

# Reticular telangiectatic erythema: case report and literature review

Bryce D. Beutler<sup>1</sup>, Philip R. Cohen<sup>2</sup>

1 University of Nevada, Las Vegas, School of Allied Health Sciences, Las Vegas, Nevada, USA

2 Division of Dermatology, University of California San Diego, San Diego, California, USA

**Key words:** cardioverter, defibrillator, erythema, implantable, pacemaker, reticular, subcutaneous, telangiectasia, telangiectatic

**Citation:** Beutler BD, Cohen PR. Reticular telangiectatic erythema: case report and literature review. *Dermatol Pract Concept* 2015;5(1):16. doi: 10.5826/dpc.0501a16

**Received:** September 1, 2014; **Accepted:** October 23, 2014; **Published:** January 30, 2015

**Copyright:** ©2015 Beutler et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

**Funding:** None.

**Competing interests:** The authors have no conflicts of interest to disclose.

All authors have contributed significantly to this publication.

**Corresponding author:** Bryce D. Beutler, BS, 1060 Wiegand Road, Encinitas, CA 92024, USA. Tel. 760 271 8901. Email: brycebeutler@hotmail.com

**ABSTRACT** **Background:** Reticular telangiectatic erythema is a benign cutaneous reaction that may occur in patients who have received a subcutaneous implantable cardioverter-defibrillator. Reticular telangiectatic erythema is characterized by asymptomatic telangiectasias, blanchable erythematous patches, or both overlying and/or adjacent to the subcutaneous implantable cardioverter-defibrillator.

**Purpose:** We describe a man who developed reticular telangiectatic erythema after receiving a subcutaneous implantable cardioverter-defibrillator and review the salient features of this condition. We also summarize the conditions that can mimic reticular telangiectatic erythema.

**Materials and methods:** The features of a man with reticular telangiectatic erythema are presented and the literature on reticular telangiectatic erythema is reviewed.

**Results:** Our patient developed reticular telangiectatic erythema within one month of subcutaneous implantable cardioverter-defibrillator insertion. The subcutaneous manifestations were asymptomatic. The patient concurred to have periodic clinical follow up and his condition will be monitored for any changes.

**Conclusion:** Reticular telangiectatic erythema is a benign condition characterized by the development of erythema, telangiectasia, or both following insertion of a subcutaneous implantable cardioverter-defibrillator. Other subcutaneous implantable cardioverter-defibrillator-related side effects, such as pressure dermatitis and contact dermatitis, can mimic the condition. Reticular telangiectatic erythema can also be observed following insertion of other devices or, rarely, in the absence of inserted devices. Local microcirculatory changes and subcutaneous implantable cardioverter-defibrillator-related obstruction of blood flow have been suggested as possible mechanisms of pathogenesis. The diagnosis can usually be established by clinical presentation. Therefore, patch testing can usually be omitted. Reticular telangiectatic erythema is typically asymptomatic and thus removal of the device is not required.



**Figure 1.** Frontal (A) and side (B) views of chest show normal-appearing right chest and outline of a subcutaneous implantable cardioverter-defibrillator with reticular telangiectatic erythema on the left chest of a 54-year-old man. (Copyright: ©2015 Beutler et al.)

## Introduction

The subcutaneous implantable cardioverter-defibrillator is a subcutaneously implanted defibrillator that is used to detect and treat ventricular arrhythmias in at-risk patients [1]. Reticular telangiectatic erythema is a benign cutaneous condition that may occur in patients who have received a subcutaneous implantable cardioverter-defibrillator. We describe a man who developed reticular telangiectatic erythema within one month of insertion of a subcutaneous implantable cardioverter-defibrillator and discuss the salient features of this condition. We also summarize other disorders that can mimic reticular telangiectatic erythema.

## Case report

A 54-year-old man presented with light-headedness and syncope. Workup showed a left bundle branch block with bradycardia and a depressed ejection fraction of 40%. The patient received a biventricular implantable cardioverter-defibrillator and the symptoms have not reoccurred.

Within four weeks, the patient noticed the onset of new blood vessels appearing around and encroaching upon the borders of the subcutaneous implantable cardioverter-defibrillator. Cutaneous examination revealed a prominent scar at the insertion site of the subcutaneous implantable cardioverter-defibrillator. Beneath the scar and approaching the subcutaneous implantable cardioverter-defibrillator there was minimal erythema and numerous telangiectasias. The skin surface was intact without any evidence of dermatitis or erosion (Figures 1-3).

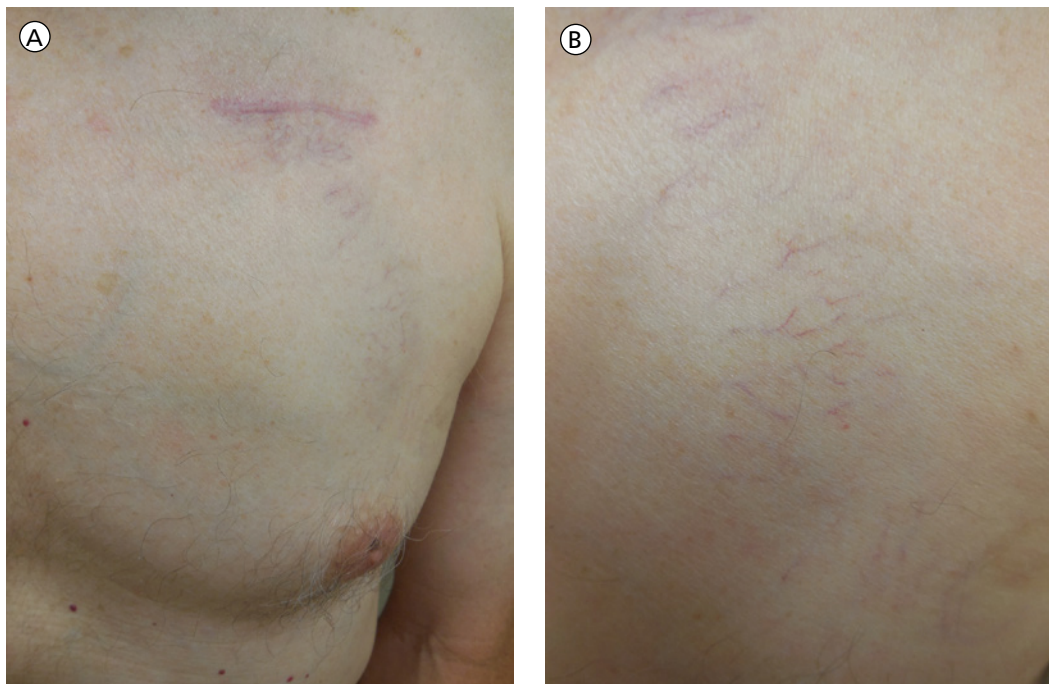
Based on correlation of the clinical history and the lesion morphology, a diagnosis of reticular telangiectatic erythema was established. The patient was reassured of the benign nature of the condition. He will have periodic follow up to monitor for any changes.

## Discussion

Reticular telangiectatic erythema was first identified in 1981 by Gensch and Schmitt [2]. Subsequently, this condition has



**Figure 2.** Distant (A) and closer (B) views of reticular telangiectatic erythema on the left chest show the insertion site scar and superior border of the subcutaneous implantable cardioverter-defibrillator; telangiectasias and minimal erythema are noted. (Copyright: ©2015 Beutler et al.)



**Figure 3.** Distant (A) and closer (B) views of reticular telangiectatic erythema on the left chest show telangiectasias along the lateral border of the subcutaneous implantable cardioverter-defibrillator. (Copyright: ©2015 Beutler et al.)

been described in additional patients under various descriptive terms (Table 1) [2-18].

Reticular telangiectatic erythema presents in patients following insertion of a subcutaneous implantable cardioverter-defibrillator. The appearance of reticular telangiectatic erythema can occur within weeks of device implantation [18]; however, the onset of reticular telangiectatic erythema has been reported as late as four years after subcutaneous implantable cardioverter-defibrillator insertion [14]. The mean onset of reticular telangiectatic erythema following subcutaneous implantable cardioverter-defibrillator insertion is 30 months [10].

Lesions initially appear as erythema, telangiectasia, or both. They may begin at the borders of the subcutaneous

implantable cardioverter-defibrillator and spread inward, as in our patient. Alternatively, it can begin as an erythematous patch overlying the device with telangiectasias spreading in a peripheral manner. The lesions are asymptomatic.

The diagnosis is essentially based upon clinical history and lesion morphology. A confirmatory biopsy is not usually necessary [15]. However, when tissue examination was performed, the lesional biopsies revealed telangiectasias and a perivascular lymphohistiocytic infiltrate in the superficial dermis [19,20].

The clinical differential diagnosis is listed in Table 2 [3,10,14,15,21-33]. It includes potential cutaneous side effects from the subcutaneous implantable cardioverter-defibrillator as well as other local conditions and systemic disorders.

Allergic contact dermatitis (typically associated with metal sensitivity and pressure dermatitis) is a subcutaneous implantable cardioverter-defibrillator-associated dermatological side effects that may initially mimic reticular telangiectatic erythema. However, in allergic contact dermatitis, eczematous changes in the overlying epithelium may be observed in addition to erythema. If clinically suspicious, patch testing may be helpful to establish a diagnosis. Pressure dermatitis may initially present as erythema; yet there is subsequent erosion of the overlying skin.

Similar to subcutaneous implantable cardioverter-defibrillator-associated reticular telangiectatic erythema, the same phenomenon has been observed following the insertion of other devices [10].

In 2005, Mercader-García et al described reticular telangiectatic erythema in a 50-year-old man who had an intra-

**TABLE 1. Descriptive terminology for reticular telangiectatic erythema**  
(Copyright: ©2015 Beutler et al.)

Annular erythema [3]
Circumscribed erythema [4,5]
Circumscribed reticular telangiectatic erythema [2]
Erythema [6,7]
Erythema with telangiectases [8]
Persistent telangiectatic erythema [9]
Post-implantation erythema [10]
Postsurgical sternal erythema [11-13]
Reticular telangiectatic erythema [14-16]
Telangiectatic erythema [17]
Telangiectatic erythematous cutaneous reaction [18]

**TABLE 2. Clinical differential diagnosis of reticular telangiectatic erythema.**  
(Copyright: ©2015 Beutler et al.)

Dermatitis Pacemaker dermatitis [21,22] Pressure dermatitis [10,23]
Erythema Annular erythema [3] Erythema ab igne [24] Reticular telangiectatic erythema* [14,15]
Other Conditions Reticulated erythematous mucinosis [10,25] Wells syndrome [26]
Vascular Lesions Angiosarcoma-like vascular proliferation [27] Cutaneous reactive angiomas** [28-32] Livido reticularis (localized) [10] Telangiectasias [33]

\*Subcutaneous implantable cardioverter-defibrillator-related

\*\* Cutaneous reactive angiomas include the following conditions: acroangioidermatitis, angiopericytomatosis, diffuse dermal angiomatosis, glomeruloid angioendotheliomatosis, intralymphatic histiocytosis, reactive angioendotheliomatosis

(Copyright: ©2015 Beutler et al.)

thecal infusion pump implanted in his left flank. The lesions appeared 15 days after the device was inserted and persisted with no significant changes for more than a year. However, approximately two years after insertion of the device, a cutaneous erosion developed over the implant site. The device was removed and the lesions disappeared shortly thereafter [34].

Heat-triggered reticular telangiectatic erythema has also been reported. Investigators described a patient in whom a defective spinal cord stimulator induced localized hyperthermia and subsequent reticular telangiectatic erythema. Notably, the lesions began to dissipate several days after the device was switched off [35].

Reticular telangiectatic erythema also occurred in patients following orthopedic implants [10]. In 2013, Do and Mousdicas described two men who developed reticular telangiectatic erythema following total knee arthroplasty. In both of these men, the reticular telangiectatic erythema appeared adjacent to the surgical scar and spontaneously resolved fully or partially within one year [36].

It has been postulated that the presence of any foreign body can cause reticular telangiectatic erythema. Armengot-Carbo et al describe a 61-year-old woman who developed reticular telangiectatic erythema one month after undergoing a lumpectomy for breast cancer. The lesion persisted for three months, until a long non-absorbable intradermal suture was detected and removed. Two weeks later, the reticular telangiectatic erythema had disappeared [28].

A definitive pathogenesis for reticular telangiectatic erythema has yet to be identified. More than one etiology may cause the condition to occur. It may be device-related or site-related. In addition, reticular telangiectatic erythema may be the result of anatomic factors [18].

Wimmershoff et al proposed that device-generated electric or magnetic fields might play a causative role in the development of reticular telangiectatic erythema [7]. However, there are several reported cases in which reticular telangiectatic erythema developed in the absence of electrical devices [34,36]. While metal sensitivity has also been suggested as a possible mechanism of pathogenesis for reticular telangiectatic erythema, the clinical and histological features of reticular telangiectatic erythema are distinct from those of allergic contact dermatitis. Nevertheless, patch testing may be useful if metal sensitivity is suspected.

Other investigators have postulated that reticular telangiectatic erythema results from changes to the microcirculatory environment. These changes may occur secondary to healing or result from device-related obstruction of blood flow [20].

Reticular telangiectatic erythema is asymptomatic and does not have any adverse associated sequelae. Therefore, reassurance of the benign nature of the condition and observation are reasonable alternatives to management. If the patient is concerned about the cosmetic features of reticular telangiectatic erythema, sclerotherapy may provide a potential therapeutic alternative.

## Conclusion

Reticular telangiectatic erythema is a benign cutaneous condition that occurs within weeks, months, or years of subcutaneous implantable cardioverter-defibrillator insertion. The vascular lesion tends to persist and may progress with time. Other subcutaneous implantable cardioverter-defibrillator-associated adverse events, such as allergic contact dermatitis and pressure dermatitis, may initially mimic reticular telangiectatic erythema. Occasionally, reticular telangiectatic erythema may occur in patients with spinal cord stimulators, infusion pumps, or other implantable devices. Postulated mechanisms for the pathogenesis of reticular telangiectatic erythema include site-related anatomic factors and device-associated changes to the microcirculatory environment. Management of reticular telangiectatic erythema typically includes reassurance and observation.

## References

1. Grace A. The subcutaneous implantable cardioverter-defibrillator. *Curr Opin Cardiol* 2014;29:10-19.
2. Gensch EG, Schmitt CG. Circumscribed reticular telangiectatic erythema following implantation of a heart pacemaker. *Hautarzt* 1981;32(12):651-54.



3. Gerdson R, Kaiser HW, Fredrick K, Rabe E, Bieber T. Annular erythema caused by impending pacemaker extrusion. *Acta Derm Venereol* 1999;79(5):385-87.
4. Maushagen E, Reichle B, Simon H. Circumscribed erythema after cardiac pacemaker implantation. *Z Kardiol* 1994;83:340-342.
5. Cierpka R, Trappe HJ, Pfitzner P, Lichtlen PR. Circumscribed defibrillator erythema: a differential diagnostic and therapeutic problem in differential occult defibrillator infection diagnosis. *Z Kardiol* 1996;85(5):312-18.
6. Sorhage B, Glowania H. Erythema after implantation of a cardiac pacemaker. *Z Hautkr* 1991;66:458-62.
7. Wimmershoff MB, Landthaler M, Stolz W. The artificial pacemaker erythema. *Dtsch Med Wochenschr* 1998;123:441.
8. Kopera D, Auer-Grumbach P, Cerroni L, Smolle J. Pacemaker erythema with telangiectasias. *Hautarzt* 1994;45(10):716-718.
9. Krasagakis K, Vogt R, Tebbe B, Goerd S. Persistent telangiectatic erythema associated with an automatic implantable cardioverter defibrillator. *Br J Dermatol* 1997;136(4):633.
10. Aneja, S, Taylor JS, Billings SD, Honari G, Sood A. Post-implantation erythema in 3 patients and a review of reticular telangiectatic erythema. *Contact Dermatitis* 2011;64(5):280-88.
11. Morgan MB, Scalf LA, Hanno R. Sternal erythema: a distinctive postsurgical eruption. *J Am Acad Dermatol* 2005;53(5):893-96.
12. Chiu M. Is postsurgical sternal erythema synonymous with reticular telangiectatic erythema? *J Am Acad Dermatol* 2006;55(1):180.
13. Bowers JW, Morgan MB. Is postsurgical sternal erythema synonymous with reticular telangiectatic erythema? Reply. *J Am Acad Dermatol* 2007;56(5):892-93.
14. Dinulos JG, Vath B, Beckmann C, Welch MP, Piepkorn M. Reticular telangiectatic erythema associated with an implantable cardioverter defibrillator. *Arch Dermatol* 2001;137:1259-61.
15. Herbst R, Weiss J. Reticular telangiectatic erythema associated with an implantable cardioverter defibrillator: an underpublished entity? *Arch Dermatol* 2003;139(1):100-1.
16. Kint A, Vermander F. Reticular telangiectatic erythema after implantation of a pacemaker. *Dermatologica* 1983;166(6):322-24.
17. Lin YC, Chiu HC, Chu CY, Sun CC. Telangiectatic pacemaker erythema. *Clin Exp Dermatol* 2003;28(4):447-48.
18. Ferringer T, Mowad C. Telangiectatic erythematous cutaneous reaction to an implantable cardioverter defibrillator. *Am J Contact Dermatitis* 2003;14:37-40.
19. Rodríguez-Lojo R., Vereá MM, Godoy J, Barja JM. Reticular telangiectatic erythema in a patient with a cardioverter defibrillator. *Actas Dermo-Sifiliográficas* 2010;101(2):183-84.
20. Pitarch G, Mercader P, Torrijos A, Martínez-Menchón T, Fortea JM. Reticular telangiectatic erythema associated with an implantable cardioverter defibrillator. *Cutis*. 2006;78(5):329-31.
21. Buchet S, Blanc D, Humbert P, et al. Pacemaker dermatitis. *Contact Dermatitis* 1992;26(1):46-7.
22. Peters MS, Schroeter AL, Van Hale HM, Broadbent JC. Pacemaker contact sensitivity. *Contact Dermatitis*. 1984;11(4):214-18.
23. Wilkerson MG, Jordan WP Jr. Pressure dermatitis from an implanted pacemaker. *Dermatol Clin* 1990;8(1):189-92.
24. Dissemond J, Grabbe S. Erythema ab igne. *Intern Med J* 2008;38(8):675.
25. Thareja S, Paghdal K, Lien MH, Fenske NA. Reticular erythematous mucinosis—a review. *Int J Dermatol* 2012;51(8):903-9.
26. Cashin B, Allan N, Kang C. Wells syndrome. *West J Emerg Med*. 2010;11(1):95-6.
27. Ringrose JS, Banerjee T, Hull PR. Angiosarcoma-like presentation of pacemaker-related vascular proliferation. *Clin Exp Dermatol* 2012;37(2):143-45.
28. Armengot-Carbo M, Sabater V, Botella-Estrada R. Reticular telangiectatic erythema: a reactive clinicopathological entity related to the presence of foreign body. *J Eur Acad Dermatol Venereol*. 2014 Aug 29. doi: 10.1111/jdv.12707. [Epub ahead of print].
29. O'Grady JT, Shahidullah H, Doherty VR, al-Nasuffi A. Intravascular histiocytosis. *Histopathology* 1994;24(3):265-68.
30. Grekin S, Mesfin M, Kang S, Fullen DR. Intralymphatic histiocytosis following placement of a metal implant. *J Cutan Pathol* 2011;38(4):351-53.
31. Requena L, Farina MC, Renedo G, et al. Intravascular and diffuse dermal reactive angioendotheliomatosis secondary to iatrogenic arteriovenous fistulas. *J Cutan Pathol* 1999;26:159-64.
32. McMenemy ME, Fletcher CD. Reactive angioendotheliomatosis: a study of 15 cases demonstrating a wide clinicopathologic spectrum. *Am J Surg Pathol*. 2002;26(6):685-97.
33. Blume JE. Generalized essential telangiectasia: a case report and review of the literature. *Cutis*. 2005;75(4):223-24.
34. Mercader-García P, Torrijos-Aguilar A, de La Cuadra-Oyanguren J, Vilata-Corell JJ, Fortea-Baixaulli JM. Telangiectatic reticular erythema unrelated to cardiac devices. *Arch Dermatol* 2005;141(1):106-7.
35. Inzinger M, Tilz H, Komericki P, Schuster C, Wolf P, Kranke B. Heat-triggered reticular telangiectatic erythema induced by a spinal cord stimulator. *Mayo Clin Proc* 2013;88(1):117-19.
36. Do HK, Mousdicas N. Reticular telangiectatic erythema after total knee replacement surgery. *JBJS Case Connector* 2013;3(2):e49.