

# Zosteriform cutaneous metastasis from a breast carcinoma

## *Metástasis cutáneas zosteriformes del cáncer de mama*

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### Summary

Cutaneous metastases from internal malignancies or primary skin cancers are uncommon, and a zosteriform pattern is very rare. In order to elucidate the characteristics of zosteriform metastatic skin cancer we reviewed 38 cases from the medical literature and 1 case seen in our clinic.

**Methods:** The age and sex of each patient, location of the primary tumor, pathology of primary and metastatic lesions, location of the skin cancer and presence of pain were determined for the 39 cases.

**Results:** The most frequent site of the primary tumor was the breast (7 cases) and skin squamous cell carcinoma (6 cases). The most common site of the skin metastases was the chest wall (21 cases).

**Conclusion:** This review highlights the importance of including cutaneous metastases within the differential diagnosis of zosteriform eruptions. Skin metastases should be considered and a skin biopsy is necessary to confirm the diagnosis. We think that this pattern of metastatic disease is more frequent than is indicated in the literature.

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**Key words:** breast carcinoma, zosteriform metastasis.

### Resumen

Las metástasis cutáneas de carcinomas internos son infrecuentes y con patrón zosteriforme son raras. Para estudiar las características de las metástasis zosteriformes estudiamos 38 casos de la literatura y una paciente vista en nuestro Servicio.

**Métodos:** Estudiamos la edad y sexo de cada paciente, la localización del tumor primario, la anatomía patológica del primario y las lesiones cutáneas, localización de las lesiones cutáneas y presencia o ausencia de dolor en los 39 casos.

**Resultados:** La localización más frecuente del cáncer primario fue la mama (7 pacientes) y el carcinoma escamoso de piel (6 pacientes). El sitio más común de las metástasis en la piel fue la pared abdominal (21 pacientes).

**Conclusión:** Esta revisión realza la importancia de incluir las metástasis cutáneas dentro del diagnóstico diferencial de las enfermedades con distribución zosteriforme. Se deben considerar las metástasis cutáneas y es necesario realizar una biopsia de piel para confirmar el diagnóstico. Nosotros pensamos que este patrón de enfermedad metastásica es más frecuente de lo recogido en la literatura.

**Palabras clave:** cáncer de mama, metástasis zosteriforme.

Metastatic skin cancer is a relatively rare complication in patients with internal malignancies and has been reported in only 0.7-9% of cases[1, 2]. Metastatic skin cancers vary in type and zosteriform metastases may occur in rare instances.

Eight distinct clinicopathologic types of metastatic skin involvement occur in breast carcinoma and, sometimes, different forms may develop in the same patient. We report the case of a female patient who presented a zosteriform arrangement of metastatic breast carcinoma. Previously we reviewed

**Tabla 1.** Cases of skin metastases with a zosteriform distribution reported

Case	Ref.	Year	Sex	Age	Origin	Pathology	Location	Pain
1	20	1933	F	48	Left breast	Nd	Thorax	n.d
2	21	1957	M	83	Prostate	Adenocarcinoma	Left abdomen	Yes
3	21	1957	M	67	Prostate	Nd	Left thigh	n.d
4	22	1979	M	57	Right lung	Adenocarcinoma	Left thorax	Yes
5	11	1984	M	65	Skin	Squamous	Right arm	n.d
6	23	1986	M	61	Bladder	Transitional cell c.	Left flank	Yes
7	19	1987	F	63	Ovary	Adenocarcinoma	Right thorax	Yes
8	24	1988	M	65	Left lung	Adenocarcinoma	Left thorax	Yes
9	25	1988	F	70	Ovary	Adenocarcinoma	Left thigh	n.d
10	4	1991	F	43	Left breast	Adenocarcinoma	Left thorax	Yes
11	26	1991	F	64	Ovary	Nd	Abdomen	n.d
12	26	1991	F	53	Ovary	Cystadenocarcinoma	Abdomen	Yes
13	26	1991	F	69	Ovary	Cystadenocarcinoma	Abdomen	No
14	5	1992	F	48	Left breast	Adenocarcinoma	Right breast	Yes
15	7	1992	F	38	Colon	Adenocarcinoma	Right thigh	Yes
16	28	1994	M	67	Bladder	Transitional cell c.	Left thorax	Yes
17	29	1994	F	70	Breast	Ductal carcinoma	Right thorax	No
18	9	1995	F	29	Skin	Melanoma	Right thorax	n.d
19	7	1996	F	62	Uterus	Adenocarcinoma	Right thorax	Yes
20	15	1997	M	31	Skin	Squamous	Left thorax	n.d
21	6	1998	F	78	Left breast	Ductal carcinoma	Left thorax	No
22	14	1998	M	83	Skin	Squamous	Right thorax	Yes
23	8	1998	M	63	Skin	Melanoma	Right thorax	Yes
24	30	1999	M	65	Sigmoid colon	Adenocarcinoma	Left leg	n.d
25	10	2000	M	79	Skin	Melanoma	Left thorax	No
26	13	2000	M	56	Skin	Squamous	Left thorax	Yes
27	17	2000	M	71	Bronchus	Adenocarcinoma	Right face	n.d
28	18	2000	M	79	Colon	Adenocarcinoma	Left thorax	n.d
29	12	2001	F	72	Skin	Squamous	Right thigh	Yes
30	16	2001	M	53	Stomach	Adenocarcinoma	Left abdomen	No
31	16	2001	F	63	Stomach	Adenocarcinoma	Left thorax	No
32	16	2001	M	69	Lung	Adenocarcinoma	Right abdomen	Yes
33	31	2002	F	71	Skin	Squamous	Right abdomen	n.d
34	32	2003	F	54	Breast	Adenocarcinoma	Thorax	No
35	33	2003	F	59	Skin	Melanoma	Right thorax	n.d
36	34	2003	M	44	Rectal	Adenocarcinoma	Abdomen	Yes
37	35	2003	F	n.d	Pelvis renal	Transitional cell c.	Arm	n.d
38	36	2004	F	66	Bronchus	Adenocarcinoma	Right thigh	No
39	Our case	2002	F	71	Breast	Ductal	Left thorax	No

N.d.: not disposable.

wed the reported studies of dermatomal or zosteriform metastases (table 1)[3-36].

Skin metastases with zosteriform distribution from internal malignancies or primary skin cancer are infrequent. Segmental metastasis was first reported in 1933 in a patient with breast cancer[20]. Up today cases have been reported with: Skin cancer; melanoma [8-10, 33]; squamous cell carcinoma (SCC)[11-15, 31] and visceral tumors (22 cases)[16-19].

## Case report

A 71-year old woman was referred to our clinic in January 2001 with a history of papules on the left side of her flank since one month. She had not been previously affected with

herpes zoster and had had a ductal carcinoma of the left breast two years previously. This was treated with radical mastectomy, lymphadenectomy, and irradiation. Adjuvant chemotherapy consisting of cyclophosphamide, methotrexate, and fluorouracil (six cycles) was given.

The patient had been previously diagnosed in another hospital as having herpes zoster and had been treated with oral acyclovir (800 mg five times daily for 10 days). No improvement was seen. No painful lesions or itching were referred to. Examination revealed groups of papules and nodules on the left side of the surgical wound on the thorax and presented a distribution consistent with left T dermatome (Figure 1). A skin biopsy revealed irregular islands of atypical epithelial cells infiltrating the superficial and deep dermis, consistent with

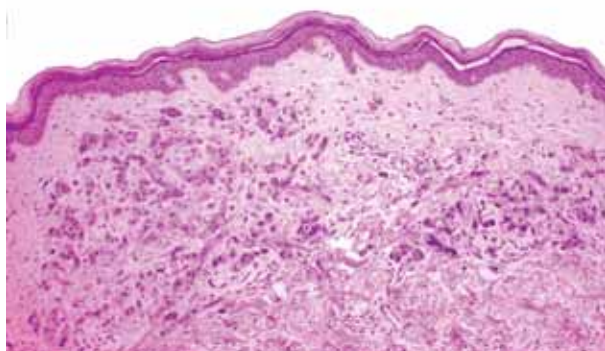


**Figure 1.** Groups of linear, confluent papules and nodules under the amputated left breast.

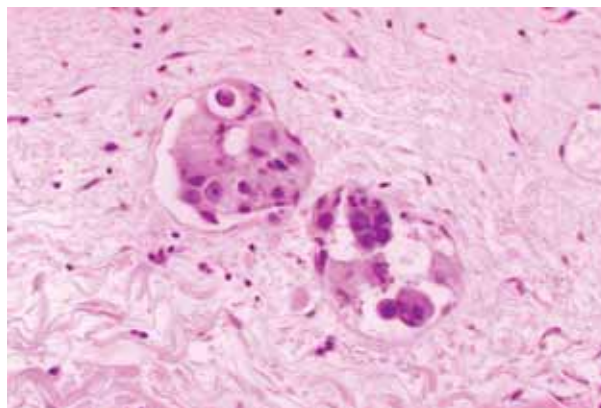
metastatic breast carcinoma. In some areas an “Indian file” arrangement of dermal nests can be seen (Figure 2). Lymphatic infiltration by tumor cells was observed (Figure 3). A thoracic-abdominal scan showed lung metastasis and retroperitoneal adenopathies. The patient began treatment with paclitaxel and epirubicin and no improvement was seen and the ganglion and lung metastases continued to grow. She died one year later from brain metastasis.

## Comment

Every tumor may occasionally cause cutaneous metastases, but some do so more frequently. Although the incidence of metastasis correlates well with the frequency of the primary malignant tumours in both gender.



**Figure 2.** Biopsy shows a band of atypical cells along the dermis (H/E stain; original magnification x 100).



**Figure 3.** The neoplastic cells are seen sticking to the wall. A broken vessel is seen (H/E stain; original magnification x 100).

In our review of the literature (table 1) the primary sites involved were the breast (7 cases) and skin squamous cell carcinoma (6 cases each), the ovary and the lung (5 cases each), melanoma and colon (4 cases each), prostate, bladder and stomach (2 cases each), and the uterus and renal pelvis (1 case). The skin metastases were located on the chest wall (21 cases), the abdominal wall (9 cases), the leg (6 cases), the arms (2 cases) and face (1 case). The chest wall was the most common site of metastatic skin lesions when the primary cancer was in the lung or the breast. The histology of the primary tumor was compatible with adenocarcinoma (20 cases), squamous cell carcinoma (6 cases), melanoma (4 cases), ductal carcinoma (3 cases), transitional cell carcinoma (3 cases). Seventeen patients complained of spontaneous pain and were misdiagnosed and treated for herpes zoster.

In our review of the literature, metastatic breast carcinoma was the most frequent in the general series and the most frequently reported in zosteriform pattern[16]. We wish to emphasize the high frequency in our revision of SCC (10.8%). Three of the SCC were in immunosuppressed patients[11, 13, 15]. It is well documented that SCC behave more aggressively in immunosuppressed patients[13]. Although melanoma has been reported to have the highest frequency of cutaneous metastases[37], we found only four cases of cutaneous melanoma metastases with zosteriform distribution in the literature, which indicates the unusual nature of this particular manifestation of melanoma skin metastases.

In males the highest prevalence of primary malignancy was SCC (22.2%) and lung carcinoma (22.2%). In females the highest prevalence of primary malignancy was breast carcinoma (35%), followed by ovary carcinoma (25%).

The mechanism of zosteriform distribution in metastatic skin cancer is still speculative. It has been suggested that it might be due to: a) a Koebner-like reaction at the site of a prior herpes zoster infection; b) neural lymphatic spread via the fenestrated vessels of the dorsal root ganglion; c) accidental surgical implantation, or d) perineural lymphatic spread[16, 33]. Figure 3 (our case) shows the lymphatic vessels full of metastatic cells rupturing the vessel wall. This could lend support to the second hypothesis.

A dermatomal distribution does not necessarily indicate herpes zoster, because several cutaneous lesions have been described by others: comedones, xantomatous changes, granuloma annulare, granulomas sarcoideos, tuberculoid granulomas, granulomatous vasculitis, tinea, acneiform eruption, furunculosis, contact dermatitis, nodular solar degeneration,

pseudolymphoma, psoriasis, lichen planus, morphea, lichenoid chronic graft versus host disease, eosinophilic dermatosis, acquired reactive perforating dermatosis[38]. Even though it is usually very easy to make a diagnosis of herpes zoster, a correct diagnosis can only be made by skin biopsy.

Cutaneous metastases may represent the first sign of internal malignancy, or can represent the first indication of recurrence. These metastases are generally considered to be a manifestation associated with a poor prognosis. Death usually occurs within a few months (6.5 months), although a few patients have survived for several years[39]. Given the poor prognosis which implies a cutaneous spread of internal cancer, we must remain alert and perform biopsies in lesions with zosteriform patterns, which present atypical characteristics, both morphologically and developmentally.

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