Malignant Phyllodes Tumor of the Breast Metastasizing to the Vulva: ^{18}F -FDG PET-CT Demonstrating Rare Metastasis from a Rare Tumor

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Phyllodes tumors are extremely rare fibroepithelial neoplasms accounting for 0.3 to 0.5 % of all female breast tumors with an incidence of 2.1 per 1 million women [1]. They are classified histologically into benign, borderline and malignant varieties [2]. The majority of them are benign, with only 25 % being malignant. Surgery remains the mainstay of treatment. One characteristic is that although the malignant variety tends to metastasize and recur, the benign form has also been found to behave in a similar manner. Benign phyllodes tumor has a 21 % risk of local recurrence, while that of the malignant variety ranges from 20 to 32 %. In patients with malignant phyllodes tumor, the rate of distant metastases ranges from 25 to 40 % [3–6]. The most frequent sites of distant metastasis include the lungs, bone, heart and liver. Lymph nodal metastasis is uncommon as this tumor spreads by hematogeneous route [7]. Other sites for distant metastasis have been reported sporadically, including the duodenum, pancreas, brain, nasal cavity, forearm, parotid, skin, oral cavity, skeletal muscle, mandible and maxilla [8–10]. We present a rare case of recurrent malignant phyllodes tumor with metastasis to the vulva, which has not been reported in the literature to the best of our knowledge. A 49-year-old female who had undergone lumpectomy and

locoregional radiotherapy 1 year previously for malignant phyllodes tumor of the right breast presented with difficulty in breathing and cervical lymphadenopathy. Chest X-ray showed multiple pulmonary nodules suggestive of metastasis. She was referred for restaging with ^{18}F -fluorodeoxyglucose (FDG) positron emission tomography computed tomography (PET-CT) FDG PET-CT (Fig. 1). Maximum intensity projection (MIP) PET images revealed multiple FDG-avid enlarged cervical lymph nodes, bilateral pulmonary nodules along with left pleural effusion and extensive bone marrow metastases (a). The interesting finding was an intensely FDG-avid (SUV_{max} -21.4) subcutaneous soft tissue density lesion (measuring $2.0 \times 2.2 \times 2.0$ cm) in the vulva, which was later proved to be metastatic from a malignant phyllodes tumor on FNAC (a–g; arrow). However, there was no evidence of local recurrence. This is in agreement with the existing literature on phyllodes tumor, showing that most recurrences with distant metastases occur without evidence of local recurrence, and the two do not seem to be related [11]. In spite of the scarce literature because of the rarity of the disease, there are sporadic reports highlighting the usefulness of FDG PET-CT in phyllodes tumor [12]. However, our case is unique in that over and above the extensive systemic metastases revealed, FDG PET-CT could detect metastatic deposit to the vulva, which is a very rare site for metastasis, even in the case of other common and rapidly metastasizing tumors. FDG PET-CT, thus, is useful in recurrent phyllodes tumor and can demonstrate rare unsuspected sites of metastasis.

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Fig. 1 Maximum intensity projection (MIP) PET images revealed multiple FDG-avid enlarged cervical lymph nodes, bilateral pulmonary nodules along with left pleural effusion and extensive bone marrow metastases (a). The interesting finding was an

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References

- Bernsfein L, Deapen DPH, Ross RK. The descriptive epidemiology of malignant cystosarcoma phyllodes tumors of the breast. *Cancer*. 1993;71:302–4.
- WHO. Histological typing of breast tumors. *Tumori*. 1982;68:181–98.
- Stamatakis M, Tsaknaki S, Kontzoglou K, et al. Phylloides tumor of the breast: a rare neoplasm, though not that innocent. *Int Semin Surg Oncol*. 2009;6:6.
- Kapiris I, Nasiri N, A'Hern R, et al. Outcome and predictive factors of local recurrence and distant metastases following primary surgical treatment of high-grade malignant phyllodes tumours of the breast. *Eur J Surg Oncol*. 2001;27:723–30.
- Asoglu O, Ugurlu MM, Blanchard K, et al. Risk factors for recurrence and death after primary surgical treatment of malignant phyllodes tumors. *Ann Surg Oncol*. 2004;11:1011–7.
- Chaney AW, Pollack A, McNeese MD, et al. Primary treatment of cystosarcoma phyllodes of the breast. *Cancer*. 2000;89:1502–11.
- Parker SJ, Harries SA. Phyllodes tumors. *Postgrad Med J*. 2001;77:428–35.
- Wolfson P, Rybak BJ, Kim U. Cystosarcoma phyllodes metastatic to the pancreas. *Am J Gastroenterol*. 1978;70:184–7.
- Hlavin ML, Kaminski HJ, Cohen M, et al. Central nervous system complications of cystosarcoma phyllodes. *Cancer*. 1993;72:126–30.
- Swapp RE, Shon W, Peethambaram PP, et al. Cutaneous presentation of a distant metastasis of malignant phyllodes tumor. *Int J Dermatol*. 2012;51:72–4.
- Palmer ML, De Risi DC, Pelikan A, et al. Treatment options and recurrence potential for cystosarcoma phyllodes. *Surg Gynecol Obstet*. 1990;170:193–6.
- Chinchilla AS, Font CR, Aguirre ACR, et al. Malignant phyllodes tumor of the breast with lymph node metastasis shown by FDG PET-CT. *Rev Esp Med Nucl*. 2010;29:314–5.