

27.04.2017

Dear Editor,



Please find enclosed the edited manuscript with track changes.

**Title:** Clinical-Radiological-Pathological Correlation of Cavernous Sinus Hemangioma: Incremental value of DW imaging.

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**Name of Journal:** *World Journal of Radiology*

**ESPS Manuscript NO:** 33638

The manuscript has been improved according to the suggestions of reviewers (03699990, 00723857):

Pincode added

Corresponding author official email id provided

Reference are in superscript format

### ***Background***

Even though MR imaging is the modality of choice for characterising lesions at the cavernous sinus, the diagnosis of a cavernous hemangioma can still be in doubt, with the main differential diagnosis being a schwannoma of the V nerve or meningioma.

### ***Research frontiers***

The study aimed to elucidate the clinical, MR imaging, pathological features of these lesions and assess the incremental value of DWI in diagnosing them.

### ***Innovations and breakthroughs***

This is one of the largest series of cavernous sinus hemangiomas that have clinical-radiological and pathological correlation as well as follow-up details. The study also highlights the incremental value of DWI imaging and the ADC value in these lesions which has not elucidated in the existing literature.

### ***Applications***

T1-weighted hypointensity with homogeneous hyperintensity on T2-weighted sequence, absence of hemosiderin within the lesion on GRE sequence and intense post contrast enhancement favour the diagnosis of CSH. On DW imaging CSH shows facilitated diffusion and is nearly 100% specific for CSH. Markedly hypointense hemangioma on T1W images suggests schirrous nature of the lesion and are amenable to complete surgical excision.

### ***Terminology***

Cavernous hemangioma in the cavernous sinus has an estimated prevalence of 1% incidence. The lesion is rare in occurrence closely mimicking commonly encountered cavernous sinus lesions such as schwannoma, meningioma, chordoma, granuloma, carotid aneurysm and lympho-proliferative conditions. Microscopically cavernous sinus hemangioma (CSH) consist of multiple vascular

channels lined by a single layer of endothelium without muscular layer without any intervening neural tissue. Diffusion weighted MR imaging measures the diffusivity of the water molecules in the tissue. Hindrance of water molecule movement is gives a hyperintense signal on diffusion imaging interpreted as restricted diffusion and indicates high cellularity of the tissue. CSH shows facilitated diffusion on DW imaging.

**N. B:** as there are multiple corrections in the manuscript at various levels; we have attached copy of manuscript with track changes and without track changes.

1 Format has been updated

2 Revision has been made according to the suggestions of the reviewer

Title: Clinical-Radiological-Pathological Correlation of Cavernous hemangioma at the cavernous sinus based on MR imaging

Words highlighted in red are deleted and Blue are modified as suggested by the reviewer

**Material and methods:** Last sentence “All patients excepting two underwent surgical removal of the lesion and diagnosis of CSH was confirmed histologically in 13 patients.”.But **Surgical excisiain** in Tab1 include 2 cases for biopsy and 2cases for No surgery. Did biopsy belong to surgical removal of the lesion?

**Highlights:** What is the last word “toto” in last sentence means?

## DISCUSSION

It is better that discussion is matched with the results. Modified and matched with the results in our series

## CONCLUSIONS

“centripetal progressive enhancement of the lesion on gadolinium injection”-How many lesions appear this MR findings in this study? added

## ABBREVIATIONS

FIESTA, SPGR: abbreviations are added

**Conclusions:** Last sentence “DWI demonstrating facilitation differentiates CSH from other solid cavernous sinus lesions, a critical factor for planning surgery.”seems syntax inappropriate.

“Imaging was performed on both 1.5-T and 3-T systems.” is too simple. MR Equipment brand(such as GE,Simens or Philip and so on ) and the kind of coil should be included.

.....” with Gadolinium” had better be replaced by “after gadolinium infusion”.

Whether dynamic multiphasic contrast enhanced magnetic resonance imaging was performed?

It is better to state how to obtained the ADC values of each lesion in materials and methods .

Tables are modified as per the reviewer comments

**Lesion Side** replaced by Location.

**Cranial nerve involveme:** Number abbreviations?

**Surgical excisiain: Is” Operated”** subtotal or total?

Tab 2:

The degree of **Extra cavernous sinus extension**(the number of +) ?

Facilitated diffusion?

Tab 3:

The unite of ADC values?

## FIGURES

**Figure 2.** Window width and level of DWI & ADC images need to be adjusted to avoid being too white. B. Is the lesion **hyperintensity**? C. the sentence need to be simplified. Modification done

**Figure 5.** Could you add a Fig of Histopathological sections?: not available

3 References and typesetting were corrected

Thank you again for publishing our manuscript in the *Radiology*.

Sincerely yours,



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