Communications

Pelvic Actinomycosis and the Intrauterine Device

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Wide documentation of the association of pelvic infection caused by actinomyces and use of the intrauterine device (IUD) is now available. This entity, however, still remains one of the less common diseases confronting the practicing physician in contact with gynecologic patients.

Retrospective studies indicate the incidence of actinomycetes colonization to be approximately 19.7 to 25 percent among IUD wearers.[1,2] However, the reverse correlation of IUD use to the presence of actinomycosis in cervicovaginal smears is extremely high.[1] The recognition of actinomycetes-like organisms is possible easily and inexpensively from routine Papanicolaou cervicovaginal (Pap) smears.[3] This method is highly specific[3] and provides recognition at a fairly early stage of potential pelvic inflammatory disease and its association with more severe complications.

Almost all forms of the IUD have been identified as being associated with pelvic actinomycosis, including the Dalkon Shield (AH Robins), Lippes Loop Intrauterine Double-S (Orthopharmaceutical), Saf-T-Coil (Schmid Products), and Cu-7 (Searle Laboratories). Women using tailless devices, such as the Birnberg Bow and the Uterector (both now discontinued), have also been found to have cases of actinomycosis, thus lending disrepute to the earlier theory of possible ascending route of infection. Duration of use of the IUD has varied from 12 months to 12 years.[3] There is no pattern of length of use as a function of the type of device.[3] The overall risk of infection with actinomyces seems to be enhanced with a longer duration of IUD use.[4]

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Clinical Presentation

Pelvic actinomycosis is usually restricted to the fallopian tubes and ovaries, presenting as acute or chronic pelvic inflammatory disease. It rarely involves either the corpus uteri or cervix. Acute pelvic inflammatory disease presenting with fever, chills, vaginal discharge, pelvic and/or abdominal pain, intermenstrual bleeding, and menorrhagia is commonly found in the symptomatic patient. In some studies approximately 47 percent of the patients diagnosed as having actinomycosis were asymptomatic[3] and only had positive Pap smears.

Various morbidities and complications in association with IUD usage and pelvic actinomycosis include dissemination of infection with hepatic and intracranial abscesses.[2] Presentations as multiple fistulas or as a mass lesion imitating a malignant neoplasm in a case of actinomycosis of the bladder have also been reported.[5] A recent case of death associated with pelvic actinomycosis has also been reported.[6]

Mechanism of Infection

Conditions favoring growth of the organism include a combination of chronic tissue injury, a foreign body, and the adjacent heavy anaerobic

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flora of the vagina.[7] Apart from the routine recovery of actinomyces strains in the vagina and endocervix, the organism has also been found in the endometrium and fallopian tube lumina, suggesting an ascending mechanism of spread. Other possible means of spread may include local lymphatic systems from a diseased adjacent gastrointestinal tract. No study yet absolutely identifies a hematogenous mode of dissemination, but this cannot be ruled out. Sexual transmission or spread from remote sites such as the oral cavity or tonsils also cannot be excluded. Most studies tend to support the theory of probable anogenital and orogenital routes of transmission.[3]

Diagnosis

The presence of actinomyces is usually associated with a polymicrobial flora. A variety of gram-positive and gram-negative organisms are present which may be incidental, opportunistic, or represent contamination of the culture specimen with indigenous flora.[3]

The species most frequently identified is Actinomyces israelii, an anaerobic, gram-positive, non-acid-fast, obligate parasite that is classified between the true bacteria and the complete fungi.[8] Cytologic testing (Pap smear) is not species specific, but it provides an inexpensive, direct method for detecting actinomyces organisms.

An acute inflammatory cellular pattern is also usually present.[9] Histologic evaluation is usually performed on curettings obtained from both endometrium and endocervix. Step sections can be taken to look for actinomyces sulfur granules ("Gupta bodies").[10] Recovery of actinomyces from cultures has remained consistently poor, (approximately 4 percent).[1] Fluorescent antibody testing is used to evaluate positive results and shows diagnostically positive fluorescence.

Management

1. All patients with positive cervical and vaginal smears should have the IUD removed, regardless of symptoms or their absence.

When removed because of suspected complications or reinsertion, it is recommended that intrauterine device specimens should be routinely submitted to the pathology laboratory for histopathological and microbiologic studies.[3] This practice, however, remains controversial. Gross examination of these specimens must be complemented by histologic examination of any tissue, mucus, or blood clots adherent to the surface. At times actinomycotic colonies can be demonstrated in tissues and debris adherent to the IUD.[3]

2. Symptomatic patients should have confirmatory cultures, special stains for morphology, and immunofluorescence for accurate identification of the organism before treatment is initiated.[1]

3. Antibiotics are prescribed that provide both aerobic and anaerobic coverage, since Actinomyces is usually recovered along with other anaerobes. Penicillin and tetracycline are both efficacious, though the former seems to be the antibiotic of choice. Duration of antibiotic coverage varies, according to various centers, between two to four weeks. No controlled trials have been published relating to absolute necessity, choice, and duration of administration of antibiotics.

4. Patients with gross involvement of any organ should have definitive surgery, especially if abscesses are present. In some cases of pelvic inflammatory disease, salpingo-oophorectomy or even hysterectomy may be indicated.

5. Pap smears and a follow-up biopsy are repeated in four to six weeks to ensure that infection and inflammation have cleared before reinsertion of the intrauterine device.

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