

Skeletal Muscle Metastases Masquerading as Micro-abscesses

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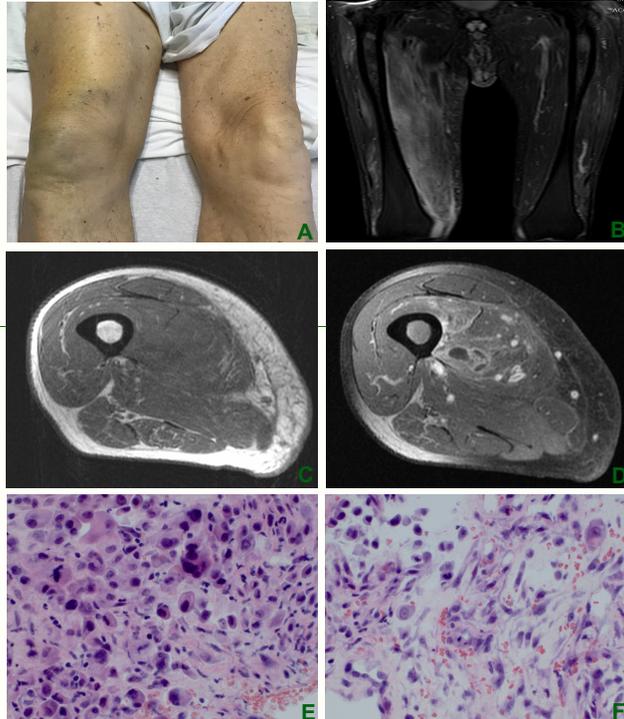
INTRODUCTION

- Skeletal muscle metastases (SMM) is a rare phenomenon, with an estimated prevalence of 1.2-1.8%.¹
- The most commonly reported carcinomas to metastasize to the skeletal muscle are lung, kidney and colon.²
- Around the world, lung cancer is the leading cause of cancer-associated deaths. At the time of diagnosis, approximately 50% of cases are metastatic and 60% of patients have microscopic metastatic disease.³
- Skeletal muscle metastases portends a poor prognosis.⁴

CASE

- 73 year-old male was diagnosed with stage IV poorly differentiated epithelioid lung cancer (favoring squamous histology). Imaging obtained at the time of diagnosis revealed a spiculated right lower lobe nodule and large pleural-based masses in the right middle and lower lobes.
- He received two cycles of chemotherapy with carboplatin and paclitaxel.
- Approximately 3 months after his diagnosis, he presented with severe right thigh pain.
- A CT scan of the right lower extremity showed edema of the right thigh. An MRI confirmed edema but additionally revealed micro abscesses.
- He was started on antibiotics due to concern for pyomyositis.
- Due to clinical worsening, a biopsy of the right vastus medialis muscle was obtained.

IMAGING/PATHOLOGY



- A. Swollen right thigh, compared to the left.
 B. MRI coronal section with hyper-intense signal in the right thigh.
 C. T1 pre-contrast enhanced MRI of the right lower extremity.
 D. T1 post-contrast enhanced MRI of the right lower extremity demonstrating multiple micro-abscesses.
 E. Lung biopsy showing poorly differentiated epithelioid malignant cells.
 F. Thigh biopsy showing infiltration with mitotically active malignant epithelioid cells.

CLINICAL COURSE

- The muscle biopsy was sent for culture and pathologic analysis.
- Cultures from the biopsy were negative.
- Pathology revealed poorly differentiated epithelioid malignancy, consistent with his lung primary.
- The patient was treated with palliative radiation to his right thigh.
- Despite palliative radiation, he was readmitted within a month with intractable pain and was transitioned to comfort measures.

DISCUSSION

- Although skeletal muscle accounts for nearly 50% of the total body mass, metastases to the skeletal muscle is uncommonly encountered in clinical practice.⁴
- It has been hypothesized that skeletal muscle is a hostile environment for tumor cells due to high metabolic activity and blood flow variability.
- Diagnosis of SMM can be difficult due to a broad array of appearances on imaging.
- The majority of patients with SMM die within a year of diagnosis.⁶
- There are no guidelines on optimal management of SMM, palliative radiation/surgery can be considered.

CONCLUSION

SMM is a rare entity uncommonly encountered in clinical practice and is associated with a poor prognosis. Further research regarding optimal treatment regimens is needed.

REFERENCES

1. Surov A, Pawelka MK, Wienke A, Schramm D. PET/CT imaging of skeletal muscle metastases. *Acta Radiol.* 2014;55: 101-106.
2. Giugliano FM, Alberti D, Guida G, et al. Non small-cell lung cancer with metastasis to thigh muscle and mandible: two case reports. *J Med Case Rep.* 2013;7: 96.
3. Baldeo C, Ali R, Seeram V, House J. Lung cancer presenting as a soft-tissue metastasis. *Case Rep Oncol.* 2015;8: 185-188.
4. Surov A, Hairiz M, Holzhausen HJ, et al. Skeletal muscle metastases: primary tumours, prevalence, and radiological features. *Eur Radiol.* 2010;20: 649-658.
5. Pop D, Nadeem AS, Venissac N, et al. Skeletal muscle metastasis from non-small cell lung cancer. *J Thorac Oncol.* 2009;4: 1236-1241.
6. Chiu NMD, Chiu LB, Bedard GB, et al. Muscular metastases arising from squamous cell carcinoma of the lung. *Journal of Pain Management.* 2013;6: 249-252.