

### Bone marrow fibrin-ring (doughnut) granulomas and peripheral T-cell lymphoma: an exceptional association

A 69-year old male patient presented with a peripheral T-cell lymphoma with an epithelioid component as demonstrated by a biopsy of axillary lymph nodes (Figure 1). The bone marrow trephine biopsy revealed lymphoid nodules (Figure 2), with a predominant T-immunophenotype (CD3+, CD43+), and scattered fibrin-ring (doughnut) granulomas (FRG) (Figure 3A), frequently related to small vessels. Known pathogenic possibilities (Q-fever, typhoid fever, infectious mononucleosis, *Mycobacterium avium* intracellular infection, cytomegalovirus infection, and Hodgkin's disease) were excluded. FRG may be produced by vascular damage and embolization of lipidic-epithelioid granulomas (Figure 3B). The present case is the first report of bone marrow FRG and T-cell lymphoma in association.

José María Raya Sánchez, Hugo Alvarez Argüelles,\*  
María Luisa Brito Barroso, Luis Hernández Nieto

Servicio de Hematología, \*Departamento de Anatomía Patológica, Hospital Universitario de Canarias, Universidad de La Laguna, Santa Cruz de Tenerife, Spain

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**Correspondence:** José María Raya Sánchez, Servicio de Hematología, Hospital Universitario de Canarias, Ofra, s/n, 38320 La Laguna, Santa Cruz de Tenerife, Canary Islands, Spain. Phone: international +34-92-2-678668 – Fax: international +34-92-2319404 – E-mail: lhenieto@jet.es

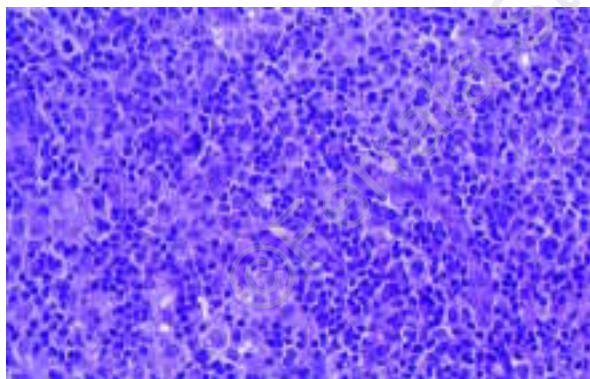


Figure 1. Lymph node biopsy showing a heterogeneous lymphoid population with small, intermediate and large cells together with epithelioid histiocytes and conspicuous blood vessels (x200, hematoxylin-eosin stain).

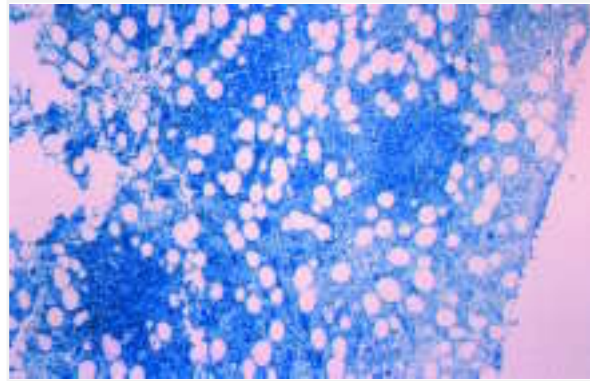


Figure 2. Bone marrow trephine biopsy: intertrabecular scattered lymphomatous nodules (x40, Giemsa stain).

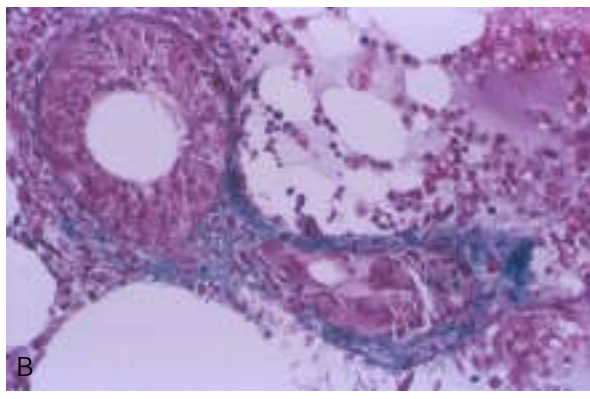
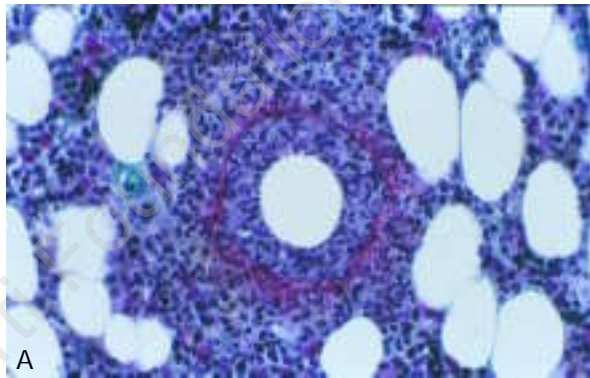


Figure 3. Bone marrow trephine biopsy: (A) Fibrin-ring ("doughnut") granuloma with characteristic annular peripheral fibrinoid material (x200, Masson's trichrome stain); (B) FRG lesion within a blood vessel resembling an embolus (x200, Masson's trichrome stain).