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EWING' SARCOMA: INTEREST OF BONE SCINTIGRAPHY

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INTRODUCTION

Ewing's sarcoma is a relatively rare tumor, accounting for 6 to 8 % of malignant primary bone tumors. It primarily affects children and young adults. Its predilection sites are the long bones and the pelvis. Remarkably, this tumor is characterized by a high risk of rapid progression and bone metastasis.

Bone scintigraphy is an examination of great significance, both for the initial assessment, local and distant, and for post-therapeutic monitoring.

THE PURPOSE OF THE STUDY:

The observations reported in this study highlight the importance of bone scintigraphy in both the assessment of disease extent and the evaluation of treatment outcomes in Ewing's sarcoma.

OBSERVATIONS:

Observation n° 1:
- A female child aged 16 years old.
- Ewing's sarcoma of the 2nd and 3rd metatarsals of the right foot.
- Bone scintigraphy as part of the staging evaluation.

Observation n° 2:
- A 3-year-old male child.
- Ewing's sarcoma of the left femur, who has undergone surgical treatment and chemotherapy.
- Follow-up bone scintigraphy.

Observation n° 3:
- A 10-year-old female child.
- Ewing's sarcoma of the right arm, who has undergone surgical excision and chemotherapy.
- Follow-up bone scintigraphy.

Observation n° 4:
- A young 27-year-old patient.
- Ewing's sarcoma of the right psoas.
- Comparative bone scintigraphy.

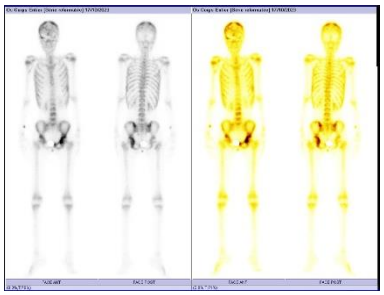
BONE SCINTIGRAPHY TECHNIQUE:

Tracer: Hydroxy-Methylene-Diphosphonate labeled with technetium-99m **(HMDP - 99mTc).**

Injected activity: between 4 and 20 mCi (depending on the patient's weight) via intravenous route

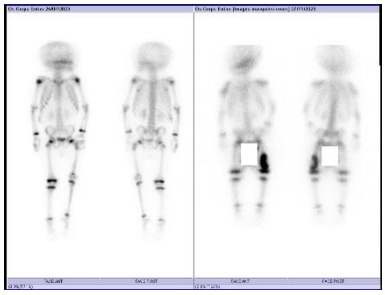
Imaging: Whole-body in anterior and posterior views after **a delay of 3 hours.**

RESULTS:

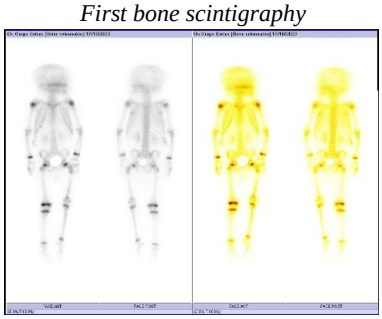


Patient n° 1:

- Moderate uptake in the metatarsals of the right foot, related to the **primary tumor.**
- Areas of increased uptake in the following locations: cranial vault, right orbital rim, spine, rib cage, and pelvis, suggestive of **secondary bone lesions.**



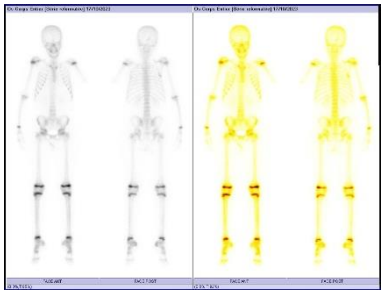
First bone scintigraphy



Follow-up bone scintigraphy

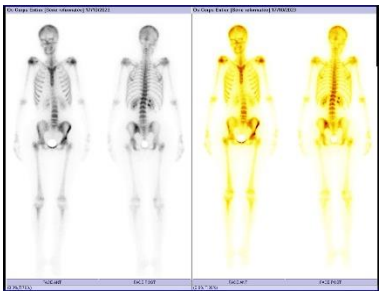
Patient n° 2:

- Disappearance of the focal uptake related to the **primary lesion.**
- **No newly appearing uptake abnormalities.**



Patient n° 3 :

- **Normal** bone scintigraphy.
- **Absence** of new secondary bone locations (unchanged compared to the initial scintigraphic examination).



Patient n° 4:

- Focal areas of moderate uptake involve the left iliac wing, sacroiliac joint, and acetabulum, as well as the right trochanteric region, suggesting **secondary bone locations.**

DISCUSSION

Ewing's sarcoma is categorized among primitive peripheral neuroectodermal. Before the age of 20, it ranks as the second most frequent malignant bone tumor, accounting for 30%, with osteosarcoma taking the lead at 60%. It can affect any bone but it predominantly targets flat and long bones, exhibiting a preference for diaphyseal sites, setting it apart from osteosarcoma, which more commonly occurs in metaphyseal regions.

Bone scintigraphy is routinely performed to detect bone metastases, serving as a highly sensitive examination for a thorough and accurate staging assessment. Furthermore, it aids in post-treatment monitoring and the detection of both local and distant recurrences.

CONCLUSION

Bone scintigraphy is a powerful tool in the assessment of neoplastic extension, the evaluation and post-therapeutic monitoring, as well as the diagnosis of local recurrence or bone marrow metastases in Ewing's sarcoma.

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