

A study on the relationship between bacteriospermia and quality of seminal fluid in subfertile men

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Abstract

Objectives: To determine the presence of non specific bacteria in seminal plasma, describe its relationship with semen quality, assess the efficacy of sperm preparation to clear bacteria from seminal plasma in males of subfertile couples, and evaluate the relationship of bacteriospermia to bound antisperm antibodies (IgG ASAs).

Methodology: A prospective descriptive cross sectional hospital and laboratory based study was carried out in three parts. A total of 570, 118 and 95 asymptomatic males of subfertile couples were included in first, second and third parts of the study respectively. A seminal fluid sample of each male was cultured in blood, chocolate and McConkey agar. Seminal fluid analysis, detection of bound IgG ASA, swim up and density gradient sperm preparations were carried out.

Results: In first part of the study, out of 570 semen samples studied 268 (47.01%) were pathozoospermic and 302 (52.98%) samples were normozoospermic. Growth of a single organism was found in 360 (63.15%) samples and 210 (36.8%) were negative for bacteria. Organisms found were *Streptococcus* species, *Staphylococcus* species, *Coliform* species, *Proteus mirabilis*, *Corynebacterium* species, *Acinetobacter* species, *Bacillus* species and *Candida albicans*. In samples with; *Staphylococcus aureus* and *Corynebacterium* species mean (SD) volume and total progressive motile sperm count (TSE) were significantly low. *Escherichia coli* made the semen samples alkaline.

In the second part of the study, samples prepared with swim up method, showed a positive bacterial growth in 49 (72.05%) pre-processed and 16 (23.52%) processed samples ($P < 0.001$). Samples prepared with density gradient method, showed a positive bacterial growth in 37 (74%) pre-processed and 18 (36%) processed samples ($P < 0.001$).

There was no significant difference of bound IgG ASAs between culture positive and culture negative samples.

Conclusion: Presence of *Staphylococcus aureus*, *Corynebacterium* species and *Escherichia coli* in seminal fluid is associated with alter semen quality. Both swim-up and density gradient methods significantly reduced bacteria, but total clearance was not achieved. Presence of bacteria in semen does not necessarily signify a disruption of the blood testes barrier.

Key words: bacteriospermia, seminal fluid volume, total progressive motile sperm count in an ejaculate, bound IgG anti-sperm antibodies.