2025

KARNATAKA RADIOLOGY EDUCATION PROGRAM

Intracranial Epidermoid- Benign lesion, Interesting location but difficult solution.

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SUBBAIAH MEDICAL COLLEGE , SHIMOGA

INTRODUCTION

- Intracranial epidermoid cysts/ tumors were first described by Bailey and Cushing in the early 1920s. These account for 0.2– 1.8 % of all intracranial neoplasms and approximately 50 % of intracranial epidermoid cyst occurred in the cerebellopontine angle, followed by parasellar region, basal cistern, sylvian, pineal region and ventricle systems. It is postulated to originate from epithelial remnants that remain after neural tube closure, rarely acquired lesions are also reported. It is usually benign unless is ruptured.
- These benign tumors are formed between third to fifth week of embryonic life. It is due to displaced epithelial remnants. These persist after neural tube closure. Whenever two ectodermal surfaces fuse with each other such as the skin, epidural, intradiploic and epicranial surfaces, these are formed.

INTRODUCTION

- These occur in isolation most of the times. Their most common location is cerebellopontine angle which is found to be 37% but in our experience they are found most commonly in the region of fourth ventricle i-e rhomboid fossa. Their second most common location is suprasellar region(31%), diploic space(16%), rhomboid fossa(11%) and spinal canal(5%). Other lesser common locations are the pineal region, thalami, septum pellucidum and other intraparenchymal location. They have been reported in lateral ventricle and we have reported one such case too. Apart from these we found them in lacrimal gland too.

INTRODUCTION

- These have a benign and slow growth pattern. They remain asymptomatic until and unless these cause obstruction. The symptoms generally appear around 20-40 years of age. The symptoms depend on the location of the lesion ranging from seizures, dementia, hydrocephalus to asymptomatic.
- In case these are symptomatic, main treatment is surgery. Endoscopic debulking through suction catheter is performed in certain centres. The surgery is simple as these are avascular but is difficult due to their complex locations.

Intoduction..

- Malignant degeneration is reported in epidermoids rarely and is detected due to contrast uptake of the remnant lesion. Hamlat et al. , reported that from the seventeen cases undergoing malignant degeneration, six showed enhancement at the time of the initial CT study, indicating that post-contrast enhancement is an important indicator of aggressive change.
- Until now a death of five patients is reported due to surgical. Other complications include chemical meningitis, cerebellar dysfunction and in few patients cranial nerve dysfunction. Thus epidermoids are benign intracranial tumors which at times become a surgical dilemma due to their location.

OBJECTIVES

- Importance of recognition of epidermoids in brain.
- To be able to recognize significance of various MR sequences in differentiating intracranial cystic lesions from each other esp epidermoids.
- Importance of Diffusion weighted imaging for confirmation of epidermoids.
- To be aware of treatment options of epidermoids.

History

- 42 year old female presented with complaints of Giddiness and weakness of lower limb.
- No other comorbidities.
- Advised for CT brain

IMAGING FINDINGS

- MRI appears to be the modality of choice for radiological evaluation of epidermoids.
- Typically epidermoid tumors return signals similar to fluid i-e are hypointense on T1-weighted and hyperintense on T2-weighted images.
- No post-contrast enhancement is noted due to low vascularity.
- Fluid-Attenuated Inversion Recovery (FLAIR) sequences help distinguish them from similar-appearing arachnoid cysts, as the former are hyperintense.
- The key sequence is DWI. Diffusion-weighted images further enhance the accuracy of preoperative diagnosis.
- Calcifications may be seen within these tumors in 10%–25% of cases.

Imaging features

- **CT :** Well defined lobulated CSF density mass lesion with mild haziness epicentered upon the 4th ventricle with mass causing mild expansion of foramen of Magendie and right foramen of Luschka.
- No evidence of obstructive hydrocephalus.
- Mild mass effect is seen on posterior surface of brain stem and anterior surface of cerebellum
- **MRI: Well delineated lobulated non-enhancing posterior fossa cystic lesion with contents similar to CSF and with diffusion restriction.**

- Features could represent epidermoid cyst.
- D/D: Arachnoid cyst.
- Dermoid
- Hemangioblastoma
- Sub ependymoma
- Mets


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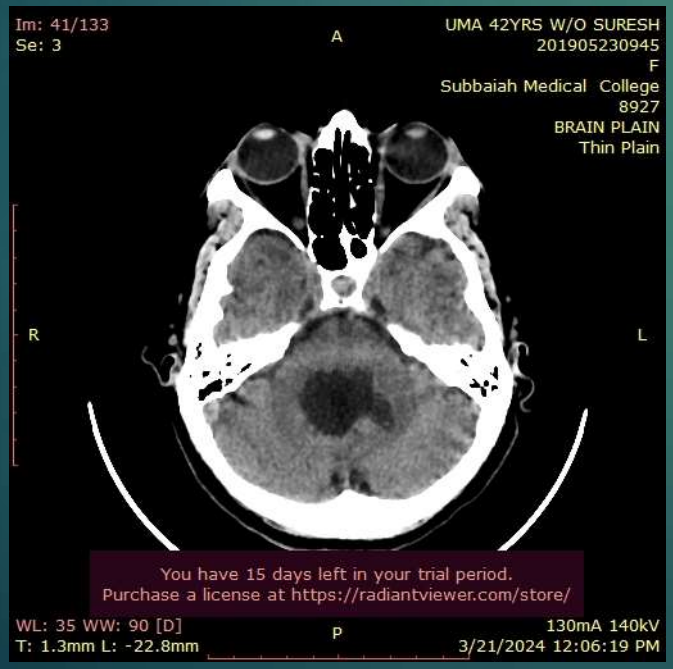
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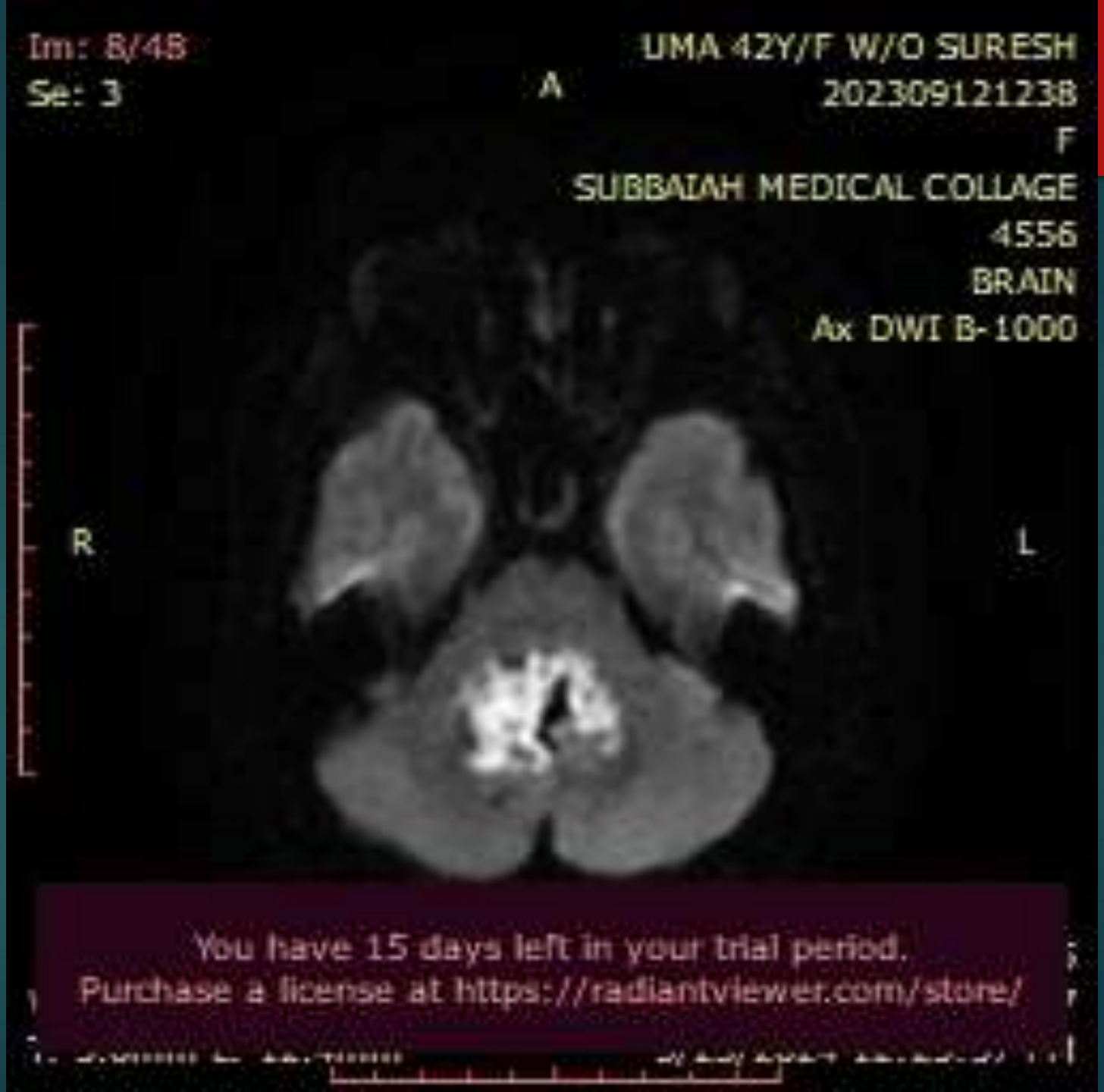
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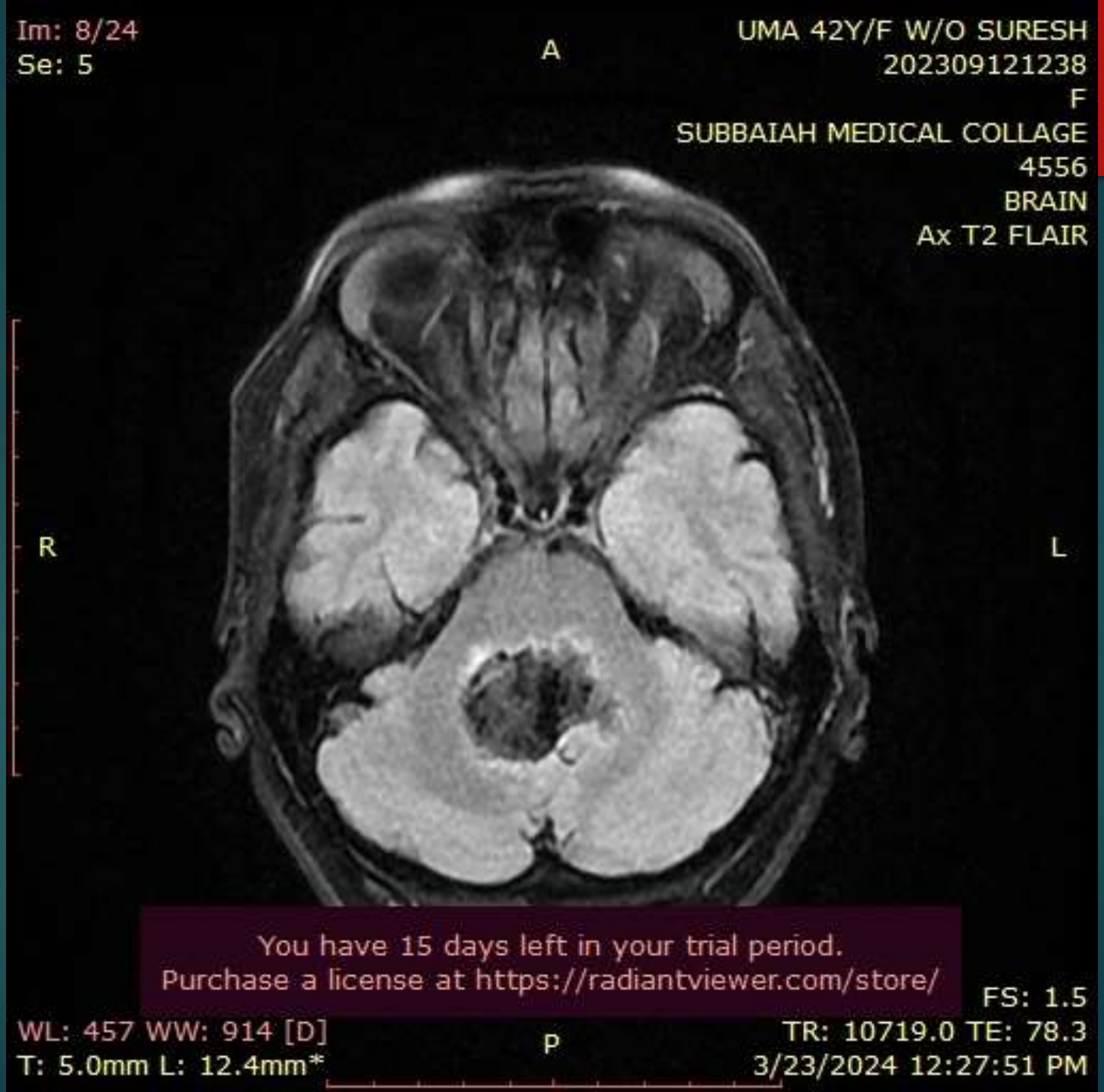
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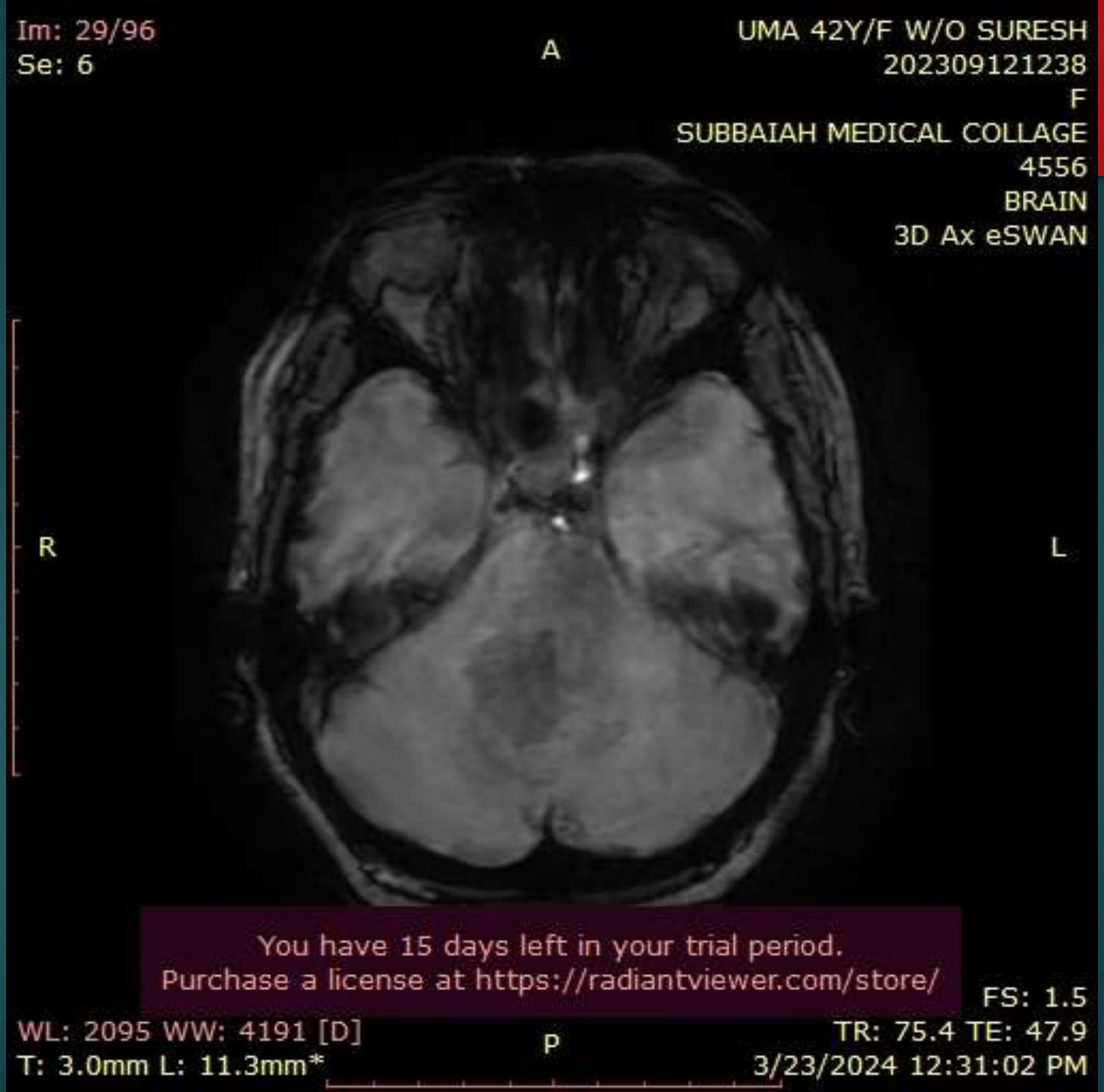
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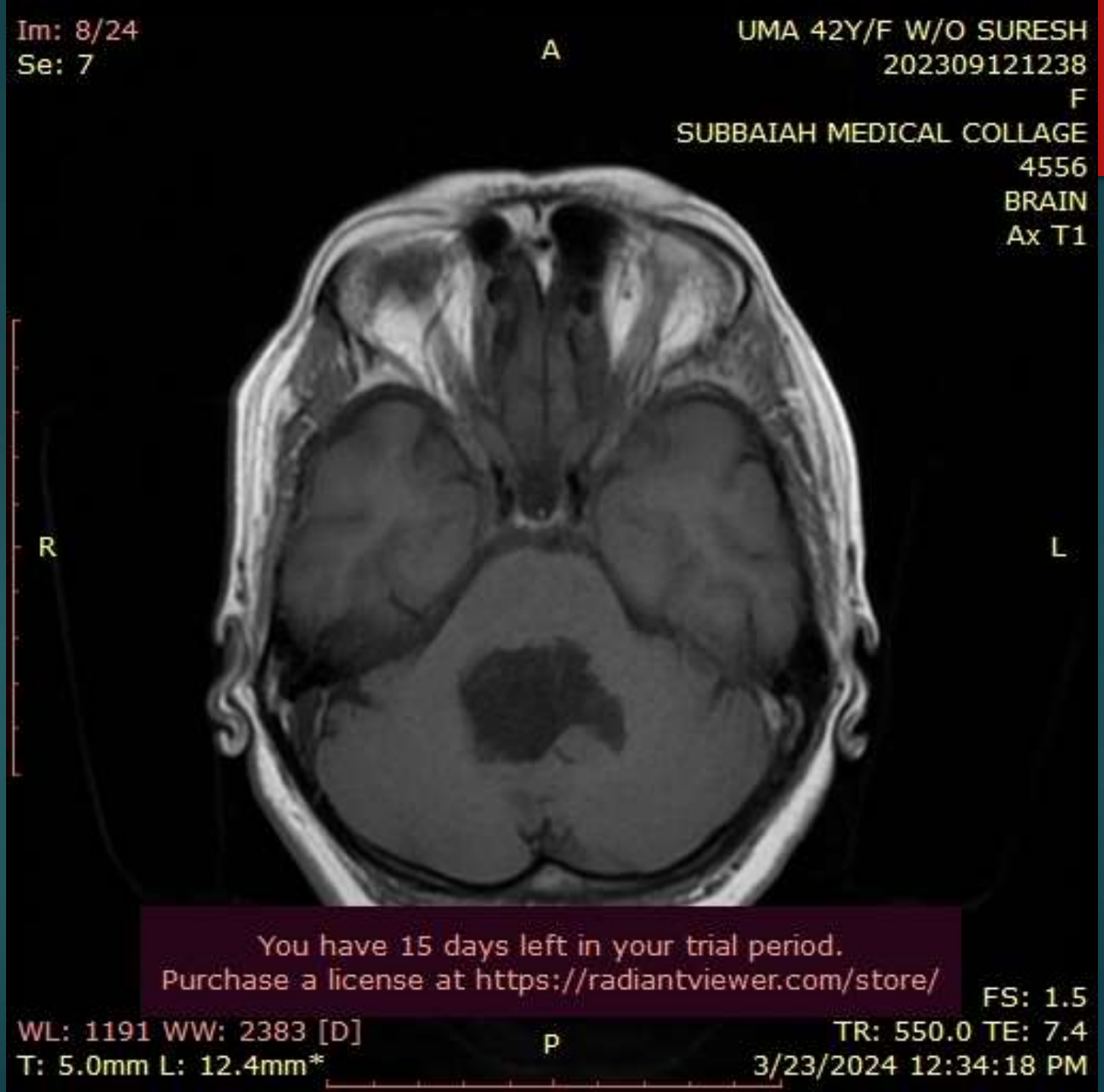
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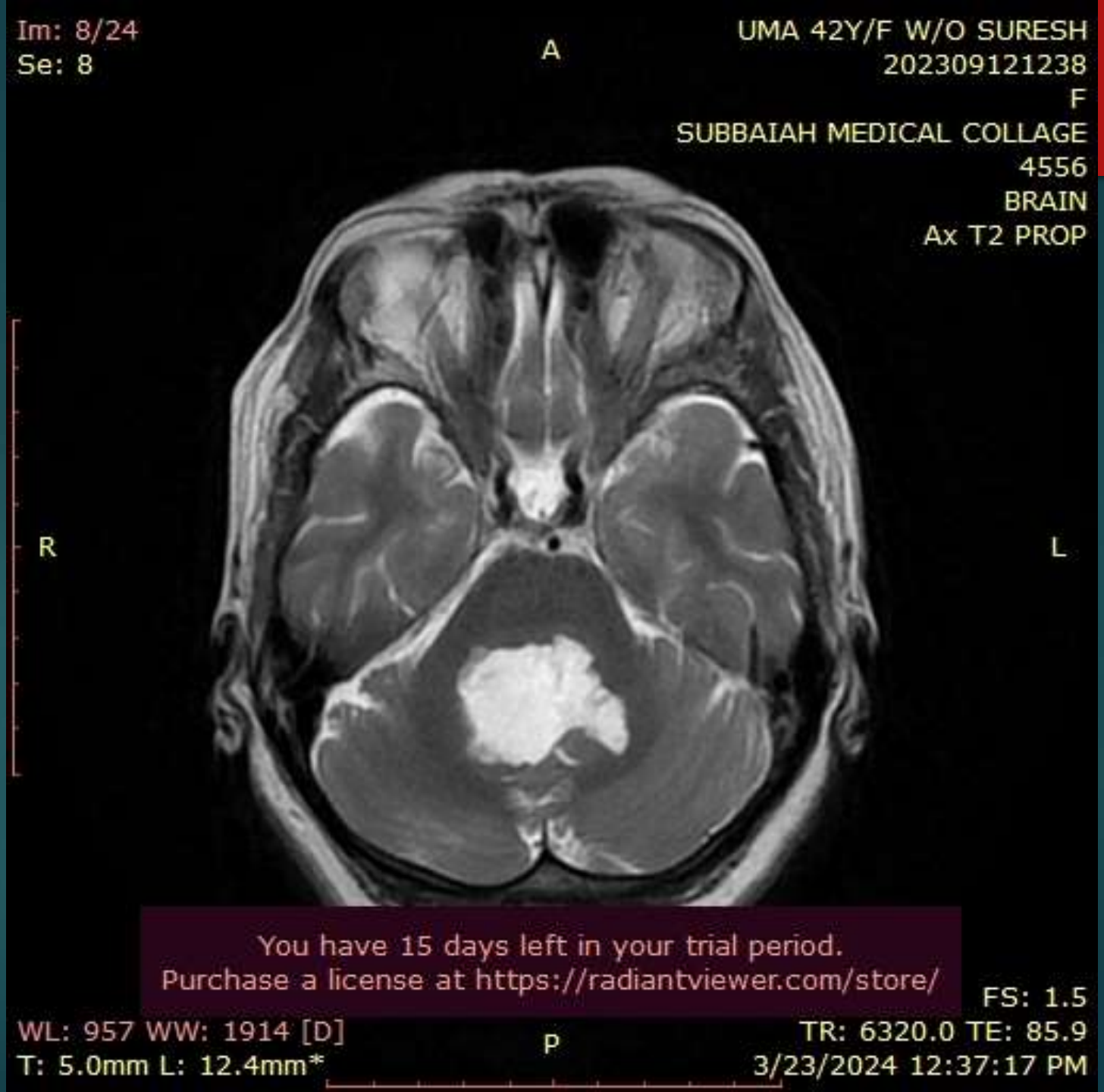
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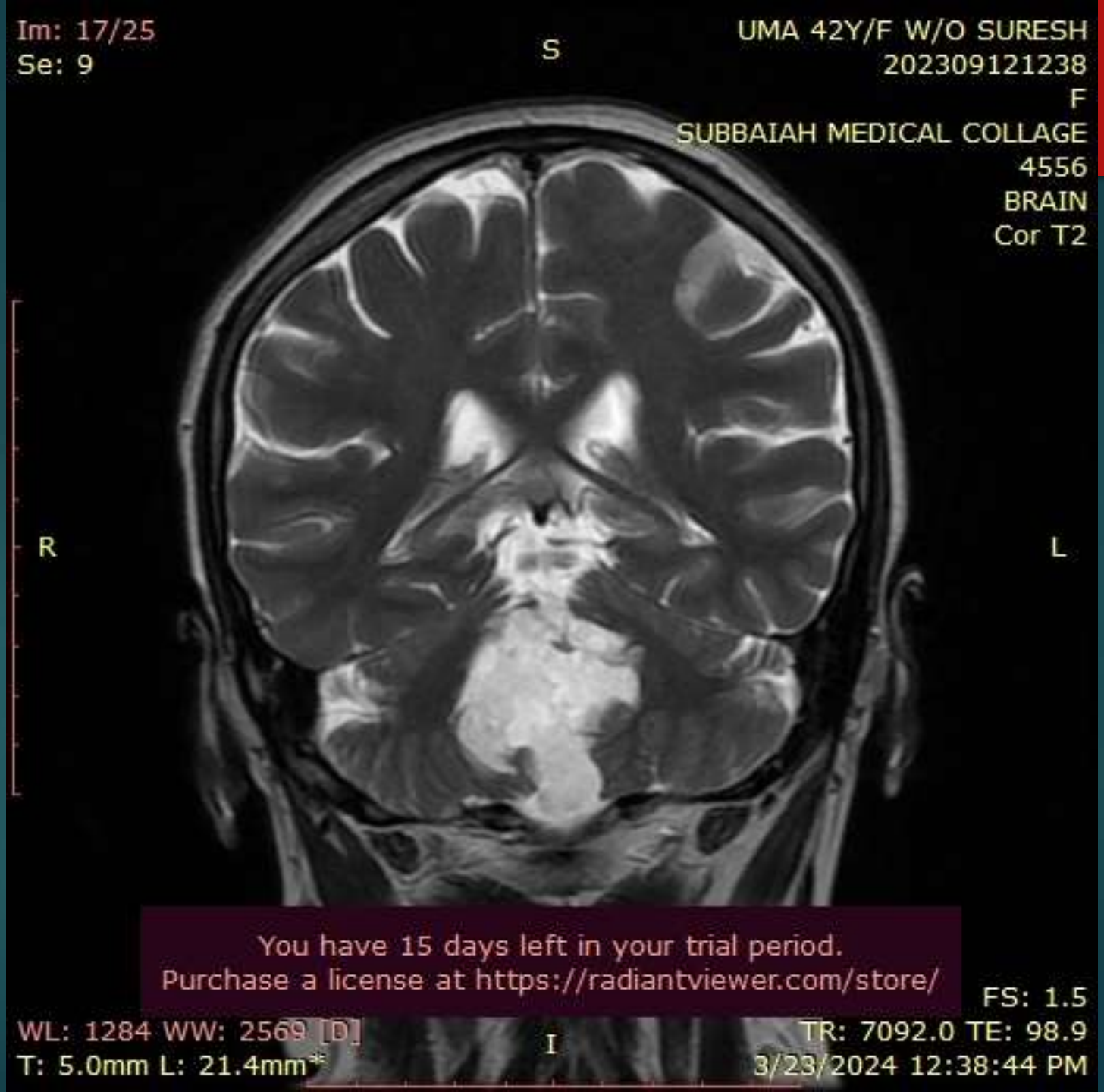
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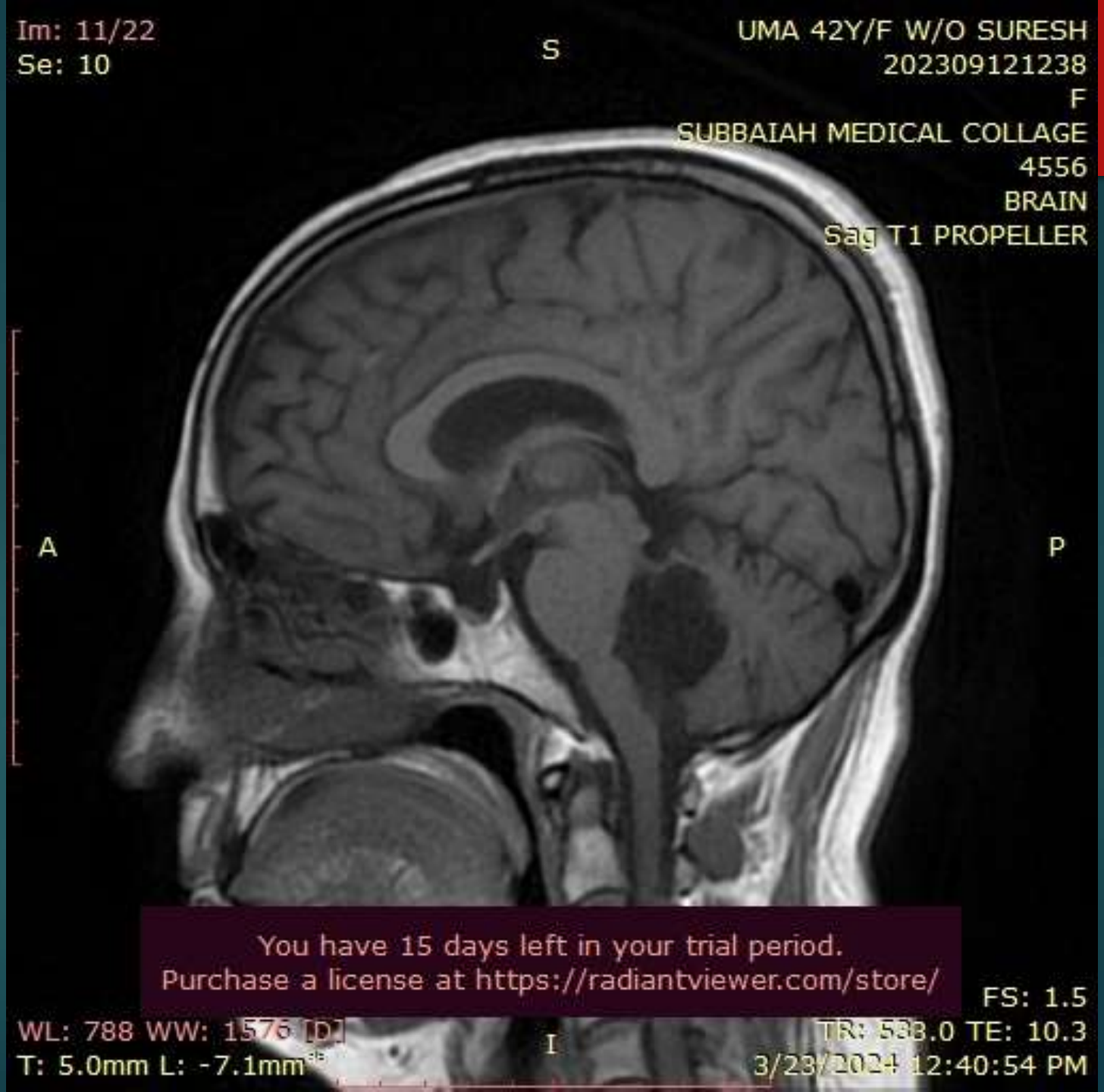
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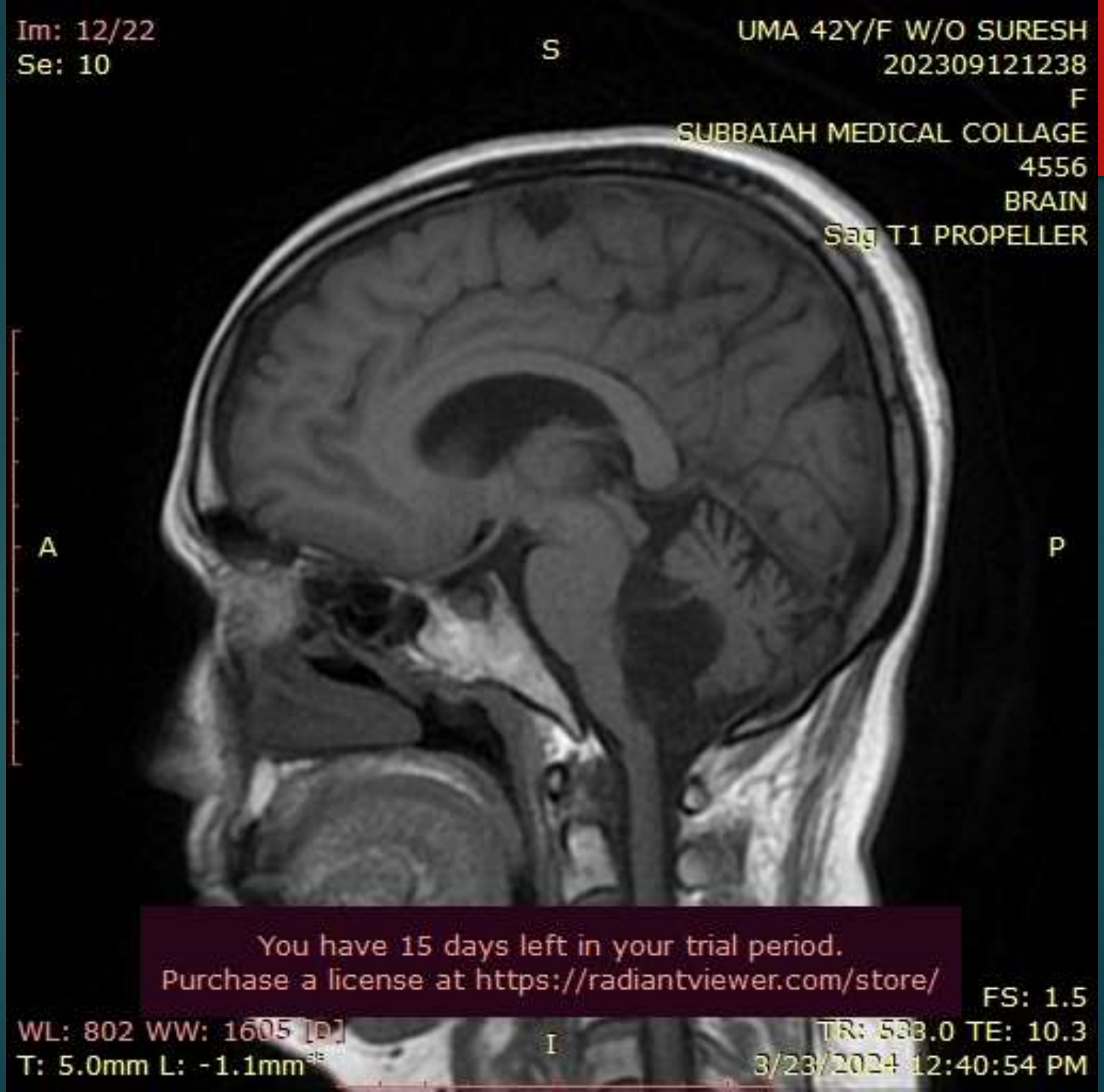
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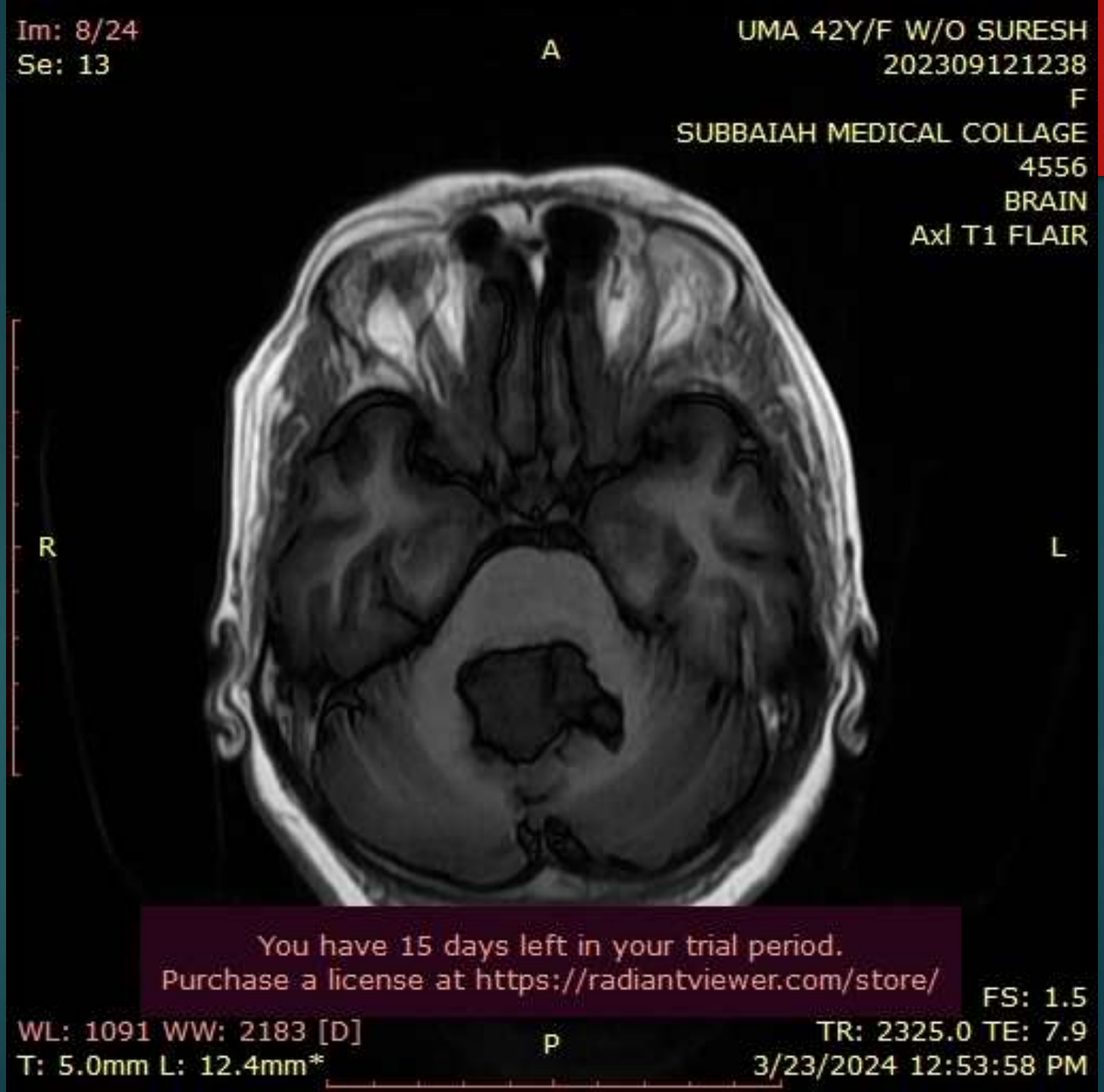
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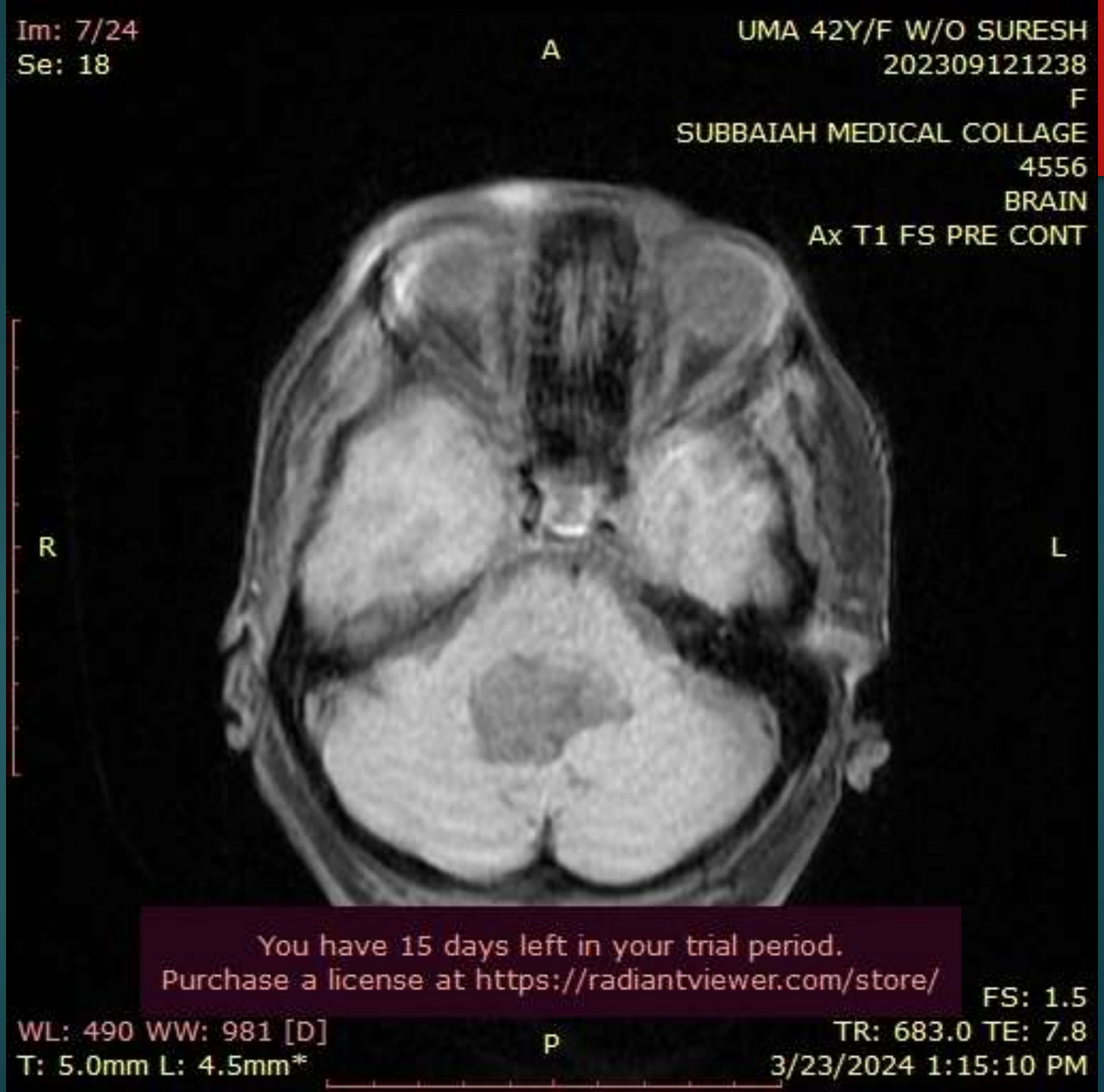
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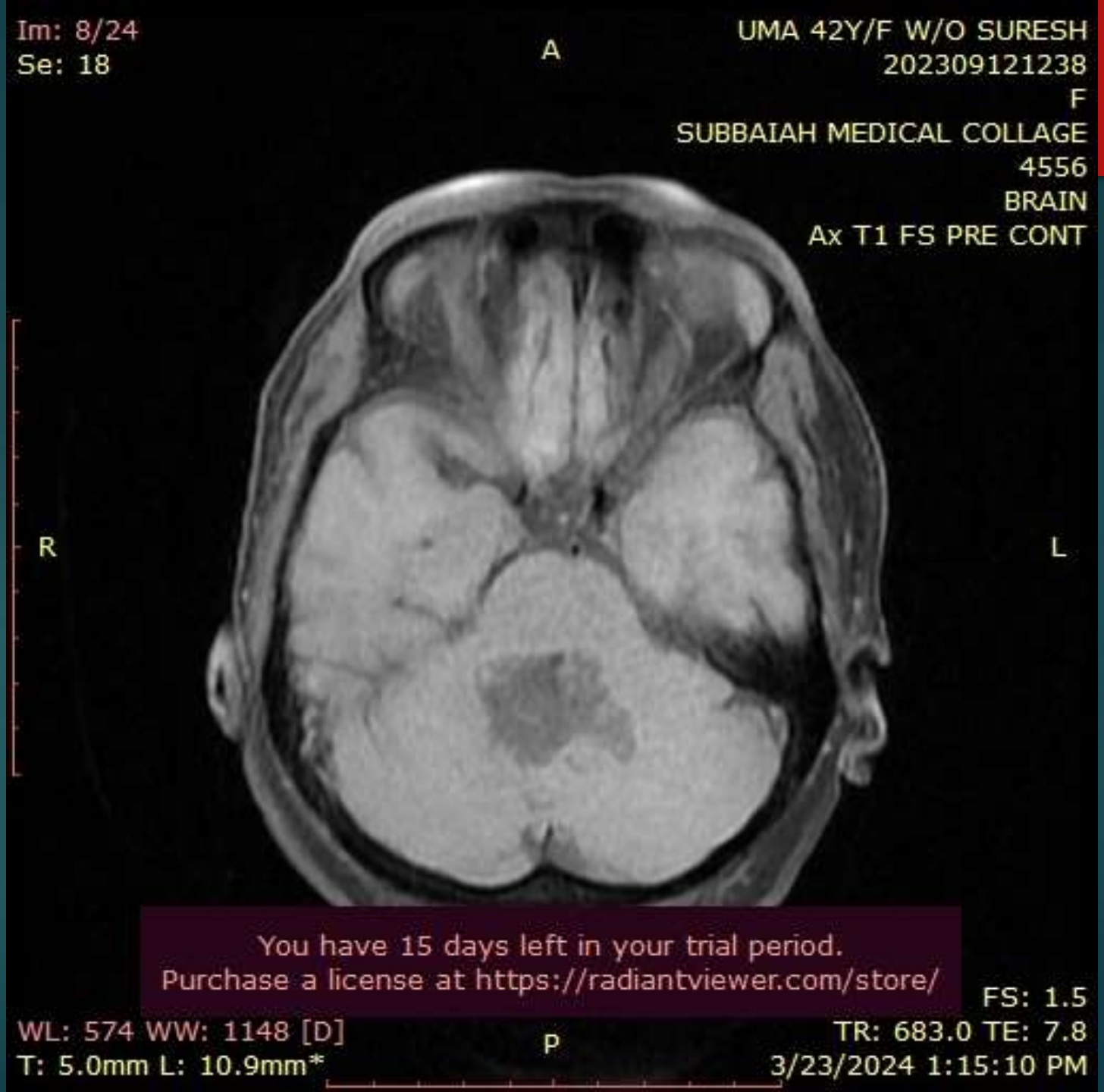
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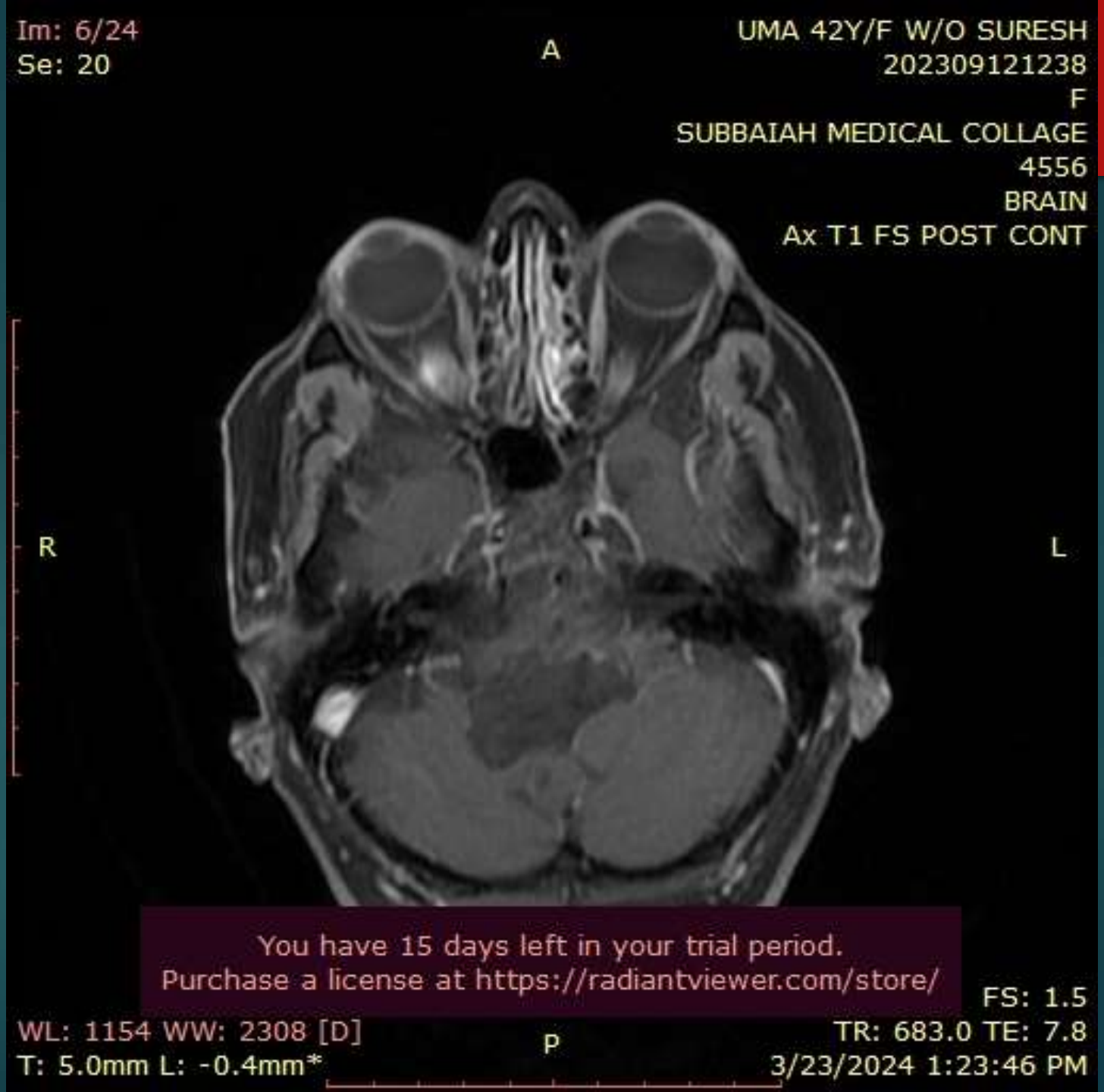
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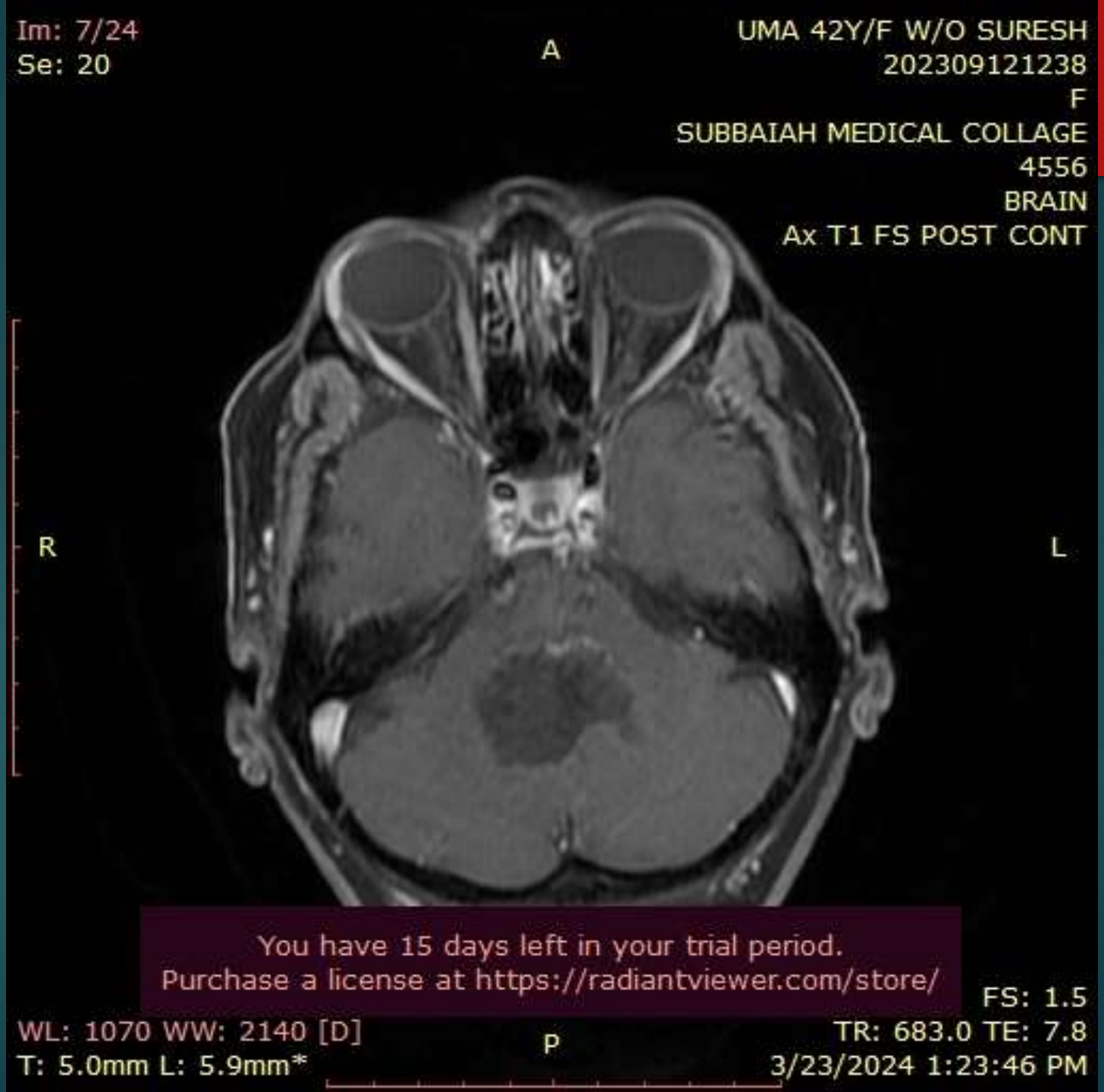
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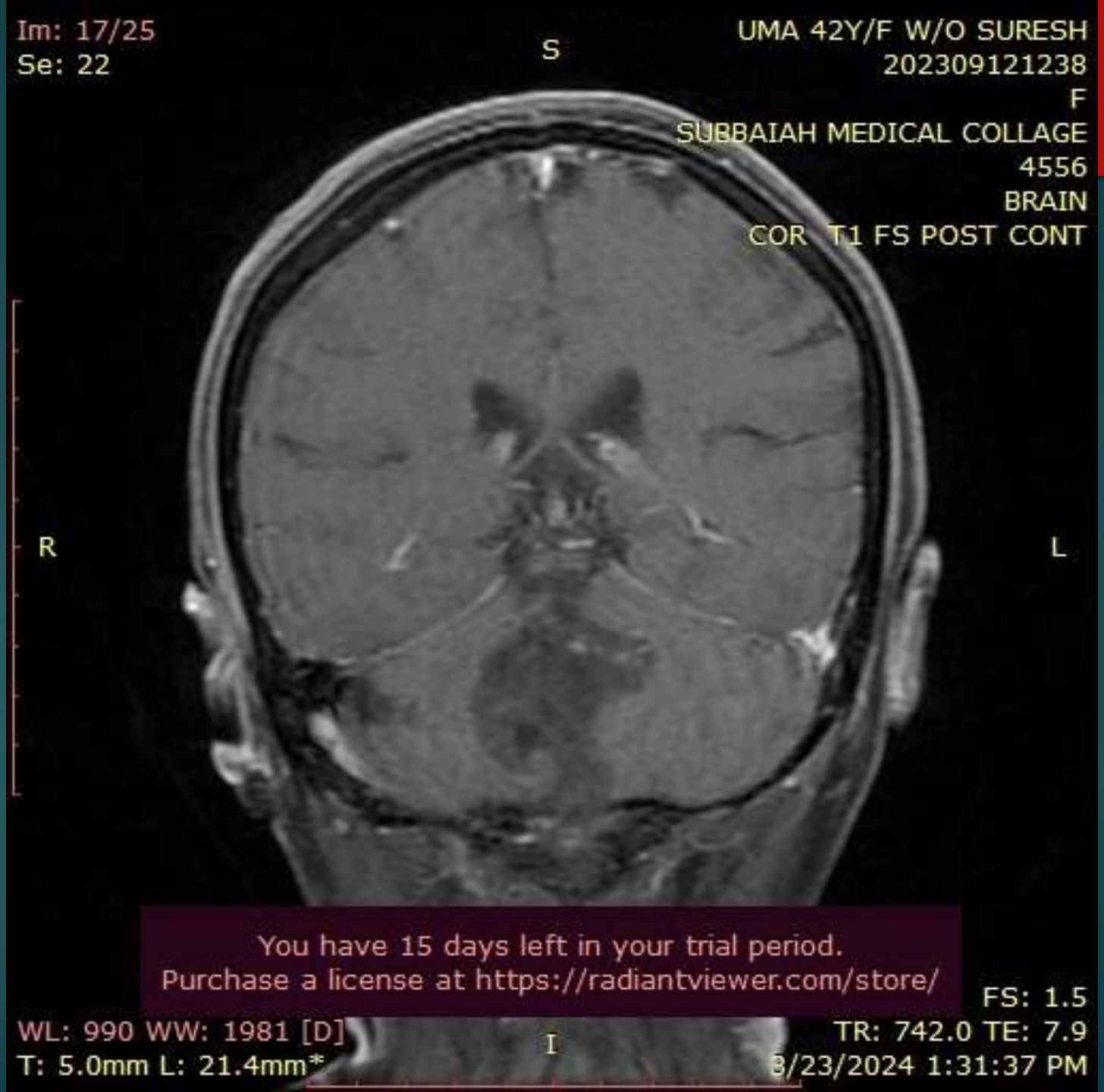
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Conclusion

- Epidermoids are benign intracranial tumors which at times become a surgical dilemma due to their location. Their detection is best done with the help of MRI especially by using DWI.

Thank You