



## Case Study 1

### 1. Case Study 1

#### 1.1 Case Study 1



## Case Study 1

### Clinical Presentation


47-year-old female  
presenting with headache

Not an actual patient

[Next](#)

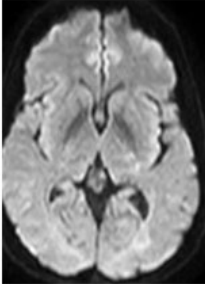
#### 1.2 Pre-contrast MR

## DWI Axial (Slide Layer)




**MR of the brain without contrast**  
<click all the buttons to see more>

**T1 AXIAL**   **T2 AXIAL**   **DWI AXIAL**   **SWI AXIAL**



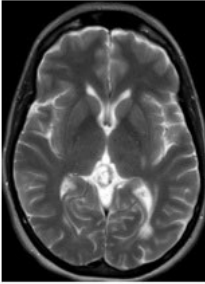
**ADMINISTER CONTRAST**

## T2 Axial (Slide Layer)




**MR of the brain without contrast**  
<click all the buttons to see more>

**T1 AXIAL**   **T2 AXIAL**   **DWI AXIAL**   **SWI AXIAL**



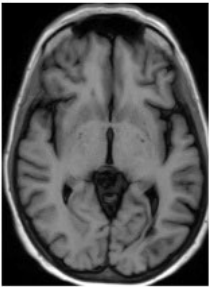
**ADMINISTER CONTRAST**

## T1 Axial (Slide Layer)




**MR of the brain without contrast**  
<click all the buttons to see more>

**T1 AXIAL**   **T2 AXIAL**   **DWI AXIAL**   **SWI AXIAL**



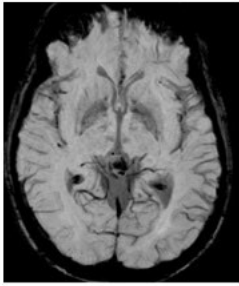
**ADMINISTER CONTRAST**

## SWI Axial (Slide Layer)



**MR of the brain without contrast**  
<click all the buttons to see more>

**T1 AXIAL**   **T2 AXIAL**   **DWI AXIAL**   **SWI AXIAL**



**ADMINISTER CONTRAST**

### 1.3 Administer Contrast

#### Syringe (Slide Layer)

**FULL PRESCRIBING INFORMATION**

**WARNING: NEPHROGENIC SYSTEMIC FIBROSIS (NSF)**

Gadolinium-based contrast agents (GBCAs) increase the risk for NSF among patients with impaired elimination of the drug. Avoid use of GBCAs in these patients unless the diagnostic information is essential and not available with non-contrast MRI or other modalities. NSF may result in fatal or debilitating fibrosis affecting the skin, muscle, and internal organs.

- The risk for NSF appears highest among patients with:
  - Chronic, severe kidney disease (GFR < 30 mL/min/1.73 m<sup>2</sup>), or
  - Acute kidney injury.
- Screen patients for acute kidney injury and other conditions that may reduce renal function. For patients at risk for chronically reduced renal function (e.g., age > 60 years, hypertension, diabetes), estimate the glomerular filtration rate (GFR) through laboratory testing (5, 1).
- For patients at highest risk for NSF, do not exceed the recommended Clariscan dose and allow a sufficient period of time for elimination of the drug from the body prior to any re-administration [\(see Warnings and Precautions 2.1\)](#).

**1 INDICATIONS AND USAGE**

Clariscan is a gadolinium-based contrast agent indicated for intravenous use with magnetic resonance imaging (MRI) in brain (intracranial), spine and associated tissues in adult and pediatric patients (including term neonates) to detect and visualize areas with disruption of the blood brain barrier (BBB) and/or abnormal vascularity.

**2 DOSAGE AND ADMINISTRATION**

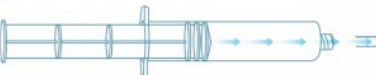
**2.1 Dosing Guidelines**

For adult and pediatric patients (including term neonates), the recommended dose of Clariscan is 0.2 mL/kg (0.1 mmol/kg) body weight administered as an intravenous bolus injection, intrathecally or by power injector, at a flow rate of approximately 2 mL/second for adults and 1-2 mL/second for pediatric patients. Table 1 provides weight-adjusted dose volumes.

**Table 1: Volumes of Clariscan Injection by Body Weight**

Body Weight		Volume
Pounds (lb)	Kilogram (kg)	Milliliters (mL)
	2.5	0.5
5.5	5	1
11	10	2
22	20	4
44	30	6
66	40	8
88	50	10
110	60	12
132	70	14
154	80	16
176	90	18
198	100	20
220	110	22
242	120	24
264	130	26
286	140	28
	150	30

**Administer Clariscan™ (gadoterate meglumine)**

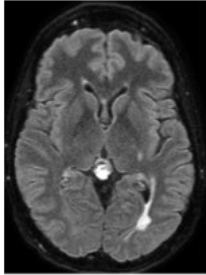


### 1.4 Post-contrast MR of the brain

## FAIR Axial (Slide Layer)

### Post-contrast MR of the brain

T1 AXIAL   T1 SAGITTAL   FLAIR CORONAL   FLAIR AXIAL

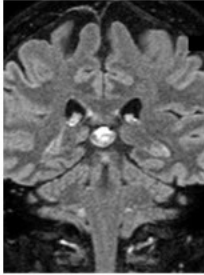


FINDINGS

## FLAIR Coronal (Slide Layer)

### Post-contrast MR of the brain

T1 AXIAL   T1 SAGITTAL   FLAIR CORONAL   FLAIR AXIAL

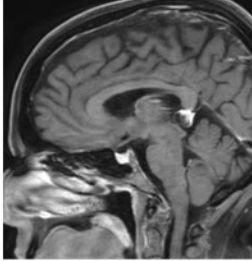


FINDINGS

## T1 Saggital (Slide Layer)

**Post-contrast MR of the brain**

T1 AXIAL   T1 SAGITTAL   FLAIR CORONAL   FLAIR AXIAL

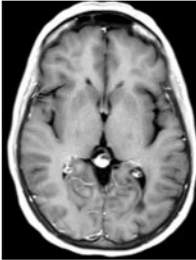


FINDINGS

## T1 Axial (Slide Layer)

**Post-contrast MR of the brain**

T1 AXIAL   T1 SAGITTAL   FLAIR CORONAL   FLAIR AXIAL



FINDINGS

## 1.5 Findings



### Findings

Complex, partially cystic pineal lesion with enhancing, solid components



CLINICAL INFORMATION

## 1.6 Clinical information

### Introduction

Pineal cysts are usually asymptomatic, and typically found incidentally.

They generally present as a unilocular cyst within the pineal gland, where attenuation or fluid signal may vary from similar to CSF to around 60% being slightly hyperintense to CSF on T1 weighted images. A thin, smooth rim of contrast enhancement is seen in most cases and calcifications are present in 25% of instances.



### Epidemiology

Pineal cysts are typically found in young adults (20-30 years of age) with a predilection for women (3:1 female to male ratio).

### Clinical presentation

The vast majority of pineal cysts are small (<1 cm) and asymptomatic. Rarely, hemorrhage into a pineal cyst can cause rapid expansion and so-called pineal apoplexy.

RADIOGRAPHIC FEATURES

## 1.7 Radiographic features

### Radiographic features: MRI

#### T1

Typically iso to hypointense compared to brain parenchyma

#### T2

High signal usually slightly hypointense to CSF, thin septations or small internal cysts may be present

#### FLAIR

High signal does not often suppress fully

#### DWI/ADC

They demonstrate no restricted diffusion

#### T1 C+ (Gd)

As is the case with the rest of the pineal gland, the walls of pineal cysts do not have a well-formed blood brain barrier, and as such, can enhance vividly with contrast. Enhancement is usually thin (<2 mm), smooth and confined to the rim (either complete or incomplete).

TREATMENT

## 1.8 Treatment and Prognosis

### Treatment and Prognosis



In almost all cases no treatment is necessary, and, in most cases, provided that the cyst is small, no imaging follow-up is required.

When cysts are above 10-12 mm in diameter, follow-up imaging may be necessary, as a cystic pineocytoma may appear similar.

REFERENCES



## 1.9 References

### References:

1. Barboriak DP, Lee L, Provenzale JM. Serial MR imaging of pineal cysts: implications for natural history and follow-up. *AJR Am J Roentgenol.* 2001;176(3):737-43.
2. Osborn AG, Preece MT. Intracranial cysts: radiologic-pathologic correlation and imaging approach. *Radiology.* 2006;239(3):650-64. doi:10.1148/radiol.2393050823.
3. Up Y, Mahankali S, Hou J et-al. High prevalence of pineal cysts in healthy adults demonstrated by high-resolution, noncontrast brain MR imaging. *AJNR Am J Neuroradiol.* 2007;28(9):1706-9. doi:10.3174/ajnr.



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