

# Actinomycosis Causing Pelvic Inflammatory Disease : A Case Report

Suthi Sungkarat MD,\*  
Chaeyod Thirapakawong MD,\*  
Visut Suvithayasiri MD,\*  
DI Robertson PhD, FRCPC.#

\* Department of Obstetrics and Gynaecology,  
Faculty of Medicine Siriraj Hospital, Bangkok, Thailand

# Visiting Professor of Pathology,  
Mahidol University, Bangkok, Thailand,  
Departments of Pathology and Obstetrics and Gynaecology,  
University of Calgary, Calgary, Alberta, Canada

**Abstract :** *We report a case of severe pelvic inflammatory disease due to Actinomyces spp. in a 25 years old woman who recently had an intra-uterine contraceptive device removed. This disease may be seen more commonly if more such devices are inserted. (Thai J Obstet Gynaecol 1992;4: 55-58.)*

**Key words :** actinomycosis, pelvic inflammatory disease

Actinomycosis is a sub-acute suppurative and chronic granulomatous disease usually caused by the anaerobic bacterium, *Actinomyces israelii* (rarely, other species of *Actinomyces* may be pathogenic)<sup>(1)</sup>. It usually produces disease in the cervicofacial ("Lumpy jaw") or ileocecal regions, the latter often associated with a history of appendicitis. Only rarely did it produce disease in the female genital tract. However, it is becoming an increasingly common cause of pelvic inflammatory disease especially in women who have used or are using an intra-uterine contraceptive device

(IUCD).

We wish to report a case of Actinomycosis seen recently at Siriraj Hospital to draw attention to the association between use of an IUCD and pelvic inflammatory disease due to *Actinomyces* spp.

## Case Report

A 25 years old married factory worker presented five months prior to admission complaining of dyspareunia and mild fatigue of one month duration. She asked to have her IUCD removed which had been inserted one

and one half years earlier, six months after delivery of her first child. She was seen in the Family Planning Clinic two weeks later for a prescription for birth control pills but also complained of daily vaginal spotting since the IUCD was removed. An adnexal mass was discovered at this time. She was seen in another clinic two weeks later complaining of abdominal discomfort for which a laxative was prescribed. By this time she had developed a low grade fever every evening.

One month prior to admission she came to Siriraj Hospital complaining of fainting episodes, increasing fatigue, urinary frequency and dysuria, and persistent abdominal discomfort. A diagnosis of a urinary tract infection was made for which antibiotics were prescribed. One week prior to admission she re-presented to Siriraj Hospital with the same complaints (minus those related to the urinary tract infection). At this time she could palpate an abdominal mass. She also complained of a 10 kg weight loss over the previous five months. Arrangements were made for admission.

At surgery multiple pelvic adhesions were present forming a large mass encasing the uterus, both adnexae, and part of the large bowel and omentum. After dissection the right ovary measured approximately 5 cm and the intra-operative impression was ovarian carcinoma. The cut surface of the ovary was soft, yellow-white, with focal areas of pus. The capsule appeared invaded. Multiple omental

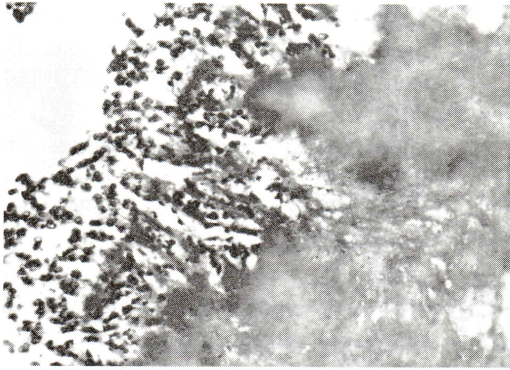
nodules about 1 cm diameter were present and it was also adherent to the peritoneum. 30 ml of sero-sanguineous ascitic fluid were present.

On microscopic examination the inflammatory process entirely destroyed the ovarian architecture but remnants of scarred Fallopian tube could be recognized. The inflammatory process consisted of multiple microabscesses which tended to coalesce. In the centre of many were characteristic clumps of "ray fungi" which had a reddish-purple colour on hematoxylin and eosin staining (Fig. 1). At the periphery of these clumps fine "rays" or "filaments" were seen extending briefly into the surrounding polymorphonuclear infiltrate (Fig. 2). Surrounding the abscesses were poorly developed fibrous connective tissue walls. This wall was most developed in the residual lamina propria of the Fallopian tube.



**Fig. 1** Two microabscesses in the ovary, one of which contains a sulfur granule. H&E original magnification x 100.





**Fig. 2** The finely filamentous nature of the sulfur granule can be seen at its edge next to the rim of polymorphonuclear leukocytes. H&E original magnification x 400.

## Discussion

*Actinomyces* spp. is a gram positive anaerobic bacterium which was previously erroneously classified as a fungus<sup>(1)</sup>. Since it is a filamentous bacterium, the descriptive term "ray fungus" has been applied. The bacteria tend to grow in solid clusters to form yellow clumps called "sulfur granules" which sometimes can be seen by the naked eye in the midst of the pus. It has a propensity of produce external sinus tracts surrounded by much necrosis and fibrosis.

Although historically the commonest sites of involvement have been the cervico-facial and ileocecal regions, virtually any tissue may be invaded. Only rarely, however, does it present in a disseminated bacteremic form. Whereas *Actinomyces* spp. infection of the female genital tract was rare it is becoming increasingly common especially in women using an IUCD. Colonization of the IUCD by

*Actinomyces* spp. has been reported varying from 8%<sup>(2)</sup> to 14.5%<sup>(3)</sup> of cases. Over time, perineal contamination from a gastrointestinal source is thought to be the source of infection of the IUCD<sup>(1)</sup>. From the infected IUCD the organism spreads to involve the Fallopian tube then other surrounding structures. Monthly menstruation should inhibit the establishment of *Actinomyces* spp. in the endometrium.

There is still debate whether or not specific IUCD types are associated with higher infection rates than other types. Keebler et al<sup>(4)</sup> reported a higher infection rate for plastic than for copper IUCDs but Gulec and Gunalp<sup>(3)</sup> found no difference in infection rates by IUCD type. Similarly, some authors report that the infection rate increases with the duration of use of the IUCD<sup>(3)</sup> which is refected by others<sup>(5)</sup>.

*Actinomyces* spp. are sensitive to both penicillin and tetracycline antibiotics which should form the basis of therapy<sup>(1)</sup>. However, since the organisms tend to grow in avascular tissues, prolonged high dose therapy may be required. Surgery may also be required depending upon the extent and location of disease especially to achieve drainage. If surgery is required the diagnosis of actinomyces should be suspected if necrotic tissue with a purulent exudate containing sulfur granules is encountered.

In summary, we report this case to alert gynaecologists to the association between severe pelvic inflammatory disease due to *Acti-*

*nomycetes* spp. and the use of an IUCD. Further, the diagnosis of Actinomycosis should be suspected in any woman who has used an IUCD and who presents with signs and symptoms of subacute pelvic inflammatory disease.

## References

1. Goldsand G. Actinomycosis. In: Hoeprich PD, Jordan MC, eds. Infectious diseases. A modern treatise of infectious processes. 4th ed. Philadelphia: JB Lippincott Company, 1989:457-65.
2. Eibach HW, Bolte A, Pulverer G, Schaal KP, Kupper G. Clinical relevance and pathognomonic significance of Actinomyces colonization of intra-uterine devices. Geburtshilfe Frauenheilkd 1989; 49:972-6.
3. Gulec N, Gunalp A. Actinomyces and other bacteria isolated from cervical cultures of women using IUDs. Mikrobiyol Bul 1987;21:212-22.
4. Keebler C, Chatwani A, Schwartz R. Actinomycosis infection associated with intrauterine contraceptive devices. Am J Obstet Gynecol 1983;145:596-9.
5. Persson E, Holmberg K. Genital colonization by Actinomyces israelii and serologic immune response to the bacterium after five years use of the same copper intra-uterine device. Acta Obstet Gynecol Scand 1984;63:203-5.