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Nanobacteria-Like Particles in Human Arthritic Synovial Fluids

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We investigated the existence of nanosize particles in synovial fluids of rheumatoid arthritis and osteoarthritis patients. These specimens were cultured under mammalian cell culture conditions (37 °C; 5% CO_2/95% air) for a long period. After about 2 months, many nanoparticles appeared and they gradually increased in number and in size. The nanobacteria-like particles exist in synovial fluids of arthritis patients. The possibility of their existence and pathogenesis in various diseases should be verified cautiously.

Keywords: nanobacteria • arthritis • synovial fluid • rheumatoid arthritis • osteoarthritis • microorganisms

Introduction

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Materials and Methods

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Results

[illegible]

Discussion

[illegible]

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Figure 1. Right side; the OptiCell with synovial fluid from the RA patient. Synovial fluid was cultured with DMEM for about 22 months, and microparticles increased in size and caused the films to become obscured unevenly and resulted in a geographic pattern. Left side; the control OptiCell, which was filled with only DMEM, and not cultivated.

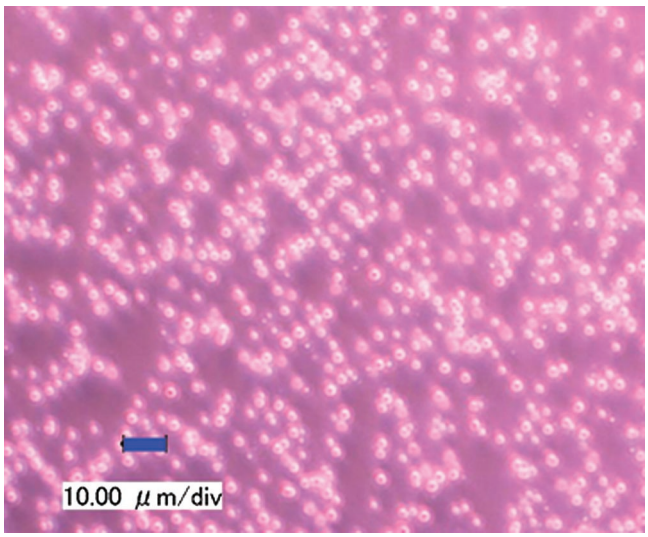

Figure 2. Microscopic photograph of microparticles of 10% synovial fluid from patients with RA after about 18 months of culture. Particles adhered to the inner surface of OptiCell. Blue bar = 10 μm. Original magnification, ×1000.

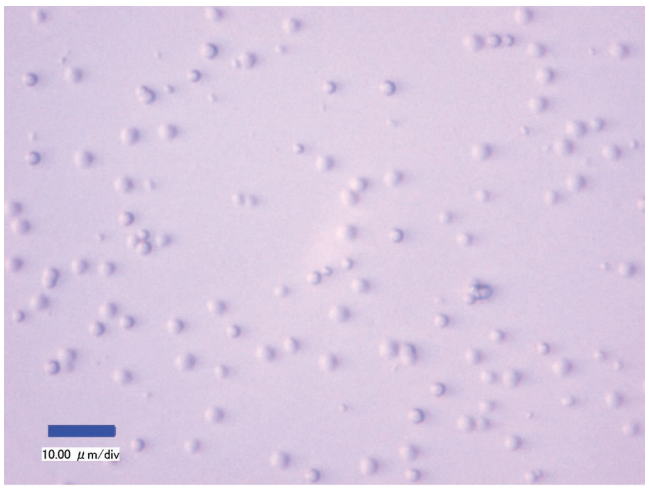

Figure 3. Microparticles from the same patient as in Figure 2 (after 22 months of culture). The size of these microparticles appeared to be less than about 2 μm. They were sphere or hemisphere and varied in size. Blue bar = 10 μm. Original magnification, ×3000.

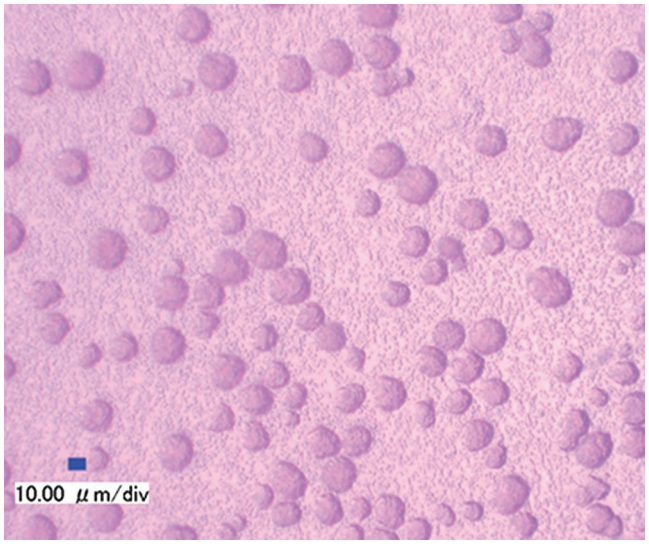

Figure 4. From the same patient as in Figure 2 (after 22 months of culture). Partially many particles appeared in large clusters with diameters greater than 10 μm. Blue bar = 10 μm. Original magnification, ×450.

Conclusion

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