

Letter to the Editor

***Actinomyces*-like organisms on intrauterine devices from asymptomatic users.**

Short title: *Actinomyces* on intrauterine devices

Dear Editors,

Intrauterine devices (IUDs) are the most widely used contraceptive methods; their efficacy is mainly based in the foreign body response and the ability to induce cellular and biochemical changes in endometrium and uterine fluid. IUDs are known to be associated with a risk of pelvic infection, heavier periods, menstrual cramps and complication associated with colonization of microbes on these implant devices. [1] The most common infection related to insertion or manipulation of an intrauterine device is pelvic inflammatory disease, and the microorganisms most frequently involved are *Chlamydia trachomatis*, *Neisseria gonorrhoeae* or *Escherichia coli*, among others. Species that most often complicates the IUD also include *Actinomyces*-like, with a prevalence of 1.1 compared with 0.2% of non-IUDs users. [2] In some cases, even in asymptomatic patients, IUDs behaves as a risk factor for invasive actinomycosis. [3]

Study design. A microbiological study was conducted in 96 asymptomatic Mexican IUD patients, from July to December 2015. Gram and Ziehl Neelsen stains were performed; agar blood and agar thioglycolate were also used, as well as biochemical tests for *Actinomyces*-like; this analysis was performed through the automated system for anaerobic Vitek®.

Results. Of 96 IUDs obtained, 84 (87.5%) were high copper type (TCu380), 4 (4.2%) LNG-20 (levonorgestrel), 4 (4.2%) Lippes Loop, 2 (2.1%) 220 TCu and 2 (2.1%) Gravigard. Fifty six devices (58.4%) had a time of more than 5 years of use (range: 1 month - 32 years, average 7.5 years). Samples obtained were cultures in blood agar media showed positive *Actinomyces* sp (1.04%) in one patient, quantification cutoff was 200 CFU of *Actinomyces israelii*. The type of IUD was TCu380 (Copper IUD) with 11 years of use. The total number of isolated microorganisms and type of IUD are presented in Table 1.

Discussion and conclusions. The results obtained show the isolating of actinomycetes is low and coincides relatively with few studies in the literature, [1-4] since the prevalence of *Actinomyces*-like in the devices studied was only 1.04% and allow us to assume the use time of the device is not a factor that increases its prevalence. Although IUDs increase *per se* the incidence of pelvic inflammatory disease in 1.6 per 1000 years of use, [5] and thus, more detailed studies are needed with the aim to settle whether the presence of IUDs is a risk factor for actinomycosis on asymptomatic IUD users. Biofilm formation or grain that can produce *Actinomyces* sp, which is favored by IUD use, induces growth on culture media. [3] However, we noted the absence of growth; this is partly due to the encapsulated structure of the organism. We consider the development of actinomycosis is a complex phenomenon, in which probably influence several factors, as well as organizing part of the vaginal microbiota, pH, previous antibiotic treatments, duration of IUD. [2,4]

Physicians should warn women using IUDs on the possibility of intrauterine infection and with a positive cervicovaginal swab specimen with *Actinomyces*-like organisms can remove the device (although this behavior is controversial), with the possibility of reinserting when the findings of exudates are negative for these organisms.

References.

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2. Pan L. Actinomyces-like organisms' infection in intrauterine devices wearers. *Zhonghua Fu Chan Ke Za Zhi.* 1993;28:292-4.
3. Chatwani A, Amin-Hanjani S. Incidence of actinomycosis associated with intrauterine devices. *J Reprod Med.* 1994;39:585-7.
4. Pruthi V, Al-Janabi A, Pereira BM. Characterization of biofilm formed on intrauterine devices. *Indian J Med Microbiol.* 2003; 21:161-5.
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Table 1. Microorganisms isolated from IUDs

IUDs type	Microorganism
TCu 380	<i>Actinomyces israelii</i> , <i>Staphylococcus aureus</i> , <i>Escherichia coli</i> , <i>Serratia marcescens</i> , <i>Streptococcus anginosus</i> , <i>Candida albicans</i>
TCu 220	<i>Staphylococcus aureus</i> , <i>Escherichia coli</i>
Lippes loop	None
LNg-20 (levonorgestrel)	None

Gravigard	None
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