

Evidence Discussion (ONC 12.10-12.12)

Benign Bone Tumors

Suspected/Diagnosis (whenever applicable)

- Many benign bone tumors have characteristic appearance on plain Xray, particularly in conjunction with history, patient age, and size and growth characteristics. Lesions without aggressive appearing characteristics on Xray generally do not require further evaluation. Advanced imaging modalities are supported when Xray is indeterminate for malignancy to determine management strategy (ACR 2024). Thus, the advanced imaging guidelines in this section pertain to enchondromas, which often appear indeterminate on plain Xray, and giant cell tumor of bone (GCTB), which have potential for malignant degeneration and metastasis.

Initial staging

- Giant Cell Tumor of Bone
- MRI can help distinguish malignant transformation, while complex bony anatomy maybe better visualized on CT. To establish management strategy, our guidelines support using both modalities for involved areas in alignment with NCCN and ACR (Biermann 2023, ACR 2024, Montgomery 2019).
- CT chest and whole body bone scan are supported at time of initial staging given the malignant and metastatic potential of GCTB. CT abdomen and pelvis are not supported without symptoms in these areas as this would not be a typical pattern of metastasis in the setting of malignant degeneration of GCTB. CT of abdomen and pelvis increases radiation exposure with low yield. (Biermann 2023, ASCO 2021)

Enchondroma

- MRI can help distinguish suspected enchondroma on plain film from other more malignant entities and is supported for initial staging to confirm characteristic appearance. (ACR 2024)

Restaging

- GCTB
- For patients requiring chemotherapy, repeat of all imaging done at initial staging may be done every two cycles to assess treatment response or need to change therapy. For patients treated with radiotherapy, repeat imaging may be done at completion of radiotherapy to verify treatment response and establish baseline for surveillance (Biermann 2023)

Enchondroma

- Once initial staging with advanced imaging has been completed, plain films should be adequate to ensure stability or for suspected recurrence, restaging after local therapy, or surveillance. Further advanced imaging is generally low yield, unless there are indeterminate findings on the plain films. (ACR 2024)

Surveillance

GCTB

- The role of advanced imaging in asymptomatic surveillance is not well established for GCTB. Though late recurrences can occur, there is not strong data to support advanced imaging over

plain film in asymptomatic patients. eviCore guidelines allow advanced imaging if there are indeterminate findings on plain film, both for primary site and chest. Timeframes for plain films are in alignment with NCCN. (Biermann 2023, Montgomery 2019)

Enchondroma

- Once initial staging with advanced imaging has been completed, plain films should be adequate to ensure stability or further imaging for recurrence, restaging after local therapy, or surveillance . Further advanced imaging is generally low yield, unless there are indeterminate findings on the plain films. (ACR 2024)

References

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