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Importance of Injection Site Image in DaTscans

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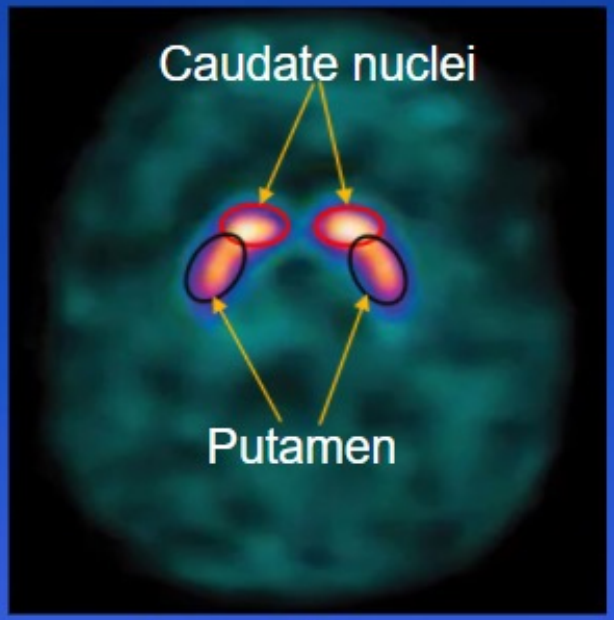
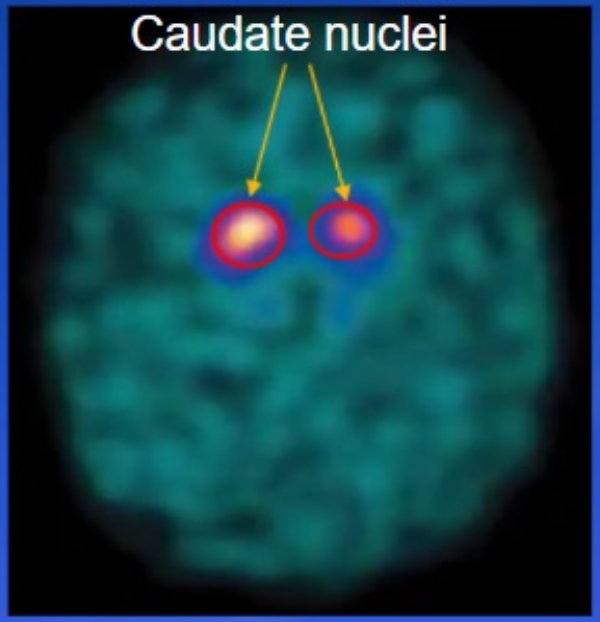
DaTscan Background

- DaTscans are used to differentiate Parkinson's Disease and essential tremor
- Loss of dopamine receptors indicates an abnormal scan (positive for parkinsonian syndrome)



Normal Scan



Abnormal Scan

Image credit: GE Healthcare

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Introduction

- Mayo Clinic Rochester (MCR) acquires a planar view of injection site for DaTscans
- The planar arm image is used to inspect for infiltrated radiotracer dose that did not make it to the brain for scanning

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Introduction Cont.

GE 670 or 630 systems
have planar imaging-
can acquire the arm view

Spectrum Dynamics
Veriton does not have planar
imaging capabilities-
arm view is not acquired

Purpose of Study

- Studying the effect of radiotracer infiltration on striatal dopamine receptor uptake in the brain for DaTscans
- Possible correlation between poor DaTscan quality and radiotracer uptake in the arm
- Assessing whether the arm view may be discontinued as part of DaTscan practice

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Study Design

- Single-institution retrospective study
- 200 consecutive DaTscan studies
  - 185 DaTscan studies included
    - 14 images with injection site compared to control image without an injection-site
    - Diagnostic (Y/N)
  - 15 excluded (no arm view)

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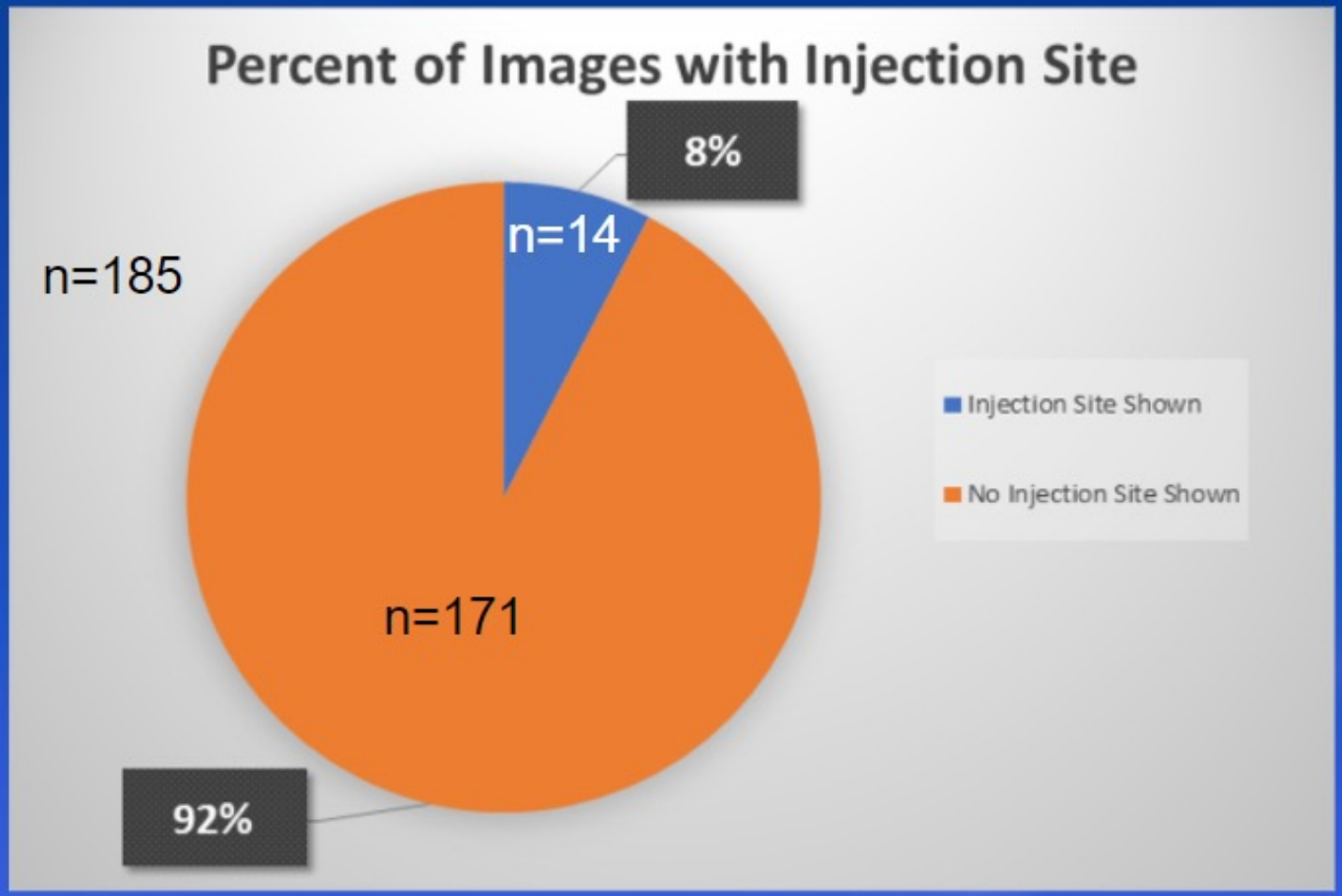
Results



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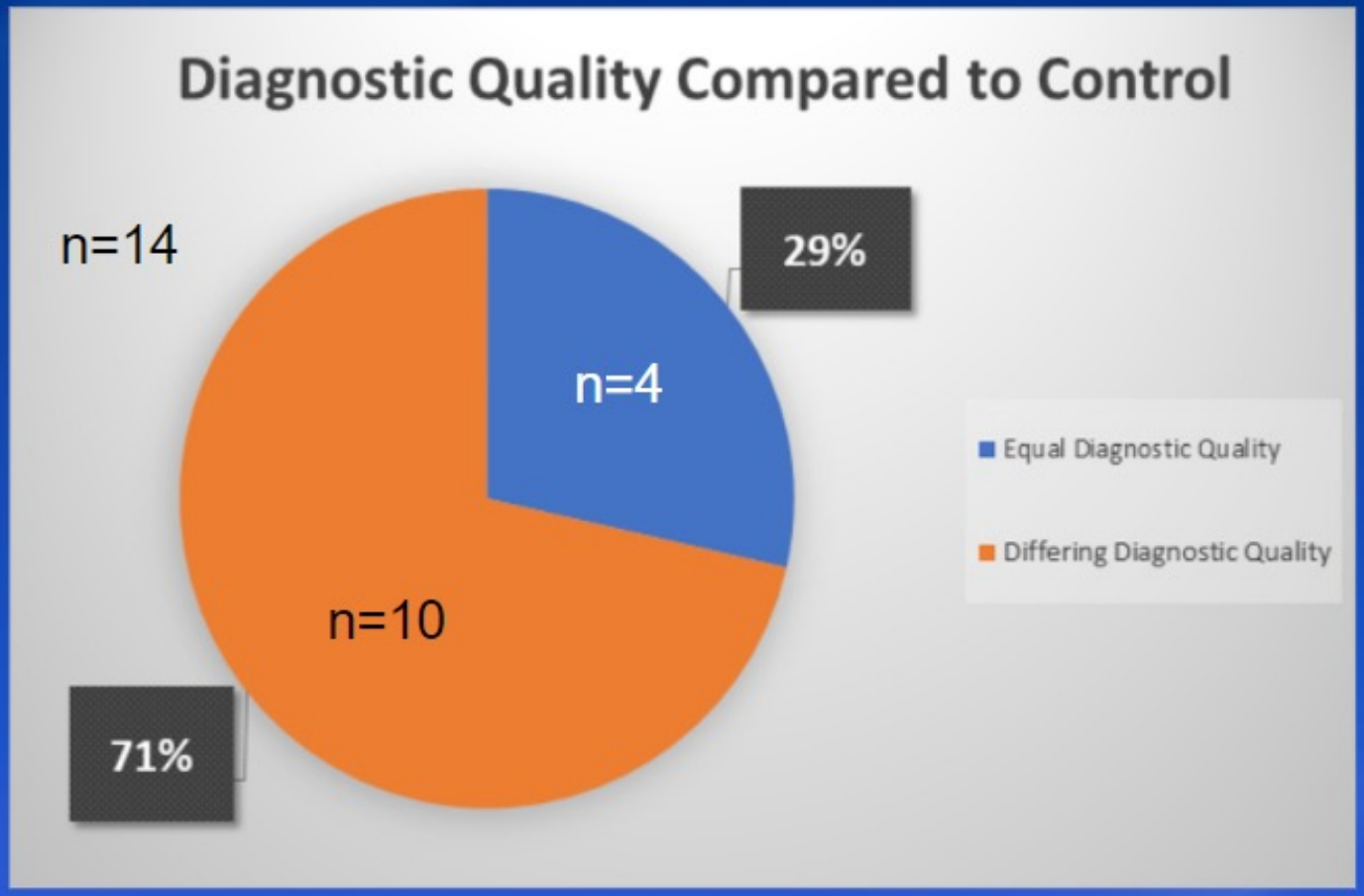
Results



One case of lowest quality showed injection site

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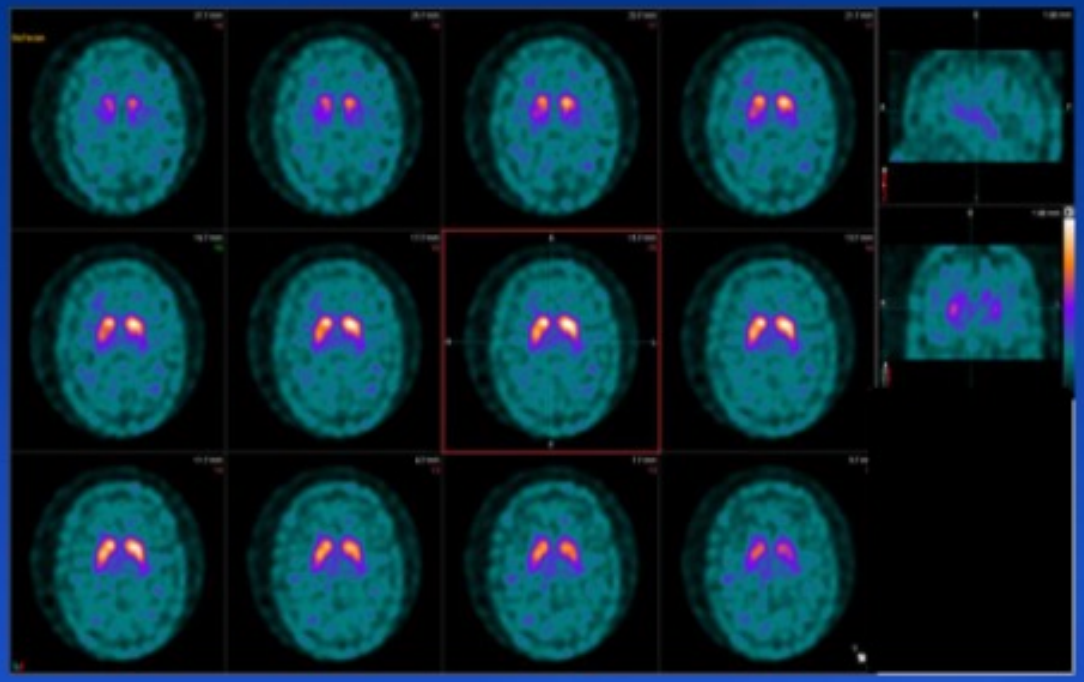
Case Study #1

Arm Image with Uptake



High Quality DaTscan

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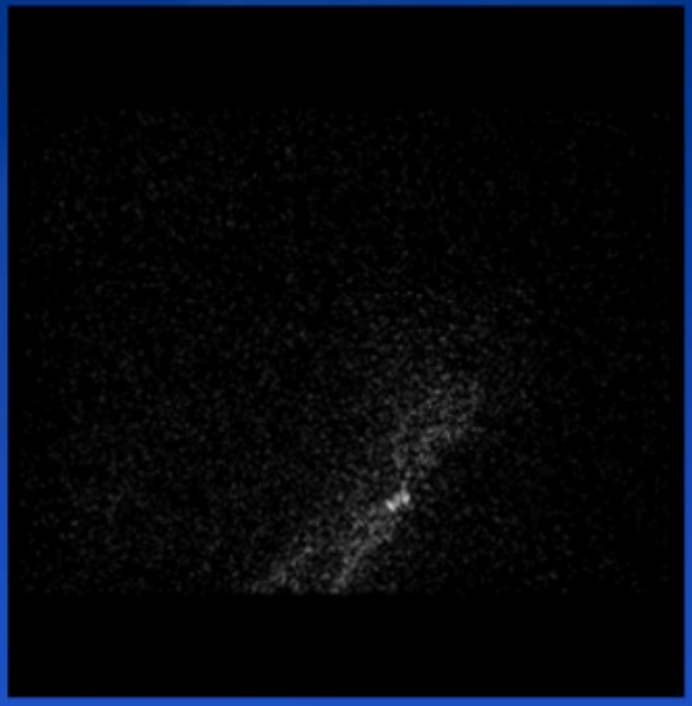
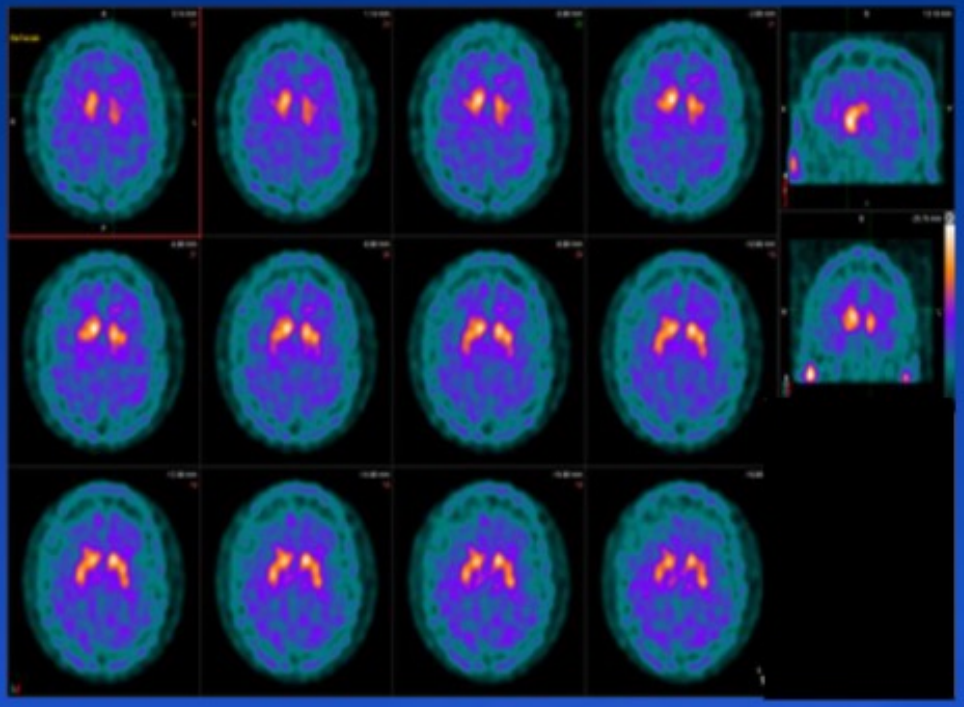
Case Study #2



Arm Image with Uptake



Poor Quality DaTscan

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Conclusion

- Infiltrated dose was not proven to degrade image quality
- Planar acquisition has no financial cost or additional radiation exposure to patient
- No planar capabilities, study unlikely to be impacted

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