Significance of *Actinomyces* spp on a Pap smear

Compiled by: Dr J. Wojno

3rd Quarter 2023

Actinomyces is a genus of bacteria that is part of the normal human flora in various areas, including the mouth, gastrointestinal tract, and female genital tract. When *Actinomyces* is detected on a Pap smear, its clinical significance needs to be determined as it may merely represent asymptomatic colonisation.

The presence of *Actinomyces* on a Pap smear should be interpreted in the context of the patient's symptoms, clinical history, and additional diagnostic tests. It is important to consider whether the patient is experiencing any signs or symptoms of infection, such as abnormal vaginal discharge, pelvic pain, and fever.

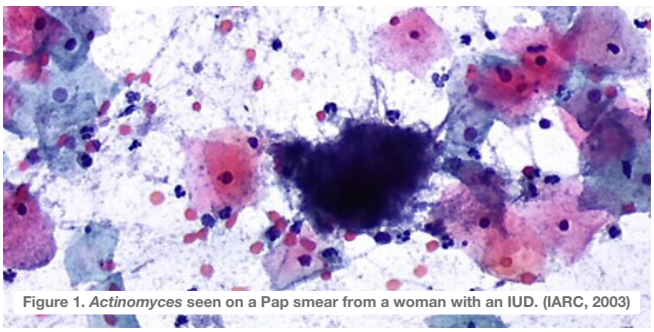

Figure 1. *Actinomyces* seen on a Pap smear from a woman with an IUD. (IARC, 2003)

Actinomyces can cause infections, known as actinomycosis, most commonly cervicofacial, but can also affect the female reproductive tract. The presence of *Actinomyces* on a Pap smear may suggest a genital tract infection, although it does not necessarily mean that an active infection is present.

If *Actinomyces* is suspected to be clinically significant based on the Pap smear results, further evaluation, such as additional cultures or imaging studies, may be warranted. The management of *Actinomyces*-related infections typically involves antibiotic therapy targeted against the bacteria.

Actinomyces may be identified on cervical cytology tests, typically in patients who have an intrauterine device (IUD). Cervical cytology is not the most specific test for *Actinomyces*. For patients who are found to have *Actinomyces* on a Pap smear, the patient should be evaluated for symptoms of pelvic inflammatory disease (PID). There may be a need to perform a cervical culture for *Actinomyces* or culture of the IUD.

Kim et al. reviewed over 20 000 Pap smears and found *Actinomyces*-like organisms on 0.26% of smears, and about 7% of IUD users may have a Pap smear with *Actinomyces*-like organisms.[1,2] However, when a cervical culture is performed only half of these will be culture positive.[1,3] Although culture is the gold standard for identification of *Actinomyces*, its presence is not routinely useful to determine clinical significance.[1] Thus it is not necessary for culture for *Actinomyces* to be performed in asymptomatic individuals. For those with an IUD who are found to have *Actinomyces* on a Pap smear, it is more useful to evaluate for signs and/or symptoms of PID and base the treatment approach on the findings of that evaluation.[4]

SCENARIO A: For patients with an IUD who have *Actinomyces*-like organisms on Pap smear but without signs and/or symptoms of PID, the IUD can be left in place and there is no need to perform a cervical culture.[4] The patient can be counselled to inform the clinician if she develops pelvic pain or vaginal discharge.

SCENARIO B: If *Actinomyces* is incidentally noted on a Pap smear and the patient has signs or symptoms concerning for PID, the IUD should be removed and sent for culture. A pelvic ultrasound should also be performed to assess for tubo-ovarian abscess formation. If *Actinomyces* is cultured from the IUD, the patient can be treated according to the empiric PID treatment recommendations in the United States Centers for Disease Control and Prevention (CDC) 2021 STD Treatment Guidelines.[5]

The treatment of PID consists of a 14-day course of:

- ceftriaxone 1 g every 24 hours PLUS
- doxycycline 100 mg 12 hourly (Doxycycline is active against *Actinomyces*) PLUS
- metronidazole 400 mg/500 mg 12 hourly

If only a vaginal discharge is present, it may be prudent to treat with penicillin V alone (500 mg 8 hourly for 2 weeks) if other causes of the vaginal discharge have been excluded.[6] This is, however, not based on any strong evidence and removal of IUD alone may be sufficient.

Treatment of a tubo-ovarian abscess will require prolonged therapy as well as surgical intervention. Usually, antibiotics are given for 3 to 6 months. Of note, there have been reports of abdomino-pelvic actinomycosis associated with the use of intrauterine contraceptive devices. Discussion with a Microbiologist with regards to the most appropriate antibiotic regimen is advised.

References

1. Westhoff C. IUDs and colonization or infection with Actinomyces. Contraception 2007; 75(6 suppl): S48 – 50. doi: 10.1016/j.contraception.2007.01.006.
2. Persson E and Holmberg K. A longitudinal study of Actinomyces israelii in the female genital tract. Acta Obstet Gynecol Scand 1984; 63(3): 207 – 216. doi: 10.3109/00016348409155498.
3. Lippes J. Pelvic actinomycosis: a review and preliminary look at prevalence. Am J Obstet Gynecol 1999; 180(2 Pt 1): 265 – 269. doi: 10.1016/s0002-9378(99)70198-5.
4. Committee on Practice Bulletins – Gynecology, Long-Acting Reversible Contraception Work Group. Practice Bulletin No. 186: Long-Acting Reversible Contraception: Implants and Intrauterine Devices. Obstet Gynecol 2017; 130(5): e251 – e269. doi: 10.1097/AOG.0000000000002400.
5. Workowski KA, et al. Sexually Transmitted Infections Treatment Guidelines, 2021. MMWR Recomm Rep 2021; 70(4): 1 – 187. doi:10.15585/mmwr.rr7004a1
6. Kim YJ, Youm J, Kim JH, Jee BC. Actinomyces-like organisms in cervical smears: the association with intrauterine device and pelvic inflammatory diseases. Obstet Gynecol Sci 2014; 57(5): 393 – 396. doi: 10.5468/ogs.2014.57.5.393.

design done and printed by: **ELECTRONIC LABORATORY SERVICES (PTY) LTD PRINT BUREAU**

corporate branding/newsletters/sa/2023/N00279 significance of actinomyces spp on a pap smear a4 eng duplex 170gsm leo aug2023.cdr | rev000

ITEM CODE: N00279