

External Iliac Lymph Nodes as a CT Imaging Clue for Periprosthetic Hip Infection: A Retrospective Imaging Study

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Retrospective CT imaging study • 94 hip revisions • 60 PJI • 34 aseptic failures • Inguinal and pelvic lymph nodes assessed

BACKGROUND

Periprosthetic joint infection (PJI) remains one of the most serious complications after hip arthroplasty. Diagnosis relies on a combination of serum inflammatory markers, synovial tests and microbiological investigations. Reactive enlargement of inguinal and pelvic lymph nodes may provide an additional imaging clue for infection.

AIM

To assess inguinal and iliac-axis lymph nodes on preoperative pelvic CT and determine whether their presence and size can distinguish PJI from aseptic failure. Within the PJI group, the affected side was also compared with the contralateral healthy side.

METHODS

DESIGN

Retrospective imaging study of hip revision arthroplasties

COHORT

94 revision THA cases: 60 PJI and 34 aseptic failures, including 3 metallosis cases

CT REVIEW

Preoperative pelvic CT scans routinely performed for surgical planning

NODAL STATIONS

Inguinal • obturator • ilio-obturator • external iliac • common iliac

MEASUREMENTS

Presence/absence, major and minor axis diameters, estimated surface area

ANALYSIS

PJI vs aseptic failure; affected vs contralateral side within the PJI group; ROC curves for diagnostic performance

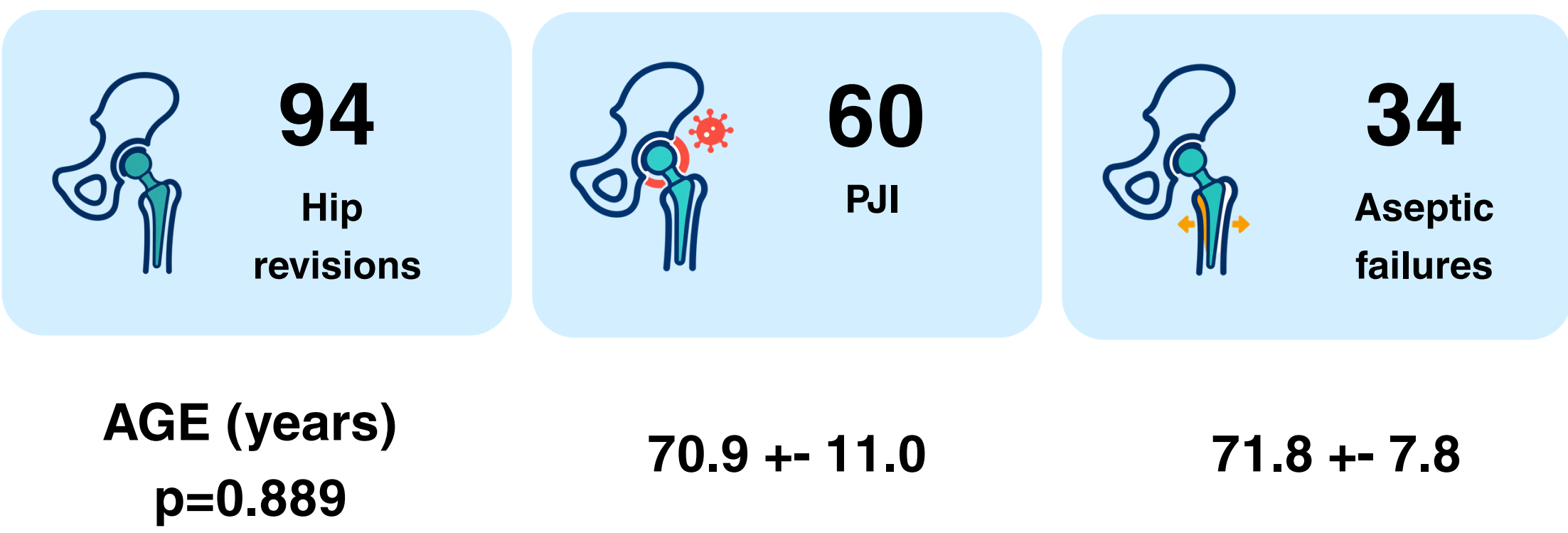
STATISTICS

Descriptive and comparative analyses; significance threshold $p \leq 0.05$

WHAT WAS MEASURED ON CT?

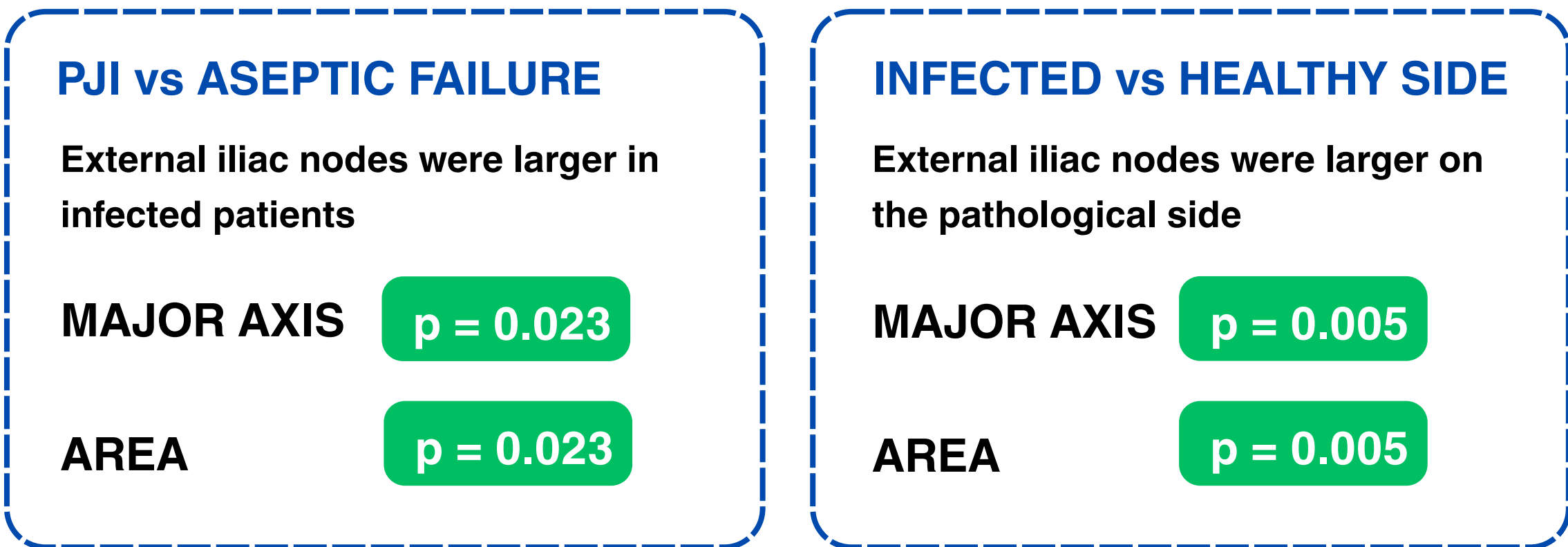
Nodal presence, long axis, short axis and estimated nodal surface were recorded at each pelvic lymph-node station

STUDY POPULATION

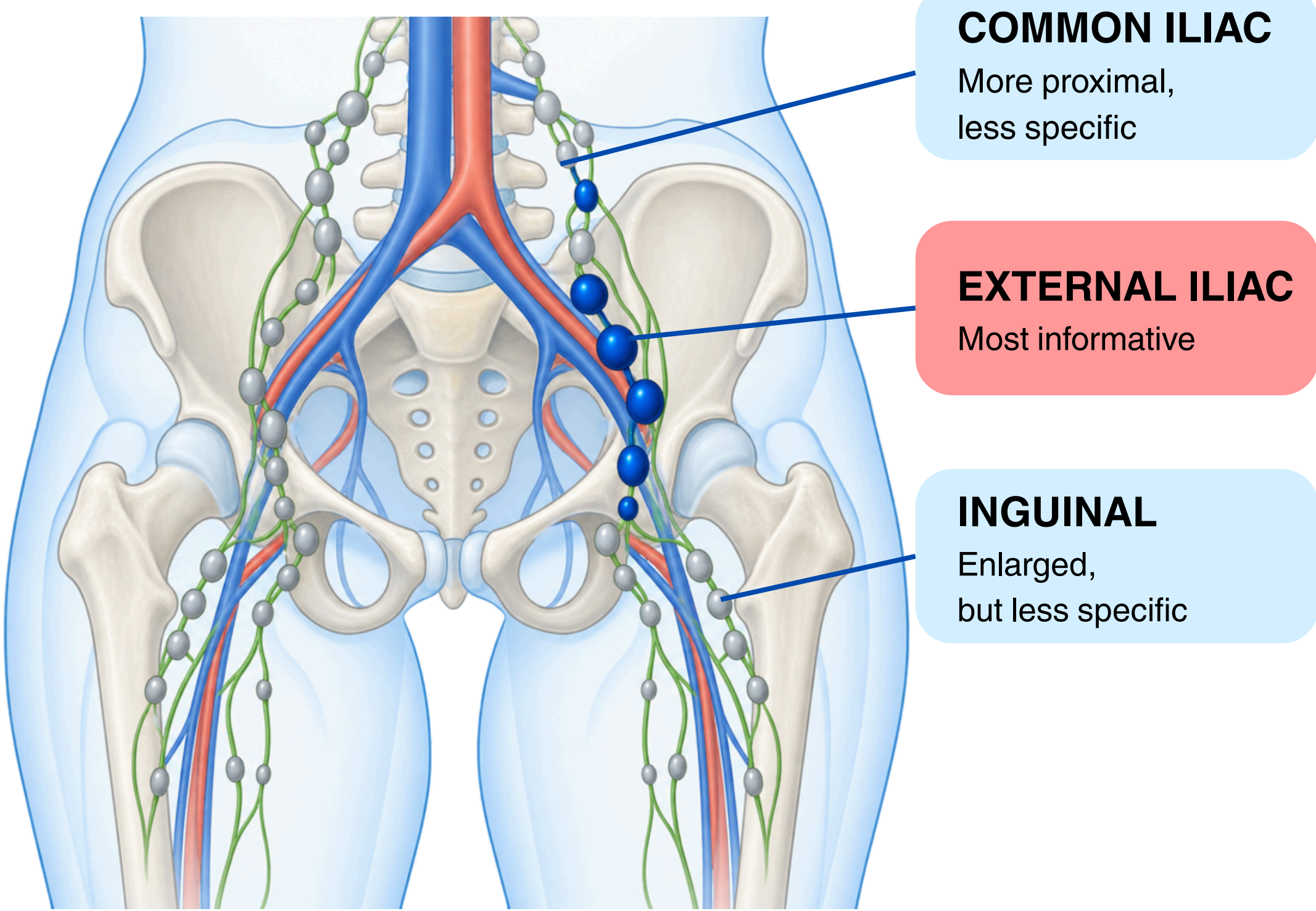


RESULTS

EXTERNAL ILIAC LYMPH NODES EMERGED AS THE MOST INFORMATIVE STATION



CENTRAL FINDING: EXTERNAL ILIAC NODES ARE THE MOST INFORMATIVE



WHY EXTERNAL ILIAC?

The iliac axis is anatomically linked to pelvic and hip drainage. Previous imaging studies suggest that lymph nodes size and number may help identify PJI, particularly along the external iliac chain. External iliac secundarism has been reported also for pelvic and proximal femur sarcomas.

KEY RESULT

External iliac lymph nodes showed the most consistent differences across both comparisons.

They were larger:

- in PJI vs aseptic failure
- on the infected vs contralateral healthy side

This suggests that lymph-node assessment may provide complementary information during routine preoperative CT evaluation

CLINICAL MEANING

A lymph-node check can be integrated into routine preoperative pelvic CT review without additional imaging burden.

The finding may orient diagnostic suspicion when conventional data are equivocal

LIMITATIONS

- Retrospective design
- Variable timing between CT and surgery
- Nodal enlargement is not infection-specific
- Metallosis and sterile inflammation may confound interpretation

CONCLUSION

Preoperative CT assessment of pelvic lymph nodes may provide useful adjunctive information in the diagnostic work-up of hip PJI. External iliac lymph nodes appear to be the most informative pelvic nodal station

TAKE HOME MESSAGE

“External iliac lymph nodes enlargement may represent an additional CT clue in suspected hip PJI not a standalone criterion, but another piece of the diagnostic puzzle.”

SELECTED REFERENCES:

1. Qin L, et al. Detection of inguinal lymph nodes is promising for the diagnosis of periprosthetic joint infection. 2023, Frontiers.
2. Yang Y, et al. Quantifying the Long and Short Axes of the External Iliac Lymph Nodes Using Dual-Energy Computed Tomography: A Potential Diagnostic Approach for Periprosthetic Joint Infection – A Prospective Study. 2024, Infect and Drug Res.
3. Zhou H, et al. Combined Use of External Iliac Lymph Node Count and Bone Scintigraphy for PJI Diagnosis: A Prospective Study. 2024, Diagnostics.
4. Albano D, et al. Failed Total Hip Arthroplasty: Diagnostic Performance of Conventional MRI Features and Locoregional Lymphadenopathy to Identify Infected Implants. 2021, Journal of Magnetic Resonance Imaging.