

# En búsqueda de la fertilidad, tratamiento con antibiótico resuelve el problema de una pareja infértil – Reporte de caso

## *Searching for fertility, an antibiotic treatment solves the problem of an infertile couple – A case report*

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### Abstract

**Introduction:** The presence of bacteria in semen (bacteriospermia) is a pathological condition associated with infertility and prevalence of up to 35%.

**Objective:** To report the case of a patient with oligoasthenozoospermia who was treated in the infertility clinic.

**Case:** A 33-year-old male patient with a history of difficulty in conceiving, a history of orchiectomy for testicular torsion at age 16, and Chlamydia trachomatis infection at age 20. The physical examination showed normal results, and testicular Doppler ultrasonography presented mild left varicocele. The semen analysis reported oligoasthenozoospermia, positive semen culture on blood agar for Streptococcus spp, and positive chocolate agar for Streptococcus spp. The treatment started with ampicillin-sulbactam administration for 14 days and a check-up after three months with a new semen analysis which showed an improved concentration and progressive sperm motility.

**Result:** The couple achieved a successful pregnancy.

**Conclusion:** Bacterial colonization of semen contributes to alterations in semen quality; therefore, determining the presence of bacteria in infertile couples could be useful for improving semen parameters and achieving a successful pregnancy with a live baby at home.

**Keywords:** Male infertility; Bacteriospermia; Microbiota; Semen; Fertility.

Resumen

**Introducción:** La presencia de bacterias en semen (bacteriospermia) es una condición patológica asociada con infertilidad y con prevalencia de hasta el 35%.

**Objetivo:** Reportar el caso de un paciente con oligoastenozoospermia manejado en la consulta de infertilidad.

**Caso:** Paciente masculino de 33 años de edad con historia de dificultad para la concepción, antecedente de orquiectomía por torsión testicular a los 16 años, infección por *Chlamydia trachomatis* a los 20 años. Examen físico normal, ecografía doppler testicular con varicocele izquierdo leve. Espermograma con oligoastenozoospermia y espermocultivo en agar sangre positivo para *Streptococcus* spp y agar chocolate para *Streptococcus* spp. Se inició manejo con ampicilina Sulbactam durante 14 días y control a los 3 meses con nuevo espermograma con mejoría marcada de la concentración y la movilidad progresiva espermática.

**Resultado:** La pareja logro un embarazo exitoso con bebe vivo en casa.

**Conclusión:** La colonización bacteriana del semen contribuye a alteraciones de la calidad seminal, por lo tanto, determinar la presencia de bacterias en las parejas infértiles podría ser de utilidad para el mejoramiento de los parámetros seminales y lograr un embarazo exitoso.

**Palabras claves:** Infertilidad masculina; Bacteriospermia; Microbiota; Semen, Fertilidad.

### Introduction

Infertility is defined as the inability to achieve pregnancy after more than 12 months of unprotected sexual intercourse, usually involves psychological and social problems that affect the couple. Infertility affects between 10-15% of couples in reproductive age and teratozoospermia is the most common abnormality in infertile men (1).

Likewise, the presence of bacteria in semen (bacteriospermia) is a pathological condition associated with infertility, with a prevalence of up to 35%

*«Paciente masculino de 33 años de edad con historia de dificultad para la concepción, antecedente de orquiectomía por torsión testicular a los 16 años, infección por *Chlamydia trachomatis* a los 20 años.»*



(1-2). Semen hosts a unique microbiota (3), however, it is still unclear whether the presence of specific bacterial communities has the potential to influence sperm function (4), although it has been shown to be associated with altered sperm motility and even recurrent miscarriages (5).

The objective of this case report is to present a patient with oligoasthenozoospermia, positive sperm culture for microorganisms of the normal flora, managed in the infertility clinic.

### **Case Report**

A 33-year-old man and a 29-year-old woman were admitted to the infertility clinic for a 3-year history of coitus with a frequency of intercourse of once a week, without achieving conception. As background, the woman has a history of polycystic ovary syndrome, under treatment by gynecology. On the other hand, the male patient has no systemic comorbidities, adequate healthy lifestyle, and no toxic substances intake. He presented a history of orchiectomy for testicular torsion at age 16, infection by Chlamydia trachomatis at age 20, with no history of trauma or symptoms of sexual dysfunction. Physical examination showed normal penis, single left testicle, normal size, normal deferens and epididymis, notable reflux on Valsalva maneuver. Rectal examination, flat adenomatous prostate, non-painful and without nodules.

At the initial study, a testicular Doppler ultrasound was performed, which reported a mild left varicocele as an abnormal finding. Spermogram with oligoasthenozoospermia and sperm culture on blood agar positive for Streptococcus spp. and chocolate agar with Streptococcus spp. 100,000 colony forming units (CFU)/mL (Table 1).

« *The objective of this case report is to present a patient with oligoasthenozoospermia, positive sperm culture for microorganisms of the normal flora, managed in the infertility clinic.* »

**Table 1.** Sperm characteristics and patient management flowchart.

	24 / 07 / 2019	Treatment	15 / 11 / 2019	Result
Abstinence, days	3	Sultamicillin (SULAMP) 1 every 12 hours for 14 days	3	30 / 11 / 2019 Positive human chorionic gonadotropin  6 / 8 / 2020 Birth of a healthy baby boy, weighing 3.1 kg and 49 cm long.
Appearance	Normal		Normal	
Viscosity	Normal		Normal	
Liquefaction	Increased		Normal	
Volume, mL	0,2		1,7	
Progressive mobility, %	6		33	
Non-progressive mobility, %	12		15	
Motionless, %	82		52	
Concentration, x 10 <sup>6</sup> /mL	18		100	
Concentration total, x 10 <sup>6</sup> /ejaculated	3,6		170	
Leukocytes x 10 <sup>6</sup> /mL	3		0	
Normal morphology	5		6	
Teratozoospermia index	1,6		1,33	
Sperm culture	100,000 CFU Blood Agar: Streptococcus spp. Chocolate Agar: Streptococcus spp.	Negative (0 UFC)		

Although the option of microsurgical varicocelelectomy was offered, the patient did not accept initial surgical management. Management was started with Sulbactam ampicillin for 14 days and control at 3 months with a new spermogram with marked improvement in sperm concentration and progressive sperm motility. The couple achieved without additional treatment a normal pregnancy of 38 weeks without complications with a live baby at home.

### Discussion

Male infertility has been associated with bacterial infections of the genital tract, and recent studies indicate that the presence of bacteria in semen is relatively frequent, even in fertile individuals with normal sperm parameters (3).

Bacteriospermia contribute to approximately 15-20% of the causes of male infertility. It has been shown that men with these infections have increased sperm agglutination, impaired acrosome reaction and abnormal morphology. The presence of bacteria and leukocytes in semen causes oxidative

imbalance and increased phagocytosis, modulating the pro-oxidative and antioxidant system, promoting the increase of reactive oxygen species (ROS), which triggers lipoperoxidation of the sperm membrane (3, 6) and loss of DNA integrity (7).

The bacteria responsible for semen contamination usually originate in the urinary tract or are transmitted by their partners during sexual intercourse, negatively affecting motility, concentration, and morphology (8, 9), decreasing the possibility of oocyte fertilization (10).

The excretion of bacterial toxicants may also be a factor in the short in vitro sperm lifespan. If this assumption is correct, suppression of bacterial growth by added antibiotics should extend sperm survival in vitro and may justify antibacterial treatment to improve sperm motility in asthenospermic patients when male accessory gland infection is suspected (7). There is in vitro evidence on the negative effect of bacteria or their soluble factors on motility, viability, and some functional parameters (3, 5, 7, 8, 6, 10), which would affect the fertile potential of the individual.

A total of 23 clinical studies of antibiotic treatment for male infertility were identified in a meta-analysis by Skau and Folstad (10). In addition, in a double-blind, placebo versus erythromycin-controlled trial, 100 patients with primary or secondary infertility of at least 12 months duration, twelve pregnancies were conceived during the four-month trial period, six with erythromycin and two with placebo, and four in the third and fourth months (two with erythromycin and two with placebo) without finding a significant difference between the probabilities of pregnancy between the two groups (11). These heterogeneous results in the different reports are due to the lack of studies with strong evidence supporting the negative role of normal semen flora bacteria on spermogram parameters and the possible advantage of targeted treatment.

To conclude, bacterial colonization of semen can generate alterations in sperm motility, viability and concentration, despite being microorganisms of the normal flora, some studies show their participation in the pathogenesis of infertility, which may explain the positive result of the current clinical case with improvement of spermogram parameters and successful pregnancy.

**Conflicts of interest:**

The authors declare that they have no conflicts of interest.

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