Journal of Clinical & Experimental Dermatology Research

Carboni I, J Clin Exp Dermatol Res 2015, 6:2
DOI: 10.4172/2155-9554.1000265

Case Report Open Access

Skin Lesion: unexpected uptake PET/CT

Carboni I[1*], Specchio F[1], Nisticò SP[2], Campione E[1], Bavetta M[1], Dianzani C[3], Chimenti S[1] and Ambrogi V[4]

[1]*Department of Systems Medicine, Dermatology, Tor Vergata University of Rome, Rome, Italy*

[2]*Department of Health Science, Dermatology Unit University of Catanzaro, Catanzaro, Italy*

[3]*Department of Dermatology, Plastic Surgery, Campus Biomedico University Rome, Rome, Italy*

[4]*Department of Experimental Medicine and Surgery, Tor Vergata University Hospital, University of Rome Tor Vergata, Italy*

[*]**Corresponding author:** Isabella Carboni, Department of Department of Systems Medicine, Dermatology, Tor Vergata University Hospital, Viale Oxford, 81 00133, Rome, Italy, Tel: 390620902743; Fax: +390620902742; E-mail: crbsll01@uniroma2.it

Received date: December 30, 2014, **Accepted date:** February 10, 2015, **Published date:** February 16, 2015

Case Report

A 74-year-old man suffering from hepatitis C virus-related liver cirrhosis and chronic obstructive pulmonary disease was hospitalized for surgical resection of aorto-bisiliac aneurysm and implantation of Dacron K graft.

He used to receive follow-up visits every 6 months and chest X-ray every year. At screening examination, chest X-ray showed: "two pseudonodular shaded areas in the left middle lung field, common framework type of bronchitis associated with signs of emphysema". Further investigations were performed. Chest Computed Tomography (CT) scans, performed with and without contrast medium, detected a pulmonary lesion located in the left lower lung (Figure 1A). Positron Emission Tomography (PET)-CT scan demonstrated a "pathological increment in the metabolic process at newly formed spiculated margins in the size of 55 x 36 mm at the apical segment of the left lower lobe that has streaks of connection with the pleura where wall thickening is present". At the same time. The examination revealed "a skin thickening of about 15 mm, with increased metabolic activity, sited on the anterior chest wall at the level of the excess outer quadrant of the right breast" (Figure 1B). A dermatological consultation was recommended for the lesion.

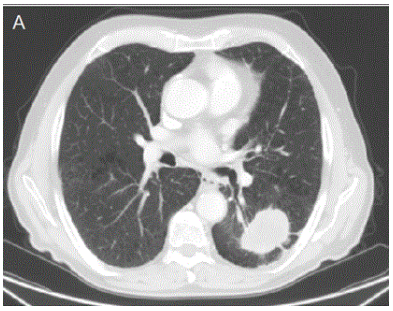

Figure 1A: Chest computed tomography section shows a neoplastic mass sited in the lower left lobe.

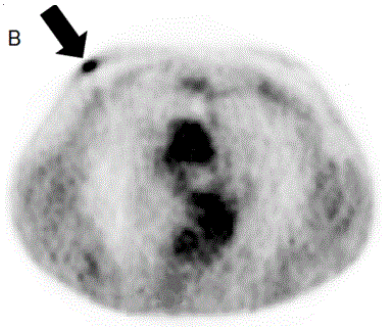

Figure 1B: Positron emission tomography section shows an elevate uptake of the skin lesion (black arrow).

At the dermatologic clinical examination, the lesion appeared as an exophytic keratotic nodule, strongly black-brown in color, measuring about 15 x 20 mm with blurred margins and slightly infiltrated on erythematous skin that was arose from about one year and changed in a few months in shape and size and associated with itchy (Figure 2). Dermoscopic examination showed some characteristic features of an inflamed seborrhoeic keratosis (SK), without specific signs.

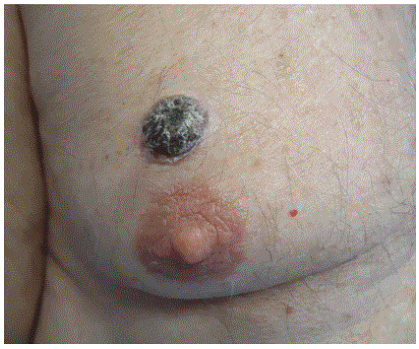

Figure 2: Skin lesion on the upper-outer quadrant right breast: hyperkeratotic seborrhoeic keratosis.

Suspecting that the lesion of the lung might be a cancer, surgical excision was decided and simultaneously the excision of the skin lesion was performed.

The lung was resected through left lower lobectomy plus mediastinal lymphadenectomy. Histological examination reported: "neoplastic infiltration of the lung parenchyma with adenosquamous aspects G3, with large areas of necrosis, not infiltrating the bronchial resection margin or the pleura. There was no lymph node metastasis (pT2N0)". The skin lesion was reported as "inflamed SK, completely excised" (Figure 3).

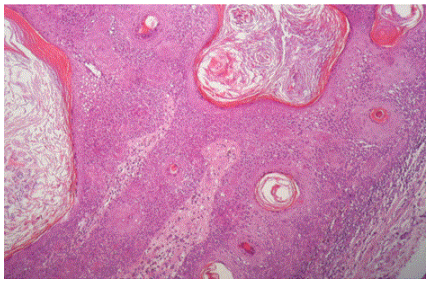

Figure 3: Histological examination: seborrhoeic keratosis irritated / inflamed, with typical epithelial proliferation with epidermal invaginations filled with keratin, the presence of horny pseudocysts and associated with an intense chronic inflammatory infiltrate. (Hematoxylin & eosin, original magnification: 100x).

Discussion and Conclusion

SK is a common benign epithelial tumor that usually presents as exophytic or squamous keratosis appearance, mainly affecting the face, chest and back. It can be single or multiple and can be included in the differential diagnosis of malignant skin lesions including: melanoma, pigmented actinic keratosis, basal cell carcinoma, squamous cell carcinoma and cutaneous metastasis. Usually surgical excision with histological examination is reserved for doubtful cases.

Pathogenesis is still not fully understood, on suppose the correlation with sun exposure and a genetic predisposition [1], as well as has been reported in these the presence of Human Papilloma Virus on Polymerase Chain Reaction.

There is a correlation with the age of the patient: Hafner and Vogt report that the occurrence was 38% in 24-49 year old patients, 69% in 50-59 year old patients, 86% in 60-69 year old patients and 90% in 70-79 year old patient [2].

The literature has also evaluated the genetic and molecular appearance of SK. These studies showed a monoclonal aspect so these have been considered true skin cancers, but does not appear to contain chromosomal abnormalities [3]. The french researchers Logie A, Dunois-Larde et al. [4] highlighted that the fibroblast growth factor receptor (FGFR3) plays an important role in its development. In 40-85% of cases, it also shows the PIK3CA genetic mutation, the gene is also found in some tumors that develop malignant, despite keratosis has no malignant potential.

Skin metastases are rare in the routine clinical practice of dermatology, but they are of major clinical significance because they are usually indicative of advanced disease [5].

The frequency of cutaneous metastases in patients with malignancies is 0.6%-10.4% [6].

Skin metastases predominantly originate from primary tumours of the lung and melanoma, non-small cell lung cancer (NSCLC) accounts for about 85% of lung cancers [7-9].

A recent retrospective study showed that 2.8% of patients with NSCLC, has cutaneous metastases as initial clinical manifestation [10]. A skin lesion discovered in concomitance with a lung cancer should be always suspected as metastasis and considered for an appropriate clinical and instrumental approach leading to certain histological diagnosis. Nevertheless also the presence of a single resectable skin metastasis, unique site of a secondary disease, should not be considered a criteria for avoiding surgical resection of the primitive mass [11].

PET/CT is a technique of nuclear medicine and medical imaging for the evaluation of neoplastic disease, known or suspected.

The tracer used is usually 18-F-fluoro-deoxy-glucose (FDG). The PET/CT is a method that allows the combination of the high sensitivity of the nuclear technique which is able to highlight the biochemical changes, with the high morphological spatial resolution imaging (CT) [12].

The detection of uptake areas FDG, usually indicates the presence of a malignant tumor lesion. In the literature, no cases of uptake of benign cutaneous lesions to the PET/CT have been reported, but from the data of the most recent literature shows that there can be a different FDG uptake depending on the type of inflammation whether or chronic granulomatous [13].

Our case shows an unusual SK PET/CT contrast uptake, despite SK is a benign skin cancer. Therefore we have interrogate of why does can occur. We supposed on the basis of data of Cheng G 2013 that this event could be determined to its inflammatory activity that in the patient's case was in place at the time of the examination. Moreover we would like to note that a SK, which literature reported, possesses a monoclonal feature and a genetic PIK3CA mutation [2].

In conclusion, we would like to underline the importance to combine instrumental and clinical-histological examinations of skin lesions, particularly if discovered in concomitance with a cancer, to accurately diagnose and treat them.

References

1. Kennedy C, Bajdik CD, Willemze R, De Gruijl FR, Bouwes Bavinck JN; Leiden Skin Cancer Study (2003) The influence of painful sunburns and lifetime sun exposure on the risk of actinic keratoses, seborrheic warts, melanocytic nevi, atypical nevi, and skin cancer. J Invest Dermatol 120: 1087-1093.
2. Hafner C, Vogt T, Landthaler M, Müsebeck J (2008) Somatic FGFR3 and PIK3CA mutations are present in familial seborrhoeic keratoses. Br J Dermatol 159: 214-217.
3. Hafner C, Vogt T (2008) Seborrheic keratosis. J Dtsch Dermatol Ges 6: 664-677.
4. Logié A, Dunois-Lardé C, Rosty C, Levrel O, Blanche M, et al. (2005) Activating mutations of the tyrosine kinase receptor FGFR3 are associated with benign skin tumors in mice and humans. Hum Mol Genet 14: 1153-1160.
5. Ambrogi V, Nofroni I, Tonini G, Mineo TC (2001) Skin metastases in lung cancer: analysis of a 10-year experience. Oncol Rep 8: 57-61.
6. Wong CY, Helm MA, Kalb RE, Helm TN, Zeitouni NC (2013) The presentation, pathology, and current management strategies of cutaneous metastasis. N Am J Med Sci 5: 499-504.

7. Alcaraz I, Cerroni L, Rütten A, Kutzner H, Requena L (2012) Cutaneous metastases from internal malignancies: a clinicopathologic and immunohistochemical review. Am J Dermatopathol 34: 347-393.
8. Song Z, Lin B, Shao L, Zhang Y (2012) Cutaneous metastasis as a initial presentation in advanced non-small cell lung cancer and its poor survival prognosis. J Cancer Res Clin Oncol 138: 1613-1617.
9. Schneider BJ (2008) Non-small cell lung cancer staging: proposed revisions to the TNM system. Cancer Imaging 30: 181-185.
10. Dhambri S, Zendah I, Ayadi-Kaddour A, Adouni O, El Mezni F (2011) Cutaneous metastasis of lung carcinoma: a retrospective study of 12 cases. J Eur Acad Dermatol Venereol 25: 722-726.
11. Ambrogi V, Tonini G, Mineo TC (2001) Prolonged survival after extracranial metastasectomy from synchronous resectable lung cancer. Ann Surg Oncol 8: 663-666.
12. Jofré MJ, Massardo T, González P, Canessa J, Sierralta P, et al. (2005) [Use of positron-emission tomography with F18-fluorodeoxyglucose for the assessment of lung lesions suspicious of malignancy]. Rev Med Chil 133: 583-592.
13. Cheng G, Alavi A, Del Bello CV, Akers SR (2013) Differential washout of FDG activity in two different inflammatory lesions: implications for delayed imaging. Clin Nucl Med 38: 576-579.