

# Female Genital Tract Infection Caused by Streptococcus Pneumoniae: Case Report



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## Abstract

Streptococcus pneumoniae is an important respiratory pathogen and can also cause meningitis and bacteremia. It is very rarely responsible of genital tract infections. We report the case of a pelvic inflammatory disease due to *S. pneumoniae* in a menopausal woman with no predisposing factors. Bacteriological diagnosis was obtained using endocervical and vaginal samples. The patient recovered well without consequences with antibiotic therapy.

**Keywords:** Pelvic inflammatory disease; *Streptococcus pneumoniae*; Vaginal colonization

## Introduction

*Streptococcus pneumoniae* is a commensal of the upper respiratory tract. It is a major cause of community-acquired pneumonia, bacteremia, meningitis, otitis, sinusitis, and carries a high burden of morbidity and mortality [1]. Furthermore, it is a less frequent cause of endocarditis, septic arthritis, and peritonitis [2]. Uncommon colonization sites may cause rare clinical manifestations. We report the case of a pelvic inflammatory disease due to *S. pneumoniae* in a menopausal woman with no predisposing factors.

## Case Report

A 57-year-old woman with history of type 2 diabetes and high blood pressure was admitted to our hospital complaining of hypogastric pain and sustained fever. She was multiparous (4 children) and have had menopause since, one year and a half. The general physical exam found a fever of 38.8°C and tenderness in the right lower abdominal quadrant. Pelvic examination showed abundant green vaginal discharge and painful mobilization of the uterus. Vaginal and endocervical samples were then collected. The patient was otherwise normotensive with a pulse rate of 80 bpm. On admission, blood tests showed hyperleucocytosis (15000/mm<sup>3</sup>) and C reactive protein of 66 mg/l. Abdominal and pelvic ultrasound found a right juxta-ovarian collection with 2X2 cm dimensions. Intravenous antibiotic treatment was initiated

(ciprofloxacin and amoxicillin+clavulanic acid). The patient had improved within 48h of antibiotherapy and was discharged at day five with oral treatment for 14 days. Bacteriological samples showed numerous polynuclear cells and the culture turned out positive after 48h incubation with many colonies of *Streptococcus pneumoniae*. The colonies on blood agar were very mucoid and surrounded by an alpha hemolysis zone (Figure 1). AntibioGram showed sensitivity to penicillin and norfloxacin. Serotyping could not be performed.



Figure 1: colonies of *Streptococcus pneumoniae* on blood agar.

## Discussion

Pelvic inflammatory disease is a rare manifestation of pneumococcal infections. Although *S.pneumoniae* typically colonizes the upper respiratory tract, it can be part of the commensal flora of the female genital tract [3]. Prevalence of vaginal colonization with *S.pneumoniae* is unknown; Pneumococci were not isolated from normal vaginal flora in two ancient studies with a total of 294 gynecologic and 52 obstetric patients [4,5]. Darbas and Boyer reported seven isolates from 1064 vaginal secretions (0.75%), one isolate from 265 placentas, and one isolate from 40 intrauterine contraceptive devices (IUDs) that had been removed [6]. Changes in sexual practice (i.e., increased orogenital sex) and improved isolation techniques have been suggested as potential cause for the detection of *S.pneumoniae* in vaginal specimens [7]. However, although a history of receptive oral-anal sex was found to be associated with unstable vaginal flora and bacterial vaginosis, an association between sexual behavior and recovery of *S.pneumoniae* in vaginal specimens has not been reported [2]. Other transmission modes of pneumococci to the vagina could be a spread from the respiratory tract by hand contamination or hematogenous route [8].

Pneumococcal infection of the internal genital tract may give rise to endometritis, salpingitis, pelvic inflammatory disease, and abscesses and may be complicated by diffuse peritonitis. The symptoms and signs of these infections are in general not specific and rarely allow the clinician to suspect particular causative agents. Westh et al.[9]reported nine cases of pneumococcal infection of the female genital tract along with seven cases of pneumococcal Bartholinitis. In their review, they found reports of 27 cases published between 1938 and 1988. One or more predisposing factors were discerned in most of the patients, mainly the use of intrauterine contraceptive devices (IUD) or changes secondary to the postpartum or postabortion period. The authors also pointed out the fact that pneumococcal genital infection was more common in the preantibiotic era than today, and the rate of lethality was high. During the last decade, more recent cases were reported by Gardien et al. [10], and Lemonye et al. [2]. When the infections occur, the route could be primary resident flora, gastrointestinal tract, lymphatics, or blood stream [11]. When *S.pneumoniae* is present in the adult vagina it can infect Bartholin's glands [9]. From the vagina it can also ascend to the internal genitals; this type of infection is increased by the predisposing factors (IUD, postpartum state, instrumentation of the uterine cavity). No such factors were observed in our case.

Serotypes 1 and 3 are among the most incriminated serotypes in female genital infections [10]. The importance of these two serotypes in complicated female genital infections had previously been emphasized and their particular affinity for the genital tract suggested [12]. Genital infections can be handled without consequences when diagnosed early [10]. Their treatment is facilitated by the high proportion of penicillin-sensitive strains (high frequency of serotypes 1 and 3 which are hardly resistant to penicillin) as was the case of our patient.

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