

Cholesterol Crystal in Chronic Rheumatoid Arthritis: A Forgotten Entity

Ritasman Baisya* and Phani Kumar Devarasetti

Department of Clinical Immunology and Rheumatology, Nizam's Institute of Medical Sciences (NIMS), Hyderabad, India

Corresponding Author*

Ritasman Baisya

Department of Clinical Immunology and Rheumatology,
Nizam's Institute of Medical Sciences (NIMS),
Hyderabad, India

E-mail: ritasman91@gmail.com

Copyright: © 2021 Baisya R, 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.

Received date: 05 November, 2021; **Accepted date:** 19 November, 2021; **Published date:** 26 November, 2021

About the Study

This is a case of chronic seropositive, erosive, deforming Rheumatoid Arthritis (RA) presenting with rheumatoid nodules with olecranon bursitis containing cholesterol crystals [1].

A 77-year-old man known hypertensive, nondiabetic presented with twenty years history of inflammatory polyarthritis, multiple subcutaneous nodules over both elbows and large cystic swelling over right elbow. IgM-Rheumatoid factor (ELISA) was high titer positive. Hand radiography showed erosion in left ulnar styloid process and right intercarpal joints. Ultrasonogram showed multiple rheumatoid nodules with olecranon bursitis over right elbow, radiocarpal and intercarpal joint synovitis with lunate erosion. The aspirate fluid from olecranon bursa revealed cholesterol crystals which are characterized by broad plates with broken edge (notched corner) and step ladder pattern appearance with intense birefringence on polarizing microscopy (Figures 1a-1c).

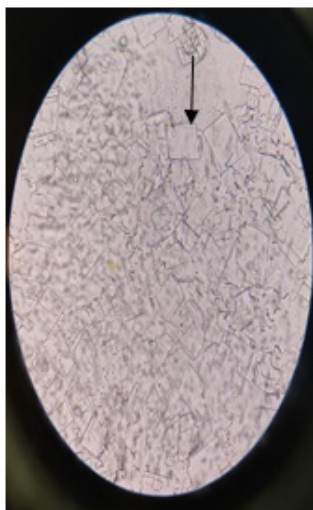


Figure 1a. Light microscopy (100x magnifications) revealed cholesterol crystals with plate like structure and notched corner (arrow).

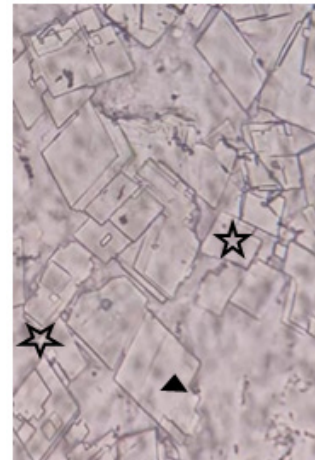


Figure 1b. Magnified view (400x magnification) of the microscopic section revealed cholesterol crystals with broken edge (marked as asterisk sign) and step ladder pattern appearance (marked as black triangle).

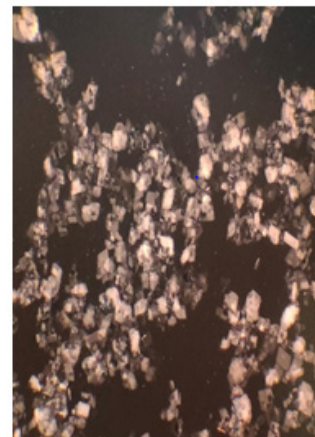


Figure 1c. Direct polarising microscope revealed intense birefringence of cholesterol crystals.

Conclusion

The mechanism of cholesterol crystal formation in synovial or bursal fluid in RA is not known. Possible explanations include both systemic and local causes. Systemic causes include hyperlipoproteinemia, production of antibodies to lipoproteins followed by deposition of antibody-antigen complexes in synovial membranes. Local causes include increased production or defective metabolism of cholesterol in synovial membranes, destruction of local tissue and/or intra-articular bleeding; thrombosis of lymphatic vessels or defective drainage of synovial fluid from joints, destruction of lipoproteins followed by aggregation of lipoproteins in exudate.

References

1. Lazarevic, M.B., et al. "Cholesterol crystals in synovial and bursal fluid." *Semin Arthritis Rheum.* 23.2(1993):99-103.