

Inflammatory Skin Metastasis as a First Sign of Progression of Lung Cancer – a Case Report

Inflamatórne kožné metastázy ako prvý prejav progresie karcinómu pľúc – kazuistika

Mego M.^{1,2}, Sycova-Mila Z.², Martanovic P.³, Liskova S.², Obertova J.^{1,2}, Mardiak J.^{1,2}

¹ Department of Medical Oncology School of Medicine, Comenius University, Bratislava, Slovakia

² National Cancer Institute, Bratislava, Slovakia

³ Department of Pathology, Health Care Surveillance Authority, Bratislava, Slovakia

Summary

Backgrounds: Skin metastases are present in 1–9% of cancer patients. In rare cases, skin metastases can manifest as lesions with signs of inflammation and are diagnosed as inflammatory cutaneous metastases (ICM). ICM in lung cancer are extremely rare and often misdiagnosed. **Patients and Methods:** We report on a 55-year old man with metastatic lung adenocarcinoma and bone metastases in the axial skeleton and left humerus diagnosed in August 2008. He underwent 6 cycles of palliative chemotherapy with cisplatin and gemcitabine, obtaining a minor response. Five months later, he experienced increasing pain in his left arm, with erythematous oedematous lesion with poorly defined margins and an inflammatory appearance. A diagnosis of skin infection was made and he was treated by antibiotic therapy without improvement. **Results:** Skin biopsy revealed skin infiltration by poorly differentiated carcinoma compatible with a primary lung tumour. He was started on second line therapy with docetaxel, however, the patient's status deteriorated rapidly and he died two months after the first appearance of ICM. **Conclusion:** Metastasis of lung carcinoma could be one of the causes of inflammatory skin lesions in cancer patients and these metastases should be considered in cancer patients with persisting cutaneous lesions with signs of inflammation and no response to antibiotic therapy.

Key words

inflammatory skin metastases – lung cancer – progression – diagnosis

Súhrn

Východiská: Kožné metastázy sú prítomné u 1–9% onkologických pacientov. V zriedkavých prípadoch sa môžu kožné metastázy manifestovať ako inflamatórne lézie a sú diagnostikované ako inflamatórne kožné metastázy (ICM). ICM pri karcinóme pľúc sú extrémne zriedkavé a často sú nesprávne diagnostikované. **Prípad:** V práci referujeme 55-ročného muža s metastatickým adenokarcinómom pľúc s kostnými metastázami v axiálnom skelete a ľavom humeru diagnostikovaného v auguste 2008. Pacient podstúpil 6 cyklov paliatívnej chemoterapie cisplatinou a gemcitabínom s dosiahnutím regresie nádoru. O päť mesiacov neskôr sa u pacienta objavila progredujúca bolesť v ľavom ramene s erytematóznou, neostro ohraničenou léziou s inflamatórnym vzhľadom. Bola stanovená diagnóza kožnej infekcie a následne bola zahájená antibiotická liečba, avšak bez efektu. **Výsledky:** Kožná biopsia odhalila infiltráciu kože slabodiferencovaným karcinómom kompatibilným s primárnym pľúcnym nádorom. U pacienta bola zahájená druhá línia liečby docetaxelom, avšak stav sa rýchlo zhoršoval a pacient zomrel dva mesiace od prvého výskytu ICM. **Záver:** Metastáza pľúcneho karcinómu môže byť jednou z príčin inflamatórnych kožných lézií u pacientov s nádorovým ochorením a prítomnosť týchto metastáz je potrebné zvážiť u pacientov s perzistujúcimi kožnými léziami neodpovedajúcimi na antibiotickú liečbu.

Kľúčové slová

inflamatórne kožné metastázy – karcinóm pľúc – progresia – diagnóza

Autoři deklarují, že v souvislosti s předmětem studie nemají žádné komerční zájmy.

The authors declare they have no potential conflicts of interest concerning drugs, products, or services used in the study.

Redakční rada potvrzuje, že rukopis práce splnil ICMJE kritéria pro publikace zasílané do biomedicínských časopisů.

The Editorial Board declares that the manuscript met the ICMJE "uniform requirements" for biomedical papers.



Michal Mego, M.D., PhD.

Department of Medical Oncology
School of Medicine
Comenius University
Klenova 1
833 10 Bratislava
Slovak Republic
e-mail: misomego@gmail.com

Obdrženo/Submitted: 15. 4. 2010

Přijato/Accepted: 11. 6. 2010

Introduction

Inflammatory skin metastasis in lung cancer patients are extremely rare and often are misdiagnosed. Herein we report a patient with lung adenocarcinoma who developed inflammatory skin metastasis as first sign of disease progression after previous response to chemotherapy.

Case

We report 55 year old man, heavy smoker, without known comorbidity with personal history of increasing pain in left hip and lumbosacral region from August 2008. Plain X-ray and computed tomography (CT) revealed bone metastasis in L3 and left iliac bone. Bone biopsy showed bone involvement with adenocarcinoma. Patient underwent CT scan of chest and abdomen, which revealed primary lesion in S4 of right lung with hilar lymphadenopathy, cytology confirms lung adenocarcinoma. He received bisphosphonates and underwent palliative radiotherapy to painful pelvic and spine bone lesions as well as to left arm. Further patient developed fracture of left humerus due to lytic bone lesion. Arm was surgically treated by intramedullary osteosynthesis with Hackethal bundle nailing. From October 2008 to February 2009, he underwent 6 cycles of palliative chemotherapy with intravenous (IV) cisplatin (75 mg/m²) every 21 days and IV gemcitabine (1 000 mg/m²) on days 1 and 8 of each cycle, obtaining minor response. In the end of July 2009, he experienced increasing pain in left arm, with erythematous edematous lesion with poorly defined margins and an inflammatory appearance (Fig. 1). At the same time intermittent fever up to 38.5 °C was recorded. CT scan of chest and abdomen revealed no signs of disease progression. X-ray of left arm revealed further destruction of humerus due to known bone lesion (osteolytic lesion had 8 cm in longest diameter) and arm ultrasonography showed arm edema without solid tumor mass related to bone lesion. Complete blood count showed leukocytosis (14 800/μL) and mild normocytic, normochrome anemia (hemoglobin = 105 g/L). Biochemistry revealed elevated C-reactive

protein (CRP = 228 mg/L; upper normal limit = 5 mg/L), however procalcitonin level and serum tumor markers (CEA, CY21-1) were within normal range.

Diagnosis of skin infection was made and he was started empirical antibiotic

therapy with clindamycin, without improvement. Repeated blood cultures were obtained, and one of them was positive for *Staphylococcus aureus*. Based on *in vitro* sensitivity, antibiotic therapy was changed to vancomycin and because of no improvement, antimicrobial



Fig. 1. Inflammatory skin metastasis due to lung adenocarcinoma located on the left arm.

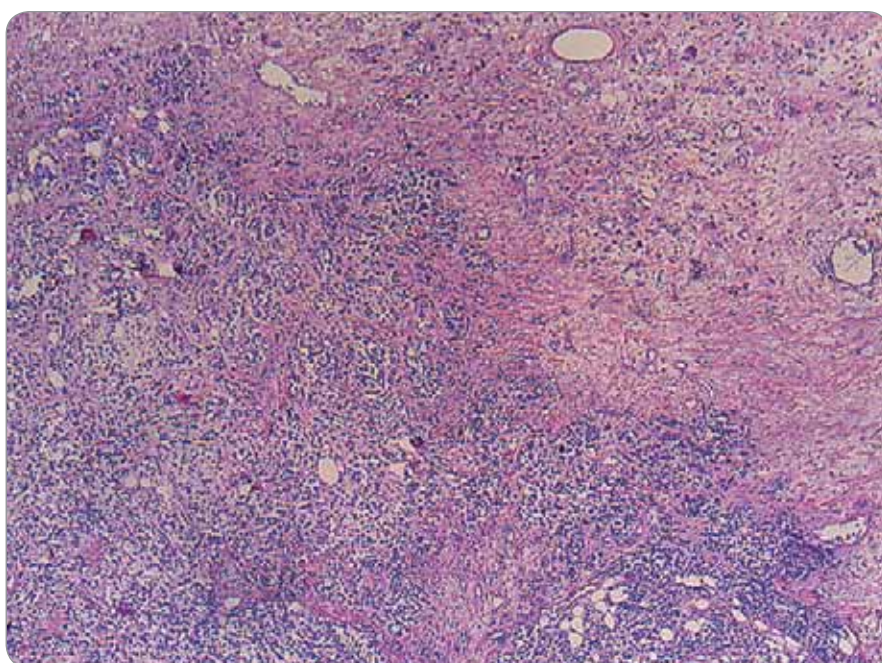


Fig. 2. Histopathology of an inflammatory skin metastasis due to lung adenocarcinoma located on the left arm: Diffuse infiltration in the dermis by poorly differentiated carcinoma compatible with lung primary (hematoxylin and eosin, x 20).

coverage was broaden. He was further treated by different antibiotics including cefoperazon/sulbactam, linezolid and gentamycin, however he experienced increase of erythematous lesion and worsening of symptoms with need to escalate analgesic therapy. Therefore, skin needle aspiration biopsy was performed, which revealed skin infiltration by poorly differentiated carcinoma. He was started second line therapy with docetaxel, however, patient status deteriorated rapidly and he died in September 2009. Autopsy showed disseminated disease with metastatic involvement in lung, liver, spleen, mediastinal and left axillary lymph nodes. Autopsy from the erythematous lesion of the left arm revealed massive involvement by poorly differentiated carcinoma, compatible with a primary lung tumor (Fig. 2).

Discussion

Skin metastasis are present in 1–9% of cancer patients [1]. In rare cases, skin metastasis can manifestate as lesions with sign of inflammation and are diagnosed as inflammatory cutaneous metastasis. IBC is most common form of inflammatory carcinoma

and represents 1–5% of all breast cancers [2]. However, inflammatory metastases were described in different types of cancer including colon, pancreas, ovary, prostate and others [3,4]. Inflammatory skin metastasis due to lung cancer is extremely rare and according our knowledge, only 4 cases were described in literature. Majority of cases including ours were associated with adenocarcinoma histology, while only one case squamous cell carcinoma was present [5–8]. In previous described cases, including our case, the lesions were attributed to spreading to skin following previous invasive procedure [5,7,8]. Clinical manifestation is usually associated with painful, hot edematous and erythematous changes of the skin with no fever and negative microbiological cultures, with slower course compared to true infection. Our patient experienced intermittent fever, however, this fever didn't respond to antibiotic therapy. We suggest presence of paraneoplastic fever, however, we can't exclude bacterial superinfection as well.

In conclusion, we suggest, that metastasis of lung carcinoma could be one of the cause of inflammatory skin lesions

in cancer patients and that these metastasis should be considered in cancer patients with persistence cutaneous lesions with signs of inflammation and no response to antibiotic therapy.

Acknowledgment

We would like to thank Zlatica Pekova for her help with the administrative procedures.

References

1. Krathen RA, Orenco IF, Rosen T. Cutaneous metastasis: a meta-analysis of data. *South Med J* 2003; 96(2): 164–167.
2. Walshe J, Swain S. Clinical aspects of inflammatory breast cancer. *Breast Dis* 2005–2006; 22: 35–44.
3. Edelstein JM. Pancreatic carcinoma with unusual metastasis to the skin and subcutaneous tissue simulating cellulitis. *N Engl J Med* 1950; 242(20): 779–781.
4. Ruiz de Erenchun FR, Vázquez Doval J, Valéridiz S et al. Inflammatory metastatic carcinoma: a clinical and histopathologic study of three cases. *J Dermatol Surg Oncol* 1991; 17: 784–787.
5. Hazelrigg DE, Rudolph AH. Inflammatory metastatic carcinoma. Carcinoma erysipelatoïdes. *Arch Dermatol* 1977; 113(1): 69–70.
6. Kamble R, Kumar L, Kochupillai V et al. Cutaneous metastasis of lung cancer. *Postgrad Med J* 1995; 71: 741–743.
7. Homler HJ, Goetz CS, Weisenburger DD. Lymphangitic cutaneous metastases from lung cancer mimicking cellulitis. Carcinoma erysipeloides. *West J Med* 1986; 144(5): 610–612.
8. Marcoval J, Gallego MI, Morenob A. Inflammatory Cutaneous Metastasis as a First Sign of Recurrence of Squamous Cell Carcinoma of the Lung. *Actas Dermosifiliogr* 2008; 99(2): 157–169.