

CASE REPORTS

Acquired Lymphangiectases and Breast Cancer

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Abstract. Acquired lymphangiectases represent superficial lymphatic dilatations caused by a wide range of processes. Many cases reported in the literature develop in patients with upper limb lymphedema secondary to mastectomy, radiotherapy, keloids or scleroderma. Clinically they consist of translucent vesicles in a chronic lymphedematous area. Histologically they are characterized by the presence of dilated spaces with flattened endothelial cells in the papillary dermis. All these cases have a good prognosis and there have not been any reports of malignant transformation. We describe a 67-year-old woman that showed multiple papules along her left upper limb associated with lymphedema. She had undergone a mastectomy followed by radiotherapy fourteen years before due to a breast cancer. Laboratory and radiological exams were within normal limits. The cutaneous lesions showed characteristic clinical and histological features of lymphangiectases and they progressively resolve in several weeks without any treatment.

Key words: Lymphangiectases, Lymphangioma, Breast tumors.

LINFANGIECTASIAS ADQUIRIDAS Y CÁNCER DE MAMA

Resumen. Las linfangiectasias adquiridas son dilataciones de los pasos linfáticos superficiales producidas por una gran variedad de procesos. Muchos casos se recogen en la literatura en pacientes con linfedemas en extremidades superiores como complicaciones de mastectomía, radioterapia, queloides o esclerodermia. Clínicamente presentan vesículas traslúcidas sobre una zona de linfedema crónico. A nivel histopatológico, se caracterizan por la presencia de espacios dilatados en la dermis papilar con células endoteliales aplanadas. Todos estos casos tienen buen pronóstico y no se han descrito transformaciones hacia la malignidad. Recogemos el caso de una paciente de 67 años de edad que presentaba múltiples pápulas a lo largo de su extremidad superior izquierda asociadas a linfedema. Catorce años atrás había sufrido una mastectomía y posterior tratamiento radioterápico a causa de un cáncer de mama. Los estudios analíticos y las exploraciones radiológicas se encontraban dentro de la normalidad. Las lesiones cutáneas mostraban las características clínicas y patológicas que caracterizan a las linfangiectasias cutáneas y se resolvieron progresivamente en varias semanas sin ningún tratamiento.

Palabras clave: linfangiectasias, linfangioma, tumores de mama.

Introduction

Lymphangiectasis is an acquired lymphangioma that appears in middle age and is associated with various cancer-related processes and radiotherapy. Recognition of this entity is essential as its clinical appearance necessitates differential diagnosis from metastatic lesions.

Case Report

The patient was 67 years old with a history of hypercholesterolemia and right adnexectomy with tubal ligation in 1993. She underwent surgery for an intraductal carcinoma of the left breast (T1N0M0) in 1992 involving left upper quadrantectomy with prophylactic axillary lymphadenectomy and complementary radiotherapy and hormone therapy (letrozole). In 2004, she complained of lesions on her left arm that were accompanied by pain and edema. She was diagnosed with cellulitis and given amoxicillin-clavulanate. Her condition did not progress favorably and she was referred to a dermatologist. She presented a marked edema on her left arm accompanied by multiple, well-defined erythematous papules with a shiny surface (Figure 1). The lesions were asymptomatic and had

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Figure 1. Erythematous papules on the arm.

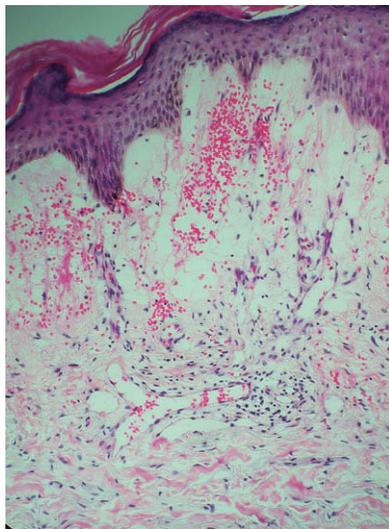


Figure 2. Lymphatic vessels in the dermis (hematoxylin-eosin, $\times 100$).

not changed since they appeared. A skin biopsy revealed multiple cavities in the upper reticular and papillary dermis leading to dehiscence at that level. The cavities contained eosinophilic material and were covered by a layer of endothelial cells corresponding to lymphatic vessels (Figure 2). Therefore, a diagnosis of lymphangiectasis was made. The lesions resolved spontaneously a few weeks later while the underlying edema persisted.

Discussion

Tumors of the lymphatic vessels include several entities, such as lymphangioma, progressive acquired lymphangioma or benign lymphoendothelioma, lymphangiomatosis, and lymphangiosarcoma. Lymphangioma in turn can be classified into 2 subgroups: congenital lymphangioma, including lymphangioma circumscriptum, cavernous lymphangioma, and cystic hygroma; and acquired

lymphangioma or lymphangiectasis, which may or may not be associated with congenital lymphangioma. Lymphangiectasis can therefore be defined as acquired lymphangioma that is clinically and histologically identical to congenital lymphangioma.¹

Some authors prefer the term lymphangioma circumscriptum when the dilatation stems from congenital malformations of the deep lymphatic system and reserve the term acquired lymphangioma or lymphangiectasis when there is a dilatation of the normal superficial lymphatic vessels following damage. Díaz-Cascajo et al² have proposed the term “benign lymphangiomatous papules of the skin following radiotherapy.” They define them as small papules and vesicles appearing on the skin several years after radiotherapy that are normally benign and present on histological examination as proliferation of the lymphatic vessels. Lymphangiectasis occurs in the superficial dermis: this enables us to differentiate it from congenital lymphangioma, which spreads to the subcutaneous tissue. A recently published case in the Spanish medical literature reported a 63-year-old patient who had suffered from breast cancer and who was treated with quadrantectomy, prophylactic lymphadenectomy, chemotherapy, and radiotherapy.³

This condition is not sex-specific, typically appears between 40 and 60 years of age, and can appear 25 years after the factors that caused it,⁴ the most common being surgery and radiotherapy. The first case of lymphangiectasis secondary to radical mastectomy and radiotherapy was reported in 1956 by Plotnick and Richfield.⁵ Since then, several cases have been reported associated with breast cancer, melanoma, cancer of the cervix or vagina with or without concomitant radiotherapy,^{3,4,6,11} arthrotomy,¹ or scarring—tuberculous infections,^{12,13} keloids,¹⁴ or scleroderma.¹⁵ It can also occur in cases of variegated porphyria¹⁶ or with medication such as penicillamine¹⁷ or topical corticosteroids.¹⁸

Pathogenesis involves obstruction or damage in the deep lymphatic vessels leading to increased lymphatic pressure and dilatation of the vessels. Some authors have suggested that the condition is caused by elastic or collagenous structures surrounding the lymphatic vessels.¹⁷ Others consider lymphangiectasis to be equivalent to the telangiectasis that appears after radiotherapy,⁸ a possibility that might explain the presence of lymphangiectasis without previous lymphedema.¹⁹

The condition is characterized by asymptomatic papular or vesicular 2 to 10-mm lesions that are translucent or flesh-colored. Their surface is smooth, the skin between them is normal in appearance, and they usually occur in regions of existing lymphedema. They are traditionally described as resembling frog spawn.²⁰ In some cases, they can be pediculated,⁴ can appear as hyperpigmented maculae,²¹ or have a verrucous surface.²²

Histology shows the lymphatic vessels to have a thin wall of flattened cells with more separated nuclei than the vascular endothelium. The vessels are usually empty or contain homogeneous eosinophilic material (lymph) with scant or absent erythrocytes. Irregularly shaped dilated channels are also typical. There are no Weibel-Palade bodies (rod-shaped structures found in venules or arterioles) or muscular layer. Some authors consider lymphangiectasis as a histologically independent entity due to the absence of subcutaneous cisterns, which are present in lymphangioma circumscriptum,^{6,11} whereas others consider them to be identical processes that can only be differentiated on the basis of the clinical history.^{20,22} In immunohistochemical terms, they differ from hemangiomas in that they are negative for factor VIII and positive for anti-CD34 staining. *Ulex europaeus* I lectin is positive in both.

Prognosis is excellent in these patients, although the lesions are stable and tend to be chronic. Treatment is unnecessary, although some cases have been treated with electrosurgery,^{6,23} laser therapy,^{9,11,22,24,25} conventional surgery,⁶ physiotherapy,²³ or compression bandages.⁶ Despite these procedures, recurrences are common.¹¹ Potential complications include cellulitis or lymphangiosarcoma (Stewart-Treves syndrome) in cases associated with chronic lymphedemas, although, to date, no cases have been described in association with malignancy.⁷

Our case is noteworthy in that the lesions resolved spontaneously, unlike most published cases. The relationship between lymphedema and these lesions is undeniable and is considered by many to be the cause of the chronic nature of lymphangiectasis. In our case, the fact that the lesions disappeared while the underlying lymphedema remained leads us to think that other, as yet unknown, factors may be involved in the resolution of this process. We feel that it is important to be aware of this condition to avoid unnecessary complementary tests and therapy, because, in clinical terms, lymphangiectasis can be confused with metastatic processes that must always be ruled out given the characteristics of the patients.

Conflicts of Interest

The authors declare no conflicts of interest.

References

1. Moon SE, Youn JI, Lee YS. Acquired cutaneous lymphangiectasia. *Br J Dermatol*. 1993;129:193-5.
2. Díaz-Cascajo C, Borghi S, Weyers W, Retzlaff H, Requena L, Metzger D, et al. Benign lymphangiomatous papules of the skin following radiotherapy: a case report of five new cases and review of the literature. *Histopathology*. 1999;35:319-27.
3. Serra C, Nagore E, Alfaro A, Almenar S, Requena C, Sanmartín O, et al. Pápulas linfangiomatosas benignas secundarias al tratamiento de cáncer de mama. *Actas Dermosifiliogr*. 2004;95:501-03.
4. Mallett RB, Curley GK, Mortimer PS. Acquired lymphangioma: report of four cases and a discussion of the pathogenesis. *Br J Dermatol*. 1992;126:380-2.
5. Plotnick H, Richfield D. Tuberosus lymphangiectatic varices secondary to radical mastectomy. *AMA Arch Derm*. 1956;74:466-8.
6. Giannelli V, Rockley PF. Acquired lymphangiectasis following mastectomy and radiation therapy-report of a case and review of the literature. *Cutis*. 1996;58:276-8.
7. Leshin B, Whitaker DC, Foucar E. Lymphangioma circumscriptum following mastectomy and radiation therapy. *J Am Acad Dermatol*. 1986;15:1117-9.
8. Fisher I, Orkin M. Acquired lymphangioma (lymphangiectasis). Report of a case. *Arch Dermatol*. 1970;101:230-4.
9. Loche F, Schwarze HP, Bazex J. Treatment of acquired cutaneous lymphangiectasis of the thigh and vulva with a carbon dioxide laser. *Acta Derm Venereol*. 1999;79:335.
10. Sardana K, Mendiratta V, Sharma RC, Koranne RV. Ulcerated and nodular lesions on the vulva in a 60-year-old female. *Clin Exp Dermatol*. 2003;28:94-5.
11. Celis AV, Gaughf CN, Sanguenza OP, Gourdin FW. Acquired lymphangiectasis. *South Med J*. 1999;92:69-72.
12. Di Leonardo M, Jacoby RA. Acquired cutaneous lymphangiectasias secondary to scarring from scrofuloderma. *J Am Acad Dermatol*. 1986;14:688-90.
13. Heuvel NV, Stolz E, Notowicz A. Lymphangiectases of the vulva in a patient with lymph node tuberculosis. *Int J Dermatol*. 1979;18:65-6.
14. Russell B. Lymphangioma circumscriptum and keloids. *Br J Dermatol*. 1951;63:158-9.
15. Tuffanelli DL. Letter: lymphangiectasis due to scleroderma. *Arch Dermatol*. 1975;111:1216.
16. Stone MS. Central-facial papular lymphangiectases: an uncommon manifestation of porphyria. *J Am Acad Dermatol*. 1997;36:493-5.
17. Goldstein JB, McNutt NS, Hambrick GW, Jr., Hsu A. Penicillamine dermatopathy with lymphangiectases. A clinical, immunohistologic, and ultrastructural study. *Arch Dermatol*. 1989;125:92-7.
18. Pena JM, Ford MJ. Cutaneous lymphangiectases associated with severe photoaging and topical corticosteroid application. *J Cutan Pathol*. 1996;23:175-81.
19. Ambrojo P, Cogolludo EF, Aguilar A, Sánchez Yus E, Sánchez de Paz F. Cutaneous lymphangiectases after therapy for carcinoma of the cervix—a case with unusual clinical and histological features. *Clin Exp Dermatol*. 1990;15:57-9.
20. Flanagan BP, Helwig EB. Cutaneous lymphangioma. *Arch Dermatol*. 1977;113:24-30.
21. Kakinuma H. Occult cutaneous lymphangiectasis: an unusual case of cutaneous lymphangioma. *Acta Derm Venereol*. 2002;82:279-83.
22. el Sayed F, Bazex J, Bouissou X, Laplanche G, Samalens G, Daste G, et al. Acquired cutaneous lymphangiectasia mimicking plantar warts. *Br J Dermatol*. 1995;132:1014-6.

23. Kaya TI, Kokturk A, Polat A, Tursen U, Ikizoglu G. A case of cutaneous lymphangiectasis secondary to breast cancer treatment. *Int J Dermatol.* 2001;40:760-1.
24. Huilgol SC, Neill S, Barlow RJ. CO(2) laser therapy of vulval lymphangiectasia and lymphangioma circumscriptum. *Dermatol Surg.* 2002;28:575-7.
25. Novak C, Spelman L. Low energy fluence CO2 laser treatment of lymphangiectasia. *Australas J Dermatol.* 1998; 39:277-8.