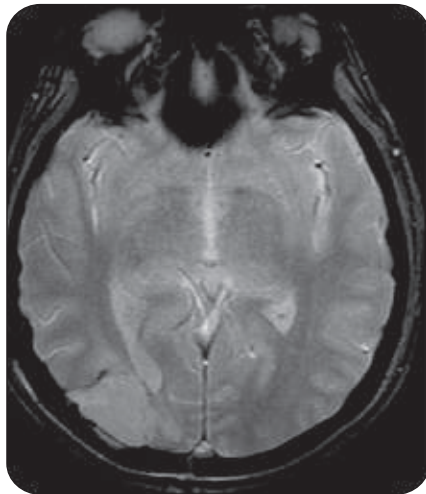
Routine MR view



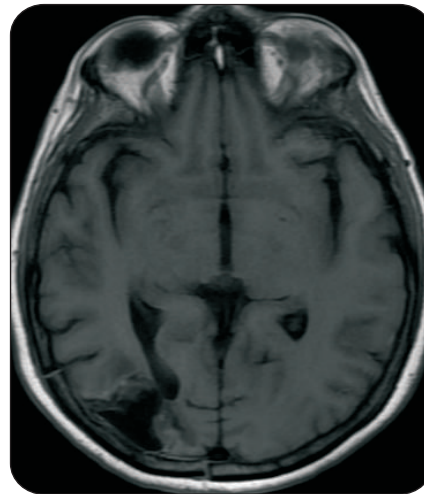
AX DWI



AX T2



AX GRE



AX T1

ASL findings:

Parenchyma Anterior to Post Surgical Cavity

| Parameter | ROI | ROI | % of parameter |
|-----------|---|--------------------------------|--|
| | (In the parenchyma surrounding surgical cavity) | (contra lateral normal region) | (around cavity as compared to normal region) |
| CBF | 57.850 | 62.440 | 92% |

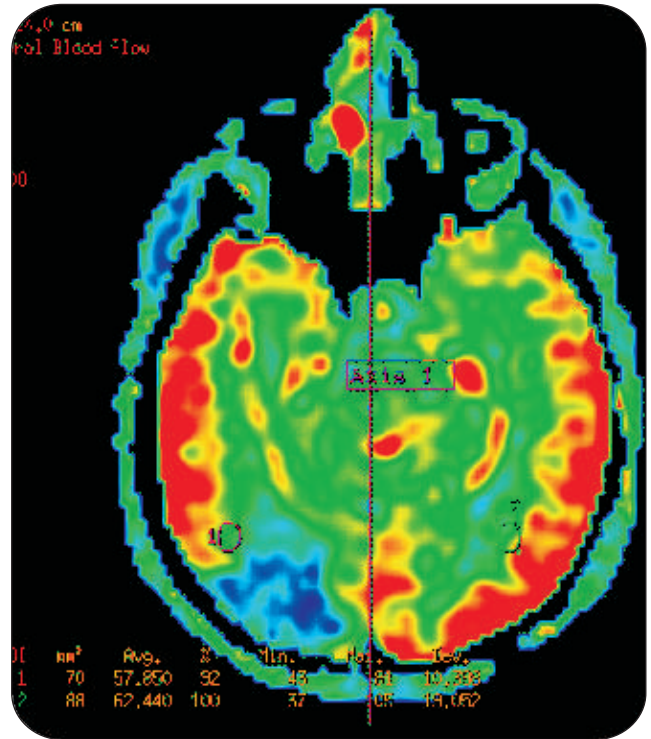
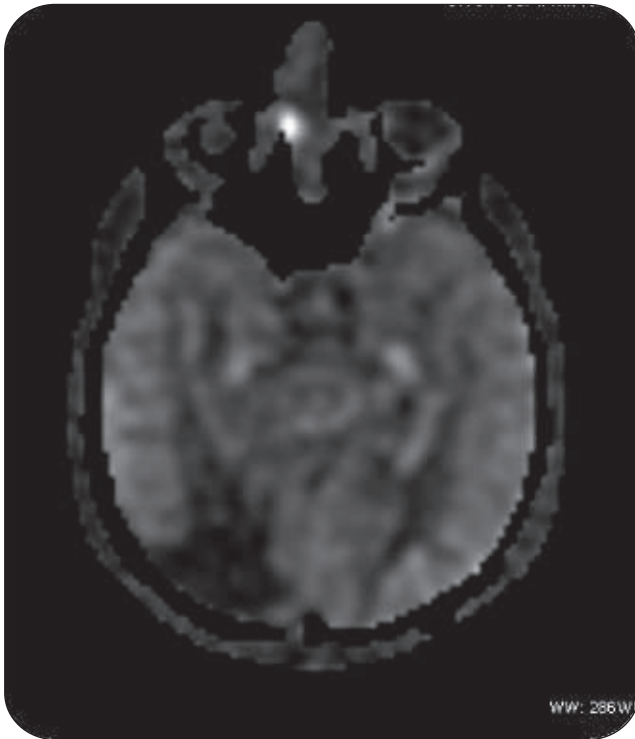
Parenchyma Medial to Post Surgical Cavity

| Parameter | ROI | ROI | % of parameter |
|-----------|---|--------------------------------|--|
| | (In the parenchyma surrounding surgical cavity) | (contra lateral normal region) | (around cavity as compared to normal region) |
| CBF | 34.640 | 66.560 | 52% |

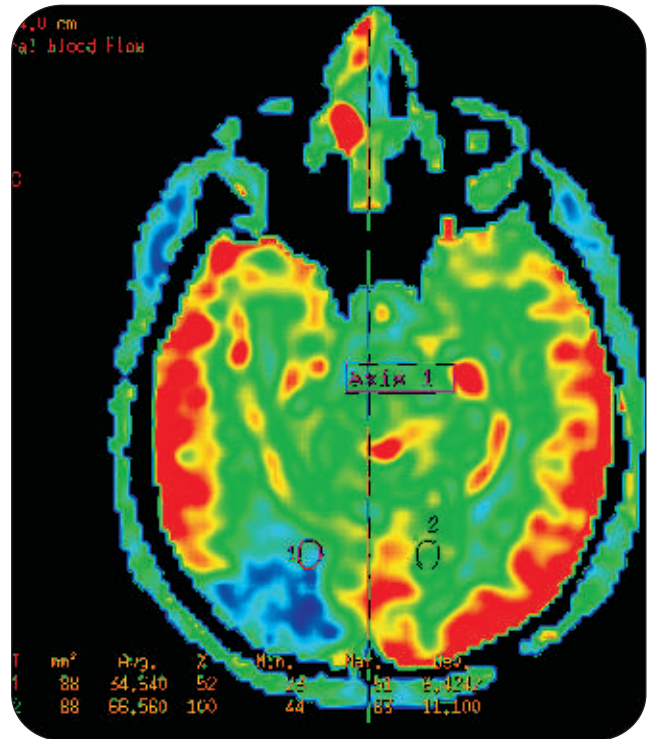
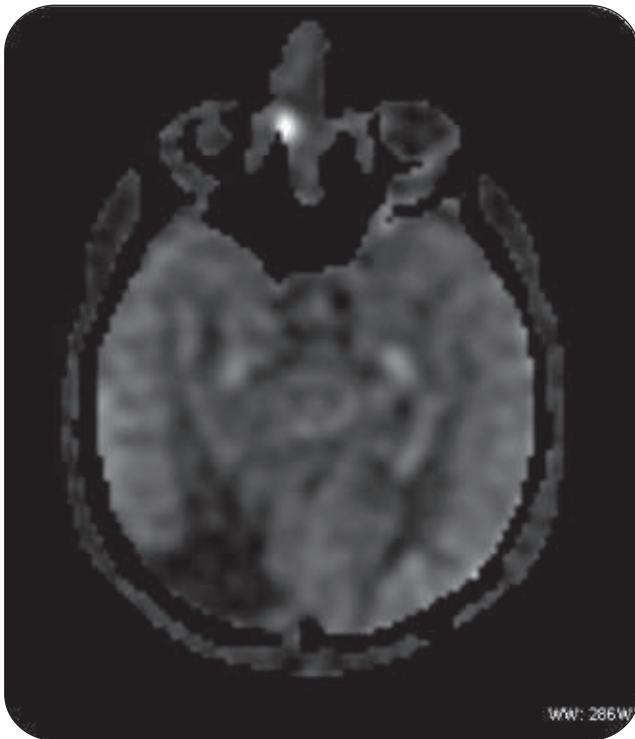
Enhancing Nodule Posterior to Post Surgical Cavity

| Parameter | ROI | ROI | % of parameter |
|-----------|---|--------------------------------|--|
| | (In the parenchyma surrounding surgical cavity) | (contra lateral normal region) | (around cavity as compared to normal region) |
| CBF | 26.567 | 80.267 | 33% |

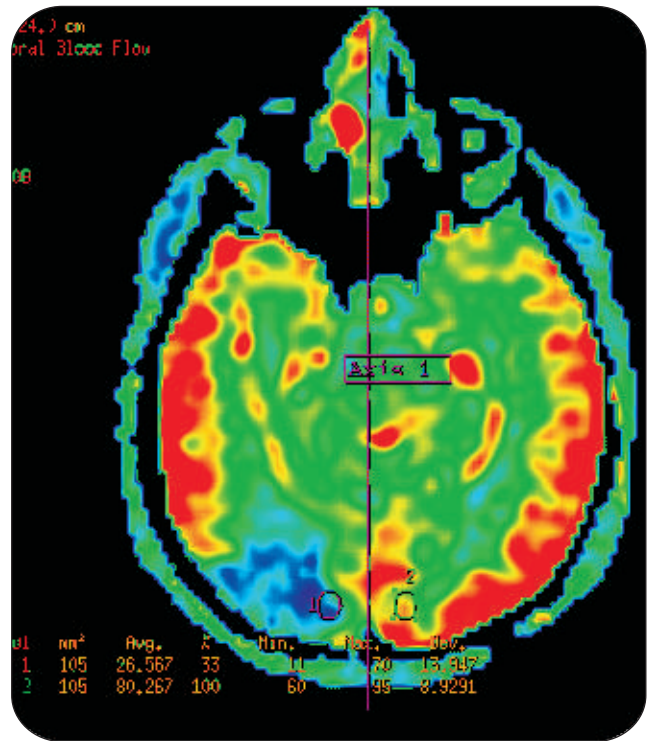
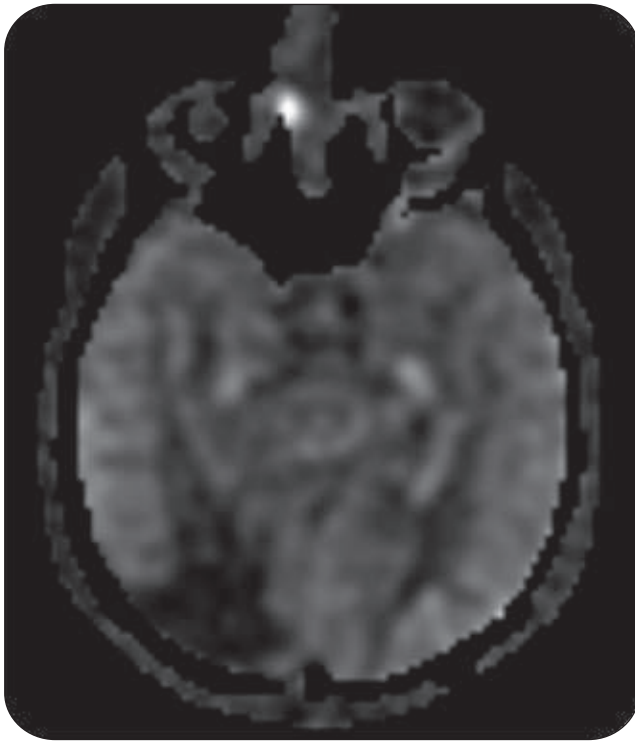
Parenchyma Anterior to Post Surgical Cavity



Parenchyma Medial to Post Surgical Cavity



Enhancing Nodule Posterior to Post Surgical Cavity



Conclusion

ASL is an excellent technique for diagnosis and follow-up of tumors within the brain.

Image courtesy to Dr. O. P. Gupta Imaging Centre

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