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Neuroendocrine Liver Metastases Mimicking Hemangiomas

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Case Background Information:

- A 68-year-old male with medullary thyroid carcinoma with multiple liver lesions.

Multiphasic CT Scan



Non-contrast



Arterial phase



Venous phase



Delayed

Imaging Findings

- Non-contrast, arterial, porto-venous, and delayed post contrast images show several flash filling and delayed enhancing liver lesions mimicking hemangiomas. Note the peripheral continuous rim of several hepatic lesions on early dynamic images, suggesting metastases.
- Hemangiomas usually have classical peripheral discontinuous rim or puddles of enhancement on the early dynamic postcontrast images, in contrast to this case.

Discussion: Neuroendocrine Liver Metastases

- Typically, neuroendocrine liver metastases are hypervascular with arterial phase enhancement and delayed postcontrast wash-out.
- Although well-vascularized, these may have variable or atypical appearance.
- Metastases from GI primary are more likely to show delayed washout than pancreatic origin neuroendocrine neoplasms.
- Sometimes, these may show some degree of delayed enhancement instead of washout. This may be particularly true with higher grade NEN metastases, and metastases from medullary thyroid cancer.
- Larger tumors may demonstrate central necrosis or calcifications.

Discussion: Liver Metastases From Medullary Thyroid Cancer

- Liver metastases are seen in about 25-45% of patients with medullary thyroid cancer.
- They are often numerous, small, and may have miliary pattern.
- Calcifications are seen in one-third of these cases.
- These may appear hyperechoic on US, bright on T2 images, or show delayed enhancement on dynamic CT or MRI postcontrast images mimicking hemangioma.
- When diagnosis is doubtful, ¹⁸F-FDOPA or somatostatin tracer analogue PET-CT may be useful to identify metastases. Alternatively, temporal follow-up or biopsy may also be a viable option.
- Metastases often grow slowly and may be asymptomatic for quite a length of time.

Conclusions

- Although neuroendocrine liver metastases are typically hypervascular with arterial phase enhancement and delayed postcontrast wash-out, they may have varied appearance.
- Liver metastases from high grade neuroendocrine neoplasms or from medullary thyroid cancer, may show delayed postcontrast phase enhancement and mimic hemangiomas.

References

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Thank you