

Retained IUD associated Changes in the uterus with special Reference to incidence of Actinomycosis.

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Abstract

Introduction: Actinomycosis is a rare and insidious disease. The most common etiologic organism is the anaerobic, gram positive bacterium, *Actinomyces israelii*. It is invasive and spreads by direct extension across the tissue planes with the formation of multiple abscesses. Abdominopelvic actinomycosis is rare but its prevalence has increased with the increasing use of (Intrauterine devices) IUDs.

Aims and Objectives: the aim of this study is to find out the association of Actinomycosis infection amongst IUD users.

Material and Methods: this retrospective study is based on abdominal hysterectomies operated for Pelvic Inflammatory Disease in a two years period. In Five Hysterectomy specimens out of 100 cases, Copper T (Cu T) was present in situ as an incidental finding in the uterine cavity. Associated Pathology was studied and correlated with the symptoms. Vaginal Cytology smears in 30 IUD users in the active reproductive age group were also screened.

Results: In the five cases with Cu T, One case had a full blown findings of Actinomycosis. The infection had spread upto the omentum. In the other cases there were some endometrial changes but no specific infection. In the vaginal cytology smears screened in the IUD users only one case of Actinomycosis related findings (Gupta bodies) were identified. In others there were variable grades of inflammation observed.

Discussion and Conclusion: The association of Actinomycosis infection and IUD is well known. Diagnosis of Actinomycosis is difficult as the clinical picture is not specific. IUD users need to be screened regularly by pap smears. Besides other cautions the patients must be clearly instructed to get the device removed in time. This study points out that the negligent retention of IUD can lead to this opportunistic infection and other complications.

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I. Introduction

Actinomycosis is a suppurative, chronic granulomatous disease, caused by any of several anaerobic organisms from the genus *Actinomyces*. Pelvic actinomycosis is usually insidious and is often mistaken for pelvic abscess or ovarian malignant tumours^[1]. Use of intrauterine device (IUD) is considered a risk factor in pelvic actinomycosis. It causes infection only when the surface of the tissue is broken, mainly due to the presence of foreign body (IUD) or failure in integrity of mucosa. The infection spreads contiguously crossing the anatomic barriers. Distant lesions can be formed. Actinomycosis can be mistaken for malignant tumour in the pelvis. The definitive diagnosis requires positive anaerobic culture or histological identification of actinomyces granulomas. Actinomycosis can affect people of all ages, but the majority of cases are reported in young to middle-aged adults (aged 20-50 yrs). The reported male-to-female ratio is 3:1.^[2] No racial predilection exists. For unknown reasons, men are affected more commonly than women, with the exception of pelvic actinomycosis. In women, pelvic actinomycosis is documented.^[3] Bollinger first reported the yellow granules in jaw masses of cattle in 1877. In 1878, Israel described the first human case. In 1879, Hartz first observed the microscopic appearance of granules of actinomyces infection.^[4]

II. Material And Methods

This retrospective study is based on abdominal hysterectomies operated for Pelvic Inflammatory Disease in a two years period. In Five Hysterectomy specimens out of 100 cases, Copper T (Cu T) was present in situ as an incidental finding in the uterine cavity. Associated Pathology was studied and correlated with the symptoms.

Vaginal Cytology smears in 30 IUD users in the active reproductive age group were also screened.

III. Results

The clinical presentation, relevant investigations and important pathological findings are tabulated in Tables 1 & 2 respectively.

Case 1: presented with fever, vaginal discharge pain and lump in the lower abdomen. During abdominal panhysterectomy, omentectomy was also done as the omentum was thickened and studded with multiple yellowish abscesses. On gross examination Cu-T was lodged in the uterine cavity, and the Endomyometrium around it was soft and friable. The cervix was also bulky with formation of abscesses. The omentum showed multiple yellowish abscesses with congested borders. Sections from the Endometrium, Cervix and the Omentum showed abscesses with characteristic Splendore Hoeppli phenomenon as described in Actinomycoses. Special stain with Gomori Methanamine Silver (GMS) depicted the bacilli.

Case 2: The second Case also presented with abdominal pain, fever and vaginal discharge. Panhysterectomy was done. The Cu-T was in situ and there was softening of the Endomyometrium at the left cornu, with yellowish white areas extending into the attached fallopian tube. The left ovary was also enlarged (5/4/3 cms) and had multiple soft yellowish abscesses. microscopically these resembled the Actinomycoses lesions but Gomori stain was not positive. (PseudoActinomycosis). The rt tube and ovary were normal. The infection seemed to have spread directly from the endometrium to the left adnexa.

The third Case with in situ Cu-T had nonspecific Chronic Endometritis but no acute abscesses.

The fourth and the fifth case had no infective pathology. In one there was complex endometrial hyperplasia with polyps. No cellular atypia. In the other there was Simple endometrial hyperplasia with adenomyosis.

All these patients had retained IUCD, inadvertently for longer periods of 3 to 7 yrs and presented only when had symptoms.

The sign and symptoms of these 5 cases are tabulated below:-

Cases Symptoms	Case 1	Case 2	Case 3	Case 4	Case 5
Chronic pelvic pain	+ Dull, cramping, intermittent	+ Dull, Cramping, persistent	+ Dull, cramping, intermittent	+ Dull, cramping, intermittent	+ Dull, cramping, intermittent
Dysmenorrhoea	No	No	Yes	Yes	Yes
Menorrhagia	No	Yes	No	Yes	No
Vaginal discharge	Yes	Yes	No	No	No
Fever	+ Mild	+ Mild	No	No	No
Loss of appetite	Yes	No	No	No	No
Lump in abdomen	Yes	No	No	No	No

Cases	Case 1	Case 2	Case 3	Case 4	Case 5
Age	47	45	48	39	42
Duration of IUDs	6 years	4 years	3 years	3 years	4 years
Type of IUDs	Multiload Cu375	Copper T	Copper T	Copper T	Copper T
Cervical Screening (Pap Smears)	Yes	Yes	No	No	No
Hemoglobin (in gm %)	11.2	11.8	10.6	12.2	11.5
TLC/DLC	7,500 P ₅₅ L ₄₀ M ₂ E ₃	8,200 P ₄₅ L ₅₀ M ₂ E ₃	6,600 P ₄₃ L ₄₇ M ₅ E ₅	7,400 P ₆₀ L ₂₅ M ₈ E ₇	5,500 P ₅₂ L ₄₃ M ₂ E ₃

In the vaginal cytology smears screened in the IUD users only one case of Actinomycosis related findings (Gupta bodies) were identified. In others there were variable grades of inflammation observed.

IV. Discussion

Actinomycosis is a slowly progressing chronic infectious disease caused by Grampositive anaerobic bacteria genera Actinomycetes, most frequently Actinomyces israelii. It is part of normal flora in oropharynx, GIT and female genital tract. [5] If there is failure in integrity of mucosa microorganism can pass this barrier into the tissues and can form abscesses with surrounding granulation. The infection spreads contiguously crossing the anatomic barriers; hematogenous spread is less common. [6] Nevertheless, distant lesions can be formed. The likelihood of colonization rises with increasing duration of IUD. [7] The microorganisms multiply slowly creating microcolonies. They are surrounded by polymorphonuclear cells and are incrustated by calcium salts and sulphur granules formations not actually sulphur-containing but resembling such particles. These granules contain progeny bacteria. The preliminary diagnosis can be made by examining these granules microscopically. The sulphur granules (up to 1 mm) are macroscopically yellow/brown particles with a cauliflower appearance at low magnification; they are characteristic for actinomycosis. Gram staining reveals the typical beaded, branched, Gram-positive filamentous rods. Based on the anatomic site of lesions four clinical forms are recognized: cervicofascial, thoracic, abdominal and pelvic. Structures resembling the "sulfur granules" observed in Actinomyces israelii infections are sometimes identified in endocervical curettings of asymptomatic women. In the majority of cases these are 'pseudoactinomycotic radiate granules,' which are nonspecific collections of bacteria or foreign material (e.g., fragments from nylon strings of IUD), glycoproteins, and lipids rather than actual collections of Actinomyces israelii.

The microorganism causes the infection only when the tissue is broken; it requires the presence of foreign body (IUD) or failure in integrity of mucosa. The infection penetrates from perineum or abdominal wall into abdominal cavity and pelvic organs in pelvic or abdominal form. [8] Actinomycosis can be then mistaken for malignant tumour. The definitive diagnosis requires positive anaerobic culture or histological identification of actinomycetes granules. Standard causal therapy: antibiotics for several weeks to months. Benzylpenicillin is the first choice; in the case of resistance or complications second one is macrolids. Dosage and treatment time depends on the scale of invasion, size of the lesion as well as on the compliance of the patient. Surgical intervention is limited to excision of abscesses and fistulas. Pelvic actinomycosis was seen only in a very small percentage (2 in 17, 734) of non IUD users. Hence, actinomycotic colonisation of the female genital tract was regarded as a rare event in women without an IUD. [9]

V. Conclusion

Pelvic actinomycosis can be mistaken with malignancy or may underdiagnosed. We must think on this diagnosis especially in women using IUD. Women using IUD must be screened at regular intervals and IUD should be removed properly on time.

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