COLPOSCOPIC AND CYTOLOGICAL CHANGES IN INTRAUTERINE CONTRACEPTIVE DEVICE USERS – A PROSPECTIVE STUDY

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CERTIFICATE

This is to certify that this dissertation entitled **COLPOSCOPIC AND CYTOLOGICAL CHANGES IN INTRAUTERINE CONTRACEPTIVE DEVICE USERS – A PROSPECTIVE STUDY** is a bonafide work done by Dr.L.ShanmugaVadivu post graduate in M.D (OBSTETRICS & GYNACOLOGY) under my guidance and supervision at Govt Kasturbha Gandhi Hospital, Madras Medical college, Chennai in partial fulfillment of the requirements for M.D. (Branch II – Obstetrics & Gynaecology) Examination of the Tamilnadu Dr. M.G.R Medical University to be held in September 2006.

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DECLARATION

I, DR.L.SHANMUGAVADIVU, solemnly declare that dissertation titled "COLPOSCOPIC AND CYTOLOGICAL CHANGES IN INTRAUTERINE CONTRACEPTIVE DEVICE USERS - A PROSPECTIVE STUDY" is a bonafide work done by me at Govt. Kasturbha Gandhi Hospital, Madras Medical College, Chennai during 2003-2006 under guidance and supervision of Prof.Dr.S.Dhanalakshmi M.D., D.G.O., M.N.A.M.S., Superintendent, Govt Kasturbha Gandhi Hospital, Chennai.

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INTRODUCTION

Intrauterine Contraceptive Device (IUD) is a safe, convenient and inexpensive method of contraception involving neither repetition nor interference with sexual activity [2].

In India, IUD is the second most commonly used family planning method after voluntary female sterilization [1].

IUD has its own merits and demerits.

The various complications related to IUD use are.

Immediate

Difficulty in insertion

Vasovagal attack

Uterine Cramps

Early

Expulsion

Perforation

Spotting

Menorrhagia

Dysmenorrhea

Vaginal Infection

Actinomyces

Late

Pelvic Inflammatory disease

Pregnancy

Ectopic Pregnancy [3]

Various studies have been conducted since 1980 to study the long-term effect of IUD and its role in predisposition to cervical or endometrial pathology.

The studies involve clinical examination, Cytology, Colposcopy and histopathology for detection of cervical pathology.

Colposcopic examination involves the systematic evaluation of the lower genital tract with special emphasis on the superficial epithelium and blood vessels of the underlying connective tissue stroma.

Cytological study is by means of papsmear.

Presently exfoliative cytology and colposcopy are considered to be complementary to each other in the detection of early neoplastic changes. These procedures have contributed to the lowering of incidence of invasive cancer of the cervix in the developed world.

AIM OF THE STUDY

To compare the colposcopic changes and cytological changes found in intrauterine contraceptive device users

To create awareness among the IUD users for regular follow up

REVIEW OF LITERATURE

Intra uterine contraceptive devices are an effective, safe and convenient contraceptive method. They are particularly suitable for women who,

1) Are breast feeding.
2) Have difficultly in using other reversible methods.
3) Prefers a method that does not require supervision or action before sexual intercourse.
4) Those in whom other methods are contraindicated.[2]

The intrauterine device as a contraceptive method for women was first introduced by German Physician Richard Richter in 1909 the device was ring shaped and was made of silkworm gut. [1, 2.]

Lippes loop and margulies coil were the first widely used plastic IUDS. The lippes loop is marketed since 1962. [1, 2.I]. In India Lippes loop was introduced in National Family Planning Programme in 1965 at its second world conference in 1964, Population council, studied various critical event of IUDs, and it was concluded that IUD was a safe and effective method of contraception, appropriate for use in national family planning programmes [2].

The first medicated devices were developed by James Zipper and Howard Tatum in 1969. The addition of copper improved the quality of IUD's [1, 2.]. In 1970 s ,Cu T 200

was introduced in National Family Planning Programme in India Since 1973, IUDS containing hormone are being developed progestasert, a hormone releasing IUD was first marketed in 1974 [2] with a view to reduce the chance of expulsion after insertion in the immediate post partum period, anchoring IUDS of different models with various fixation systems are being tried. [1, 2.]

DISTRIBUTION

IUD users world wide, 130 million (WHO 2000)

IUD users in India, 7.4 million (1999)

No. of IUD insertions at KGH - 1450 / year (2002-2006)

MECHANISM OF ACTION

1. Presence of a foreign body in the uterine cavity renders the migration of spermatozoa difficult.
2. A foreign body within the uterus provides uterus contractility and increase the tubal peristalsis, so that the fertilized egg is propelled along the fallopian tube more rapidly than in normal and it reaches the uterine cavity before the development of chorionic villi and thus is unable to implant.
3. The device in situ causes leucocytic infiltration in the endometrium. The macrophages engulf the fertilized egg.

4. Copper T elutes copper which brings about certain enzymatic and metabolic changes in the endometrial tissue which are inimical to the implantation of the fertilized egg. [1, 2, 3.]

Types of IUDs and its Effective life [2]

S. No	Name of The Device	Effective Life of IUD	Pregnancy Rate/100 women years
1.	Inert IUD Lippes Loop		Greater than 2/100 women year.
II.	Copper Releasing IUD		
1.	Copper 7	3 Years	Greater than 2/100 women year.
2.	Copper T 200	4 Years	Greater than 2/100 women year.
3.	Multi load Cu 250	3 Years	Less than 2 / 100 but more than 1 /100 women year.
4.	Multi load Cu 375	5 Years	-do-
5.	Nova Cu T 200	5 Years	-do-
6.	Copper T 220	3 Years	-do-
7.	Cu T 380 D	10 Years	Less than 0.5 / 100 women years
8.	Cu T 380 Ag.	4 Years	-do-
9.	Cu T 380 S	2.5 Years	-do-
III. Hormone Releasing IUD			
1.	Progestasert	1 year	Less than 0.5/100 women year
2.	Levonorgesterol IUD 20	5 Years	-do-

MEDICAL ELIGIBILITY CRITERIA FOR REVERSIBLE CONTRACEPTIVES

Category I No restriction of use

Category II Advantages of using the method outweigh the theoretical or proven risks

Category III Theoretical or proven risks outweigh the advantages of using the method. Should be used only when alternative methods of contraception are not acceptable by the client and they need careful supervision

Category IV Use of the method presents acceptable health risks

ELIGIBLE CRITERIA FOR INITIATING INTRAUTERINE DEVICE USE

Cu-IUD = Copper – Bearing IUD

LNG-IUD = Levonorgestrel – Releasing IUD (20ug /24hours)

INTRAUTERINE DEVICES (IUDS)	IUDS do not protect against STI/HIV. If there is risk of STI/HIV (including the postpartum period), the correct and consistent use of condoms is recommended, either alone or with another contraceptive method. Male latex condoms are proven to protect against STI/HIV).		
CONDITION	**CATEGORY**		**CLARIFICATIONS/ EVIDENCE**
	Cu-IUD	**LNG- IUD**	
PERSONAL CHARACTERISTICS AND REPRODUCTIVE HISTORY			
PREGNANCY	4	4	Clarification: The IUD is not indicated during pregnancy and should not be used because of the risk of serious pelvic infection and septic spontaneous abortion.
AGE a) Menarche to < 20 years b) >20 years	2 1	2 1	Due to more chances of expulsion in nullipara and risk of STI's due to sexual behaviours in younger age.
CONDITION	**CATEGORY**		**CLARIFICATIONS/ EVIDENCE**
	Cu-IUD	**LNG- IUD**	

PARITY a) Nulliparous b) Parous	 2 1	 2 1	Evidence: There are conflicted data regarding whether IUD use is associated with infertility among nulliparous women, although recent,well-conducted studies suggest no increased risk.
POSTPARTUM (Breastfeeding or non-breastfeeding, including post-caesarean section) a) <48 Hours b) 48 hours to <4 weeks c) ≥ 4 weeks d) Puerperal sepsis	 2 3 1 4	 3 3 1 4	Evidence: There was some increase in expulsion rates with delayed postpartum insertion compared to immediate insertion and with immediate postpartum insertion compared to interval insertion
POST – ABORTION a) First Trimester b) Second trimester c) Immediate Post-septic abortion	 1 2 4	 1 2 4	Clarification: IUDs can be inserted immediately after first –trimester, spontaneous or induced abortion. Evidence: There was no difference in risk of complications for immediate versus delayed insertion of an IUD after abortion. Expulsion was greater when an IUD was inserted following a second –trimester abortion versus following a first-trimester abortion. There were no differences in safety or expulsions for post-abortion insertion of an LNG-IUD compared with Cu-IUD.
PAST ECTOPIC PREGNANCY	1	1	
SMOKING	1	1	
OBESITY ≥ 30 kg/m2 body mass index (BMI)	1	1	
CONDITION	**CATEGORY**		**CLARIFICATIONS/ EVIDENCE**
	Cu-IUD	**LNG- IUD**	

Hypertension a) Adequately controlled hypertension where blood pressure can be evaluated b) Elevated blood pressure levels (Property taken measurements)	1 1	1 2	
DEEP VENOUS THROMBOSIS (DVT) / PULMONARY EMBOLISM (PE) a) History of DVT/PE	1	2	
ISCHAEMIC HEART DISEASE	1	2	
STROKE	1	2	
KNOWN HYPERLIPIDAEMIAS	1	2	Clarification: Routine screening is not appropriate because of the rarity of the conditions and the high cost of screening.
VALVULAR HEART DISEASE a) Uncomplicated b) Complicated	 1 2	 1 2	Clarification: Prophylactic antibiotics to prevent endocarditis are advised for insertion.
HEADACHES a) Non-migrainous b) Migraine	 1 1	 1 2	Clarification: Any new headaches or marked changes in headaches should be evaluated.
CONDITION	**CATEGORY**		**CLARIFICATIONS/ EVIDENCE**
	Cu-IUD	**LNG- IUD**	

VAGINAL BLEEDING PATTERNS a. Irregular Pattern without heavy bleeding b. Heavy or prolonged bleeding (includes regular and irregular patterns)	1 2	1 1	Clarification: Unusually heavy bleeding should raise the suspicion of a serious underlying condition. Evidence: Among women with heavy or prolonged bleeding, LNG-IUDs were beneficial in treating menorrhagia
UNEXPLAINED VAGINAL BLEEDING (Suspicion for serious condition) Before evaluation	4	4	Clarification: If pregnancy or an underlying pathological condition (such as pelvic malignancy) is suspected, it must be evaluated and the category adjusted after evaluation. There is no need to remove the IUD before evaluation.
ENDOMETRIOSIS	2	1	Evidence: LNG-IUD use among women with endometriosis decreased dysmenorrhoea and pelvic pain
BENIGN OVARIAN TUMOURS (INCLUDING CYSTS)	1	1	
SEVERE DYSMENORRHOEA	2	1	
TROPHOBLAST DISEASE Benign gestational Trophoblasticdisease Malignant gestational Trophoblastic disease	3 4	3 4	
CERVICAL ECTROPION	1	1	
CERVICAL INTRAEPITHELIAL NEOPLASIA (CIN)	1	2	
CONDITION	**CATEGORY**		**CLARIFICATIONS/ EVIDENCE**
	Cu-IUD	**LNG- IUD**	

CERVICAL CANCER (Awaiting treatment)	4	4	
ENDOMETRIAL CANCER	4	4	
OVARIAN CANCER	3	3	
UTERINE FIBROIDS a) Without distortion of the uterine cavity b) With distortion of the uterine cavity.	1 4	1 4	Evidence: Among women with fibroids, there were no adverse health events with LNG-IUD use and there was a decrease in symptoms and size of fibroids for some women.
ANATOMICAL ABNORMALITIES a) Distorted uterine cavity b) Other abnormalities not distorting the uterine cavity or interfering with IUD insertion	4 2	4 2	
PID a) Past PID With subsequent pregnancy b) Past PID Without subsequent pregnancy c) PID Current	1 2 4	1 2 4	

CONDITION	**CATEGORY**		**CLARIFICATIONS/ EVIDENCE**
	Cu-IUD	**LNG- IUD**	

STI a.Current Purulent cervicitis or chlamydial infection or gonorrhoea	4	4	
b.Other STI s (excluding HIV and hepatitis)	2	2	
c.Vaginitis (including trichonomonas vaginalis and bacterial vaginosis	2	2	
d.Increased risk of STIs	2	2	
HIV a.High Risk of HIV b.HIV Infected cAIDS d.Clinically well on ARV therapy	 3 3 3 2	 3 3 3 2	
Tuberculosis a.Non Pelvic	1	1	
b.Known Pelvic	4	4	
Diabetes	1	2	
Thyroid Disorders	1	1	
Gall Bladder Disease	1	2	
Anaemias	2	1	
Drugs which affect liver enzymes	1	1	
Antibiotics	1	1	

Timing of IUD Insertion

1) **During or soon after menstruation** [1, 2.]

2) Post abortal Insertion

There is 5 –10 times more chance of expulsion of the IUD when inserted immediately after second trimester abortion. It is better to wait for 4 weeks or till the next period which ever is earlier (WHO task force study, 1985). [2].

3) Postpartum Insertion

Following caesarean section it is better to introduce IUD after 1-3 months of delivery. The disadvantage of immediate postpartum insertion of the IUD is its higher expulsion rate and uterine perforation. Most authorities advocate insertion after 4-6 weeks of delivery (WHO, Intrauterine device, 1997).

4) Insertion in Lactating women

An IUD can be safely inserted in lactating women because it does not alter the quantity and composition of breast milk (WHO, 1987), chance of pregnancy must be excluded before an IUD is inserted [1, 2.]

KEY POINTS IN PATIENT COUNSELLING

1. Protection against unwanted pregnancy begins immediately after insertion.
2. Menses can be longer and heavier.
3. There is a slightly increased risk of pelvic infection in the first few months after insertion.
4. Protection against infections transmitted through the vaginal mucosa requires the use of condoms.
5. Ectopic pregnancies can still occur.
6. The IUD can be spontaneously expelled. Frequent palpation of the IUD strings, especially following menstruation is important to avoid unwanted pregnancies. If the strings are not felt or something hard is palpable (Suggestive of the IUD frame) medical advice should be immediately sought[1, 2.]

Technique of Insertion

The person who is going to insert a device requires some training in accurate pelvic examination and in gentle insertion of the device. A thorough pelvic examination is performed to determine the position and size of the uterus. The presence of any uterine, tubal or ovarian pathology precludes the insertion of the device. The vagina and cervix are inspected by means of a speculum. Any vaginal or cervical infection must be treated and cured before a device is inserted. The cervix is grasped with a vulsellum or allis forceps. The device with the introducer is

available in a pre-sterilized pack. The device is mounted into the introducer, and the stop on the introducer is adjusted to the length of the uterine cavity. The introducer is then passed through the cervical canal and the device is inserted by withdrawing the plunger over the outer sheath [2, 3.]

Advantages of IUD

1) Coital independent
2) There is no problem of disposal affecting privacy.
3) There are no systemic ill effects, unlike oral contraceptive pills [4] ,no adverse effect on lactation is observed.
4) There is no evidence of reduced fertility following its removal. About 75% women conceive within 6 months of its removal and almost 90% conceive within a year [2, 3.]

COMPLICATIONS AND THEIR MANAGEMENT

Increased Bleeding

An increase of 20-30% of mean menstrual blood loss has been found by most studies (Newton 1993), [2]. The symptoms most often responsible for IUD discontinuation are increased uterine bleeding and increased menstrual pain and removal rate is 2-10 per 100 users in the first year (Population Report, 1988) [2.]

Inter menstrual bleeding in the form of spotting also occurs [1, 2.]

The cause of increased bleeding is not definitely known and thought to be due to.

1) Increased production of plasminogen – activating enzymes leading to lysis of fibrin of blood clot.
2) Increased vascularity of the endometrium.
3) Hormonal asynchronization, because menstruation is advanced by about 2 days before the end of luteal phase when the level of progesterone still remains relatively high (Brenner & Mishell, 1975) [2]

Non steroidal anti-inflammatory agents if administered from the onset of menses and maintained for 3 days, reduce heavy bleeding and pain (Speroff & Darney, 1996, Guillebaud, 1999) [2] Iron supplement should be given for 3 months or more if the bleeding makes the patient anaemic.

Pain

Pain is usually due to uterine cramp, it subsides within a week and is mostly relieved by analgesic and NSAIDS. Persistent pelvic pain may be due to abnormal position of the IUD, uterine Perforation, the beginning of the expulsion of the IUD, disparity between IUD size and cavity size, associated PID or ectopic pregnancy. Hence persistent pain should be investigated and often needs removal of the IUD [2.]

Expulsion

Approximately 5% of patients expel IUD with in the first year [1, 2.]

Expulsion occurs more often in nulliparous and younger women than those over 30 [1, 2.] This event can be associated with cramping, vaginal discharge, or uterine bleeding. However, in some cases, the only observable change is lengthening or absence of the IUD strings. Patients should be cautioned to request immediate attention if expulsion is suspected.

Perforation

Perforation occurs rarely, not more than 1.2 per 100 insertions as has been found in large clinical trails (WHO, 1982) [2] More recent Studies involving newer devices of group II & Group III such as ML CU250, CUT 380 A, have found that the incidence of uterine perforation is less than 1 per 3000 insertions (Edelman and vanor, 1990), [2] .The devices may migrate into the peritoneal cavity or become embedded in the uterine musculature. Most perforations occur at the time of insertion owing to faulty techniques. Perforation occur mostly without symptoms and thus sometimes remain undiagnosed for a long time. However, sharp pain at the time of insertion, disappearance of the tail and post – insertion bleeding are all features of perforation. [2.]

PELVIC INFLAMMATORY DISEASE

IUD – Related bacterial infection is now believed to be due to contamination of the endemetrial cavity at the time of insertion. Mishells classic study indicated that the uterus is routinely contaminated by bacteria at insertion 4,1.

Infections that occur 3-4 months after insertion are believed to be due to acquired STI's [1,2]

The early, insertion related infections, is polymicrobial and are derived from the endogenous cervico vaginal flora, with a predominance of anaerobes.

A WHO review of 12 studies involving nearly 23,000 IUD users worldwide found that the overall prevalence of PID among IUD users is 1.6 cases per 100 women years of use (WHO, 1997). However PID is more during the first 20 days of insertion (9.7 cases per 100 women years of use) [5 ,1]

The problem of infection can be minimized with careful screening and the use of aseptic technique [1, 2]

Doxycycline 200 mg or Azithromycin 500 mg administered orally one hour prior to insertion can provide protection against insertion-associated pelvic infection, but prophylatic antibiotics are probably of little benefit for women at low risk of STI's [6, 1, 2, 7]

Antibiotic prophylaxis (Amoxicillin 2g) should be provided before the insertion or removal for the women who are at increased risk of bacterial endocarditis . [1] Aysmptomatic IUD users whose cervical culture show gonorrheal or chlamydial infection should be treated with recommended drugs without removal of the IUD. If

however there is evidence that an infection has ascended to the endometrium or fallopian tubes treatment must be instituted and IUD removed properly [1]

Leucorrhoea

There is increased incidence of Leucorrhoea in IUD users. Higher frequency of Trichomonas vaginalis and coryne bacterium vaginalis was found in IUD users [8 ,9.] There is no evidence that prevalence of bacterial vaginosis is influenced by IUD use [10, 9, 1] vaginal bacteriosis should be treated with metronidazole 500 mg bid for 7 days. But the IUD need not be removed unless pelvic inflammation is present.

Actinomyces

The significance of actinomycosis infection in IUD users is unclear. There are many reports of IUD users with unilateral pelvic abscess containing gram positive bacilli, Actinomyces [11,12,13] However, Actinomyces, part of the normal flora in the gastro intestinal tract are found in pap smears of upto 30% of plastic IUD users when cytologists take care to look for the organisms. The rate is much lower (less than 1%) with copper devices and varies with duration of use [12,14,15]. Further more, Actinomyces are commonly present in the normal vagina [16].

The clinician must decide whether to remove the IUD and treat the patient, treat with the IUD in place, or simply remove the IUD. These patients are almost always asymptomatic and without clinical signs of infection. If uterine tenderness or a pelvic mass is present, the IUD should be always be removed after the initiation of treatment with oral penicillin G 500 mg that should be continued for a month. Alternative

antibiotic regimens include tetracycline 500 mg, doxycycline 100 mg bid, amoxicillin / clavulanate 500 mg bid. If actinomyces are present on the pap smear of an asymptomatic woman, in our view it is not necessary to administer antibiotic treatment or to remove the IUD.

Although it has been recommended that the IUD should be removed in this instance and replaced when a repeat Pap smear is negative, there is no evidence to support this recommendation. Another anaerobic gram positive rod, Eubacterium nodatum, resembles actinomyces and has also been reported to be associated with colonization of an IUD [17]. E. nodatum can be mistaken for actinomyces on papsmears. Our recommendations can be applied to both E-nodatum and actinomyces. (1)

Pregnancy

IUDs can be divided into three groups according to the pregnancy rate indicating their contraceptive efficiency (WHO, 1987).

Group I-Pregnancy rates greater than 2 / 100 women years

Lippes loop, cu 7, cu T 200.

Group II-Pregnancy rates less than 2 / 100 but more than 1 / 100 women years.

Nova T, Multi load Cu 250 and Cu T 220c.

Group III-Pregnancy rates less than 1 (Mostly less than 0.5 / 100 women years)

Cu T 380 A, Cu T 380 S, ML Cu 375 and LNG 20.

As soon as pregnancy is confirmed the IUD should be removed (WHO 1997), if it can be done easily, to reduce the risk of pelvic infection and miscarriage the most frequent complication of pregnancy with an IUD in place. If the removal is not possible easily, the woman should be informed of the increased risks of infection, miscarriage and premature labour. She may be offered termination of pregnancy where the laws permit as in India (IPPF, 1987).

There is however, no evidence at all that the pregnancy is more likely than usual to result in an infant with congenital malformations if IUD's, including copper devices, are left insitu. [2]

Ectopic Pregnancy

The chance of ectopic pregnancy in IUD users is rare and ranges from 0.25 -1.5 / 1000 women years (Sivin et al 1987). However when pregnancy occurs, the chances of ectopic pregnancy is higher (about 30%) than in general population (about 0.5 to 0.8%) of all pregnancies. This complication can be reduced by avoiding IUD in cases with previous PID, previous ectopic pregnancy and in those who have multiple sex partners.

COLPOSCOPIC AND CYTOLOGICAL CHANGES IN INTRAUTERINE DEVICE USERS

Cytological changes associated with intrauterine device users are evaluated in many studies.

The various changes associated with presence of intrauterine device include

-Inflammation

-Hyperplasia

-Papillary proliferation of endocervical epithelium

-Multi nucleation

-Increased squamous metaplasia.

Because of the mechanical effect of intrauterine device, atypical glandular cells mimicking adenocarcinoma and atypical squamous cells mimicking squamous intra epithelial lesion may be seen. Atypical squamous cells of undetermined significance (ASCUS) is seen in 1.6% and atypical glandular cells in 1.6% cases.

In these cases the changes disappeared in a period of 3 to 4 months after removal of the intrauterine device. One should be careful because of the difficult diagnosis between reactive cytomorphological changes and dysplastic or neoplastic process in a cervico vaginal smears of intrauterine device users. [26]

Study by Fiore N - in 1986, showed suspect colposcopic signs were frequently associated with the use of IUD. The Oncologic evaluation of smears showed a slight dysplasia in 17.65% of IUD users [8].

Non specific inflammatory changes are found frequently in Lippes loop and Cu T 200 users [(27), (9)]

Only long term cytological follow up in controlled studies can rule out Carcinogenic effects of IUDs especially for copper IUDs Close cervical examination when inserting the IUD, including cytology, colposcopy and biopsy is recommended [29]

Although abnormal uterine bleeding in IUD users is common, the health professionals should not ignore the symptom of menorrhagia and always exclude the possibility of malignancy [30.]

THE PAPANICOLAOU SMEAR TERMINOLOGY IN CERVICAL CYTOLOGY - THE BETHESDA SYSTEM

The introduction of evaluation of cellular material from the cervix and vagina for the diagnosis of cervical carcinoma is generally attributed to George Papanicolaou

Pap smear nomenclature

Papanicolaou Class system (1954)	Descriptive (1968)	CIN 1978 (Cervical intra epithelial neoplasia)	Bethesda system (1988)
Class I	-Negative for malignant cells	Negative	Within normal limits
Class II	-Inflammatory atypia -Squamous atypia -Koilocytic atypia	Negative	Inflammatory Reparative changes Atypical squamous cells of undetermined significance
Class III	Mild dysplasia Moderate dysplasia Severe dysplasia	CIN-I CIN-II CIN-III	-Low grade squamous Intraepithelial lesion High grade squamous intraepithelial lesion (HSIL) HSIL
Class IV	Carcinoma insitu	CIN-III	HSIL
Class V	Invasive carcinoma	Invasive carcinoma	Invasive carcinoma

BETHESDA SYSTEM FOR REPORTING CERVICAL / VAGINAL CYTOLOGIC DIAGNOSIS (2001) REVISION

General Categorization

1) Within Normal limits
2) Benign cellular changes
3) Epithelial cell abnormality

Benign Cellular Changes (BCC)

Infection and reactive or reparative changes are included under the category of BCC

INFECTION (10% OF CASES)

1) Trichomonas vaginalis- Positive predictive value of 40% in an average risk population
2) Candida - Sensitivity of pap smear compared with culture is about 50%
3) Predominance of coccobacilli consistent with the shift in vaginal flora-suggestive of bacterial vaginosis.
4) **Bacteria morphologically consistent with actinomyces species**

   They are best recognized on cytological smear by branching gram-positive filaments their presence is strongly associated with presence of an intrauterine contraceptive device
5) Amoeba have been found in association with the presence of an IUD, as has Eubacterium nodatum which mimics actinomyces

Reparative or reactive changes

Reparative processes are often encountered

1) With estrogen deficiency

2) Surgery

3) Radio therapy

4) Intercourse

5) IUD users

Epithelial cell abnormality

1) Atypical squamous cells

- as of undetermined significance (ASC-US)
- as suggestive of a high grade squamous intra epithelial lesion (ASC- H)

2) LOW GRADE SQUAMOUS INTRAEPITHELIAL LESION (LSIL)

LSIL is most prevalent in women in their early reproductive years (16 to 26 years) The cytological abnormal squamous cells that are equivalent in size to a normal superficial or intermediate cell. Diagnostic abnormalities include enlargement of the nucleus, irregularity of the nuclear membrane and irregular chromatin distribution.

3) HIGH GRADE SQUAMOUS INTRAEPITHELIAL LESION (HSIL)

HSIL is most prevalent in women in their mid to late reproductive years (26 to 48 years) The cytologic diagnosis of HSIL relies on the presence of abnormal squamous cells that are smaller than those seen in LSIL. The average size of a high grade

squamous intraepithelial lesion is equivalent to that of a normal parabasal cells. Diagnostic abnormalities include nuclear enlargements, marked increase in nuclear to cytoplasmic ratio, irregularity of the nuclear membrane and irregular chromatin distribution.

4) Glandular cells

Endometrial cells, Cytologically benign in postmenopausal women.

Atypical glandular cells of undetermined significance

Endo-cervical adenocarcinoma

PAP STAINING PROCEDURE

Papanicolaou staining technique gives a dependable nuclear morphology and cytoplasmic transparency.

The composition of the stain is

Harris Haematoxylin-stains the nuclei

OG 6 (orange G)-stains keratin if present

EA 50 (has Light green, Bismarck brown & eosin yellow)-stains

Superficial cells-pink; intermediate and parabasal cell cytoplasm-blue-green

CELL COMPONENTS IN A PAP SMEAR

Basal cells - rarely seen except in atrophic vagina. Small round cells with smooth border and a central round nucleus

Parabasal cells - uniform round cells with a thick blue or green cytoplasm. Large central round nucleus

Intermediate cells - polyhedral cells with thin semitransparent pink to blue cytoplasm and central large vesicular nucleus. A folding or curling tendency of the edges (navicular cells) is seen in pregnancy.

Superficial cells - most common and largest epithelial cells in a pap smear. Polyhedral cells with a thin homogenous cytoplasm pink to orange (if keratin is present). Nucleus is central and pyknotic.

Endocervical ciliated or nonciliated cells, endometrial cells can also be seen depending on the site of collection.

Pap smear and cancer screening.

Precursor changes in the uterine cervix are dysplasia and carcinoma in situ. Invasive cervical cancer is a slow and predictable process. Pap smear is a standard effective method of screening for malignant cells.

For an accurate interpretation of the smear the sample should be adequate. Satisfactory smears should fulfill-patient and specimen identity, pertinent clinical details, technically good sample and proper cellular composition, cervical transformation Zone should be present.

The most common reason for an unsatisfactory sample is scant cellularity and obscuring inflammation and blood.

LIQUID BASED THIN LAYER CYTOLOGY

Liquid based, thin layer cytology was developed to overcome the limitations of the conventional Pap smear-failure to capture the entire sample, inadequate fixation, random distribution of abnormal cells, obscuring elements and technical variability of the quality of smear.

In conventional smear the transfer of cells onto a glass slide is a random event and is statistically prone to error. Prompt fixation is to be done to prevent air drying. 15% of Pap smears are limited owing to the presence of obscuring elements i.e., blood and inflammation.

In liquid based thin layer cytology the mechanical mixing of cells with the liquid medium creates a homogenous sample in which abnormal cells are evenly distributed. Thin layer cytology gives good quality smears which show crisp cell details, lack of smearing pattern and absence of obscuring elements like blood and debris.

AUTOMATION AND PAP SCREENING

Computer assisted screening has shown to reduce the number of false negative smear reports. A set of images of stained cervical epithelial cells is used to calculate the

quantitative features and these features are used to detect abnormal or malignant cells.

The various devices are Auto Pap 300 and papnet. These are based on neutral network technology and present images with least normal appearance

In India a system called Cytoscan has been developed by the defence bioengineering and electro medical laboratory. Cytoscan is a PC based interactive image analyzer. A binocular microscope with a Close Circuit Digital camera and a PC is the unit. The pap smear images are acquired by the camera digitized by the frame grabber the PC and images seen on the screen.

Automation increases the sensitivity and specificity and reduces false negative reports and may very soon become an inevitable way of screening Pap smears. However they cannot replace the work of cytotechnologists or pathologists. Pathologists will have to give their final opinion on abnormal smears.

COLPOSCOPY

The term colposcopy specifically refers to the cervix. It is broadly used to mean the magnified illumination of the entire lower of female genital system including the vulva, vagina and cervix.

Colposcopy was first described by Hinselman in 1920.

Colposcopy allows the examiner to identify specific colposcopic features that distinguish normal from abnormal findings and to form an impression as to whether the features are benign or are the hall marks of preinvasive or invasive disease.

COLPOSCOPE

The modern optical colposcope is a binocular microscope with a built in light source and a converging objective lens attached to a support appliance. Most colposcopes have focal length at around 300 mm. Low power x 2 to x6 is typically used for examination of vulva.

Medium power x 8 x 15 is generally used for examination of the vulva, vagina and cervix.

High power x 15x 25 is used for assessing the fine detail of vessel patterns.

Normal Findings In Colposcopy

1.The squamous cervical epithelium appears smooth, pink & translucent.

2.Columnar epithelium appears more pink - red,

3.Squamo columnar junction is smooth or serrated.

4.Transformation Zone:

Transformation Zone is defined colposcopically as the area bordered by the original and the new squamo columnar junction. The location of the squamo columnar

junction is variable. During reproductive life, the squamo columnar junction is commonly located near the external os or on the portio.

In this zone there is intermingling areas of columnar and metaplastic squamous epithelium. The transformation zone area is altered by exposures to oral contraceptive medications. pregnancy, pH changes in the vagina and vaginal infections. It is difficult to differentiate colposcopically where metaplasia ends and the mature squamous epithelium of the ectocervix begins.

5. Vascular Changes

Vascular changes can be seen in areas of metaplasia. The vessels are usually hairpin in shapes and 50 to 250 μm apart. Capillary loops extending to the epithelial surface are seen as punctate dots. Because the vessels that proliferate within squamous metaplasia are small, punctation is fine and the intercapillary distances between the dots is close.

Atypical Transformation Zone

Transformation Zone is called atypical when the following features are present in both benign and in pre invasive lesion.

1. Leucoplakia
2. Acetowhite epithelium
3. Punctation - The vessels all often spaced at greater distance from one another compared with capillaries of native squamous epithelium. Distance between the

capillaries increases progressively in dysplasia, carcinoma in situ and invasive carcinoma.

4. Mosaic- the pathological vessels form a basket like structure around block of pathological epithelium.
5. Atypical vessels [32]

COLPOSCOPIC ABNORMALITY-RUBIN AND BARBO COLPOSCOPIC ASSESMENT SYSTEM [32]

Grade	Colour	Vessels	Border	Surface
Normal	Pink Translucent	Fine, lacy, Normal branching	Normal Transformation zone.	Flat
Grade 1 Mild dysplasia CIN 1 LSIL	White Shiny white Snow white	None Fine punctation Mosaic	Diffuse Feathery Flocculated Geographic	Flat Micropapillary macropapillary
Grade 2 Moderate dysplasia CIN 2 HSIL	Whiter Shiny grey White	None Punctation mosaic	Clearly Demarcated	Flat Slightly raised
Grade 3 Severe dysplasia CIN 3 HSIL	Whitest Dull white Oyster white	None Coarse punctation Coarse mosaic Dilated increased Inter capillary distance	Sharp Demarcated Straight Internal border	Raised
Micro invasion Frank invasion	Red Yellow Dull grey	Atypical Irregular Bizarre	Clearly demarcated Peeling Rolled Edges	Nodular Ulcerated Necrotic Exophytic

Miscellaneous Findings

Condylomatous lesions

Inflammation

Atrophy

Ulcer

Endometriosis

Others

Ectopy

Columnar epithelium situated on the ectocervix some distance from the external os is called ectopy. The columnar epithelium of the endocervical canal is everted onto the outer aspect of the cervix. The squamo columnar junction is on the outer aspect of the cervix, not in the endocervical canal.

Ectopy appears classically as a red patch. Ectopy is formed by columnar epithelium, which does not contain glycogen, it is always iodine negative. Ectopy is usually covered by mucus secreted by the columnar epithelium. Dilute acetic acid 3% helps to remove the mucus, revealing a distinctive papillary structure and causes the tissue to swell. This throws the mucosal architecture into sharp rete and gives the papillae a grape like appearance. After the application of diluted acetic acid the intense red of the red patch of ectopy changes to a pink or whitish colour. The Squamous Columnar Junction (SCJ) is the border between the squamous epithelium on the ectocervix and the columnar epithelium of the endocervical canal. Normally it lies on the ectocervix and is sharp and steplike. But careful examination of the margin at the

SCJ often reveals a slender seam, a white colour, and gland openings indicating, the initiation of the transformation of columnar epithelium to squamous epithelium. This process of transformation is called metaplasia. It is important to pay close attention to the margins of ectopy so that significant lesions are not over looked.

The process of transformation characteristically begins at the SCJ. It is impossible to tell Colposcopically whether transformation process at this site is due to ascending healing or to squamous metaplasia. Fields of metaplastic epithelium within a transformation zone can vary widely in their maturation and are easily verifiable with Schillers test. The topographic progress of transformation may be haphazard. Islands of squamous epithelium can appears in a sea of columnar epithelium. The metaplastic epithelium can form finger like process that interdigitate with columnar epithelium. The transformation of an ectopy may not always proceed to completion, and areas of columnar epithelium can remain in the native state. The transformation zone can be distinguished from original epithelium only by the presence of gland openings, more prominent vessels and Nabothian cysts.

Colpitis

Colpitis is the diffuse erythema of the cervix and vagina that is the result of an infection such as trichomoniasis or candida species. Underlying stromal vessels are dilated and the tips are visible through the overlying denuded squamous epithelium, appearing as fine red dots. This is distinguished from punctation in which the red dots are found within a field of aceto white epithelium. After the application of Lugols

solution, the denuded, inflamed epithelium exhibits poor iodine uptake, produce a "Leopard-skin" or Pepper spot appearance, blotchy pattern.

Unsatisfactory Colposcopy

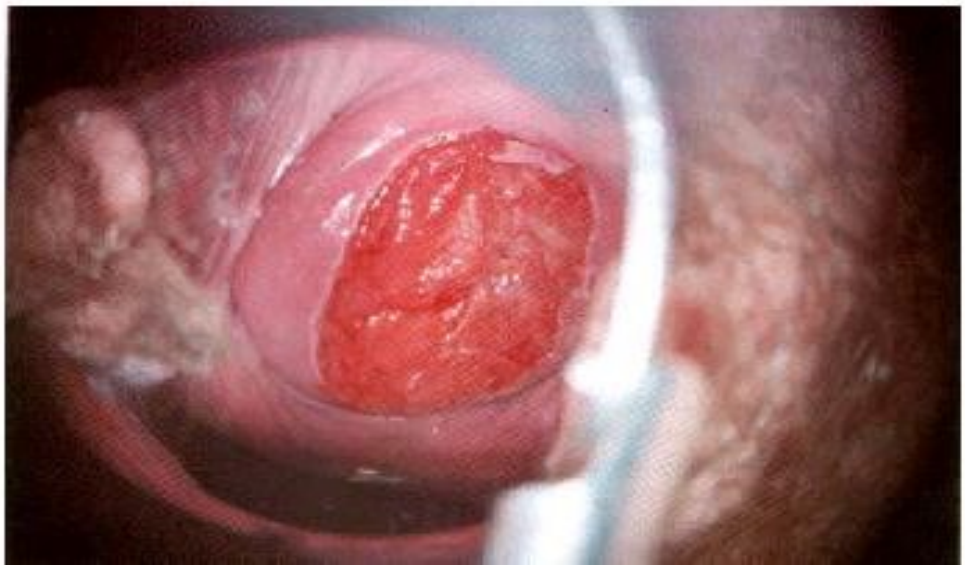
An unsatisfactory colposcopic examination means that the examiner cannot see all or part of the squamous columnar transformation zone.

If the colposcopy is unsatisfactory and cannot be relied upon, other means to make diagnosis must be embarked upon.

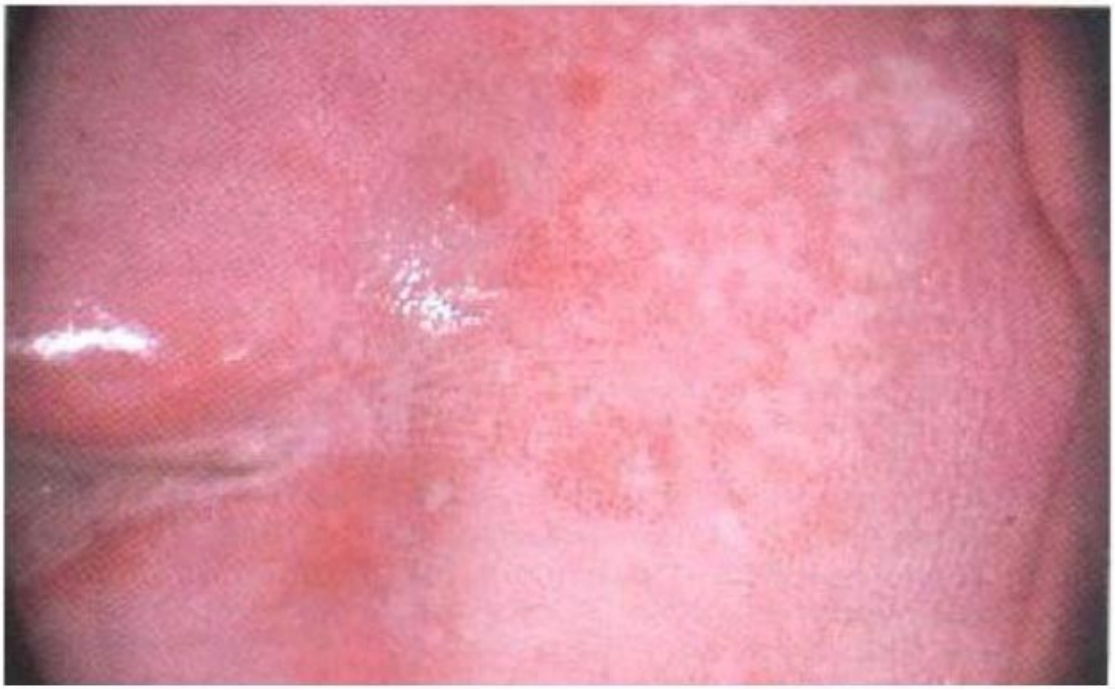
Obviously the colposcopic examination was indicated in the first place because of cytologic abnormalities or other stated reason. Repeated cytological samples is not an appropriate methodology to obtain the diagnostic goal. If the cervical canal is stenotic or if the transformation zone lies in the endocervical canal, a small cone performed by knife, laser or electrical loop will confirm or refute the diagnosis of cervical intraepithelial neoplasia.

COLPOSCOPY - PICTURES

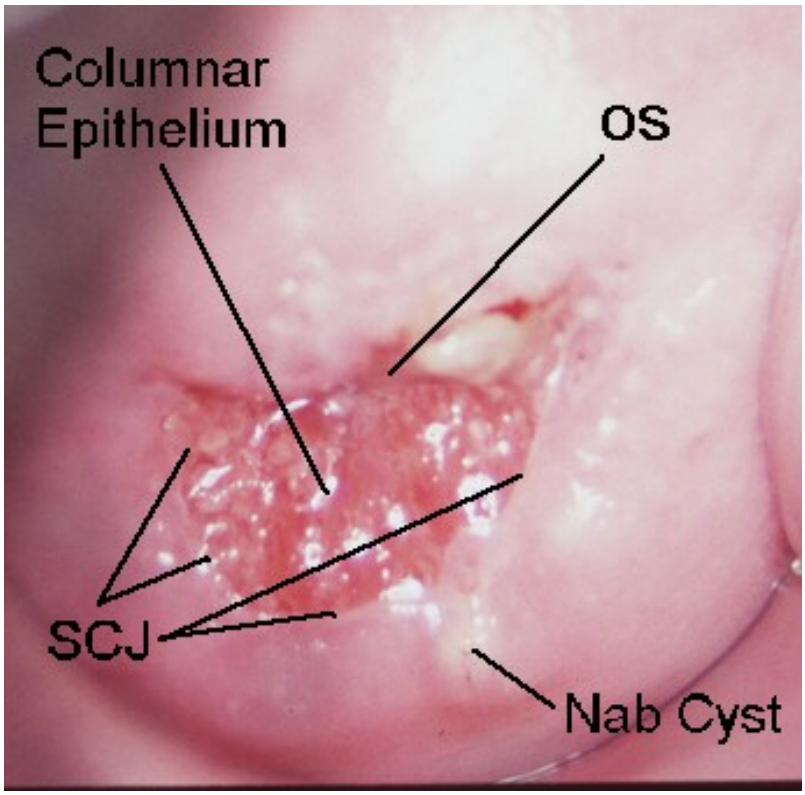
Cervical Erosion



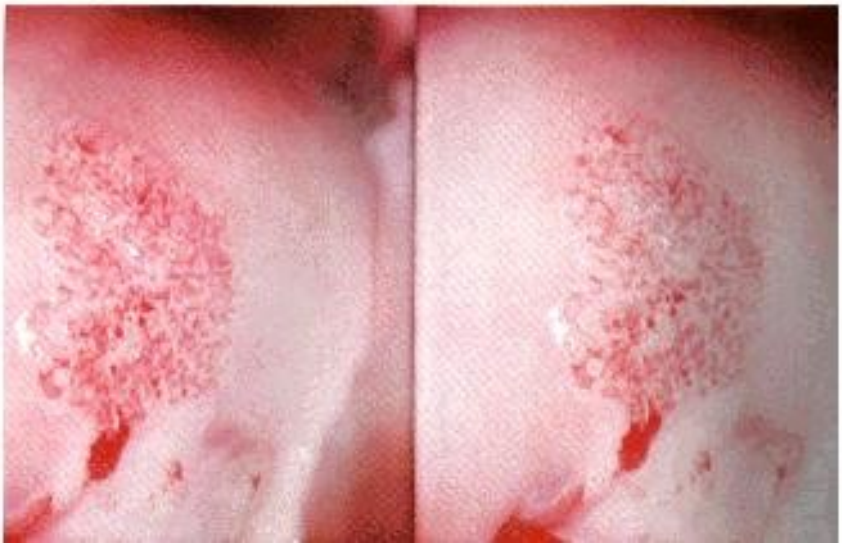
COLPITIS - TRICHOMONAS VAGINALIS



LSIL



Atypical Vessels



SUBJECTS AND METHODS

This was a prospective study conducted at Govt. Kasturbha Gandhi hospital, Chennai at the department of obstetrics and gynecology from November 2003 to March 2006.

This study comprised of study subject [n=298] using intrauterine contraceptive device for more than 6 months and attended family planning clinic for follow up.

INCLUSION CRITERIA:

1.Subjects using intrauterine contraceptive device for more than 6 months.

2.The subjects were chosen irrespective of their socio-demographic profile.

3.Never on any other contraceptive method.

4.In active sexual life.

EXCLUSION CRITERIA:

1.Subjects with IUD using less than 6 months.

2.Subject with missing IUD

3.Subjects with pregnancy with IUD in situ.

METHODS:

The subjects were explained about the study and consent was obtained. Detailed history including any complaints, menstrual history, obstetric history and duration of

IUD use was obtained. Each subject underwent general physical, systemic, abdominal examination. Then the acceptors was subjected to colposcopic examination.

Colposcopic Examination technique:

1. The supplies and equipment are checked before the examination is begun.
2. The proper documentation forms stamped with the patient identification is obtained.
3. The patient is placed in the dorsal lithotomy position and properly draped.
4. The colposcopist sits comfortably at the colposcope, the interpupillary distance of the binoculars is set and the colposcope is tuned on.
5. The vulva is inspected with the colposcope.
6. The largest size of intravaginal speculum that the patient can tolerate is placed in the vagina.
7. The cervix must be adequately visualized and look for thread of IUD and any discharge. Pap smear for cytological study is taken. The Ayre's spatula is first placed at the external os. It is rotated 360 degrees around the circumference of os, maintaining contact with the ectocervix. The endocervical brush is then inserted into the os and rotated to 180 degrees maintaining contact with the cervical canal. Both ectocervix and endocervix samples are smeared on the glass slide and immediately fixed in alcohol fixative for 30 minutes. The slide is then labelled.

8. The cervix is viewed with white light under low power. Gross findings and the presence of leucoplakia are noted.
9. The vessel pattern is examined with the green filter. The vessels are examined under low and high magnification.
10. A copious amount of 5% acetic acid is applied to the cervix with saturated cotton swabs.Excessive rubbing of the cervix was avoided.
11. The cervix is assessed for epithelial patterns after the acetic acid application with low , intermediate and high magnification.
12. The cervix is stained with Lugols iodine solution. An assessment of the epithelial patterns is dependent on the interaction between cellular glycogen and iodine.
13. The vagina is inspected as the speculum is removed.
14. The documentation form is completed. The colposcopic findings is mentioned as satisfactory or unsatisfactory, normal or abnormal.[32]

The pap smear after fixing is transported to the pathology laboratory, where it is stained and read by cytologist. The cytological abnormality is reported as per Bethesda system. [32]

The clinician, colposcopist and pathologist were unaware of the group of patients. The women were reviewed a week later using the gathered information. The patients were managed as per the findings. Subsequent treatment was individualized depending upon the diagnosis and patient's convenience.

All the clinical , colposcopic and cytological findings were recorded in a predesigned proforma. The datas were analysed with the help of a statistician. The results were expressed as percentages and mean. The statistical analysis is done by chi-square test and anova-inferential statistics.

RESULTS

As previously discussed the study population included 298 subjects using intrauterine contraceptive device for variable period from more than 6 months to 4 years attending the family planning OPD Govt Kasturbha Gandhi Hospitals, Chennai. All the 298 subjects were using either Cu –T 200 or Cu-T 380A.

Table I

Gives the age distribution of the study

Age	Number of Subjects	Percentage (%)
Below 20	10	3.4
20-24	155	52
25-29	84	28.2
30-34	32	10.7
35-39	15	5
40 & above	2	0.7

52% of the subject were between 20-24 years of age and only 3.4% of the subjects were below 20 years and 0.7% of the subjects were above 40 years. Mean age of the study group was 24.8 years.

Table 2

Age at Marriage

Age at Marriage	Number of Subjects	Percentage (%)
17-19	97	32.6
20-22	167	56
23-25	31	10.4
26-28	3	1

88.6% of the subjects had their marriage before 23 years and only 1% of the subjects had their marriage after 26 years of age. About 32.6% of the subjects had their marriage in the teen age due to the prevailing social custom of a particular group of people.

Table 3

Parity

Number of Children	Number of Subjects	Percentage (%)
1	225	75.8
2	60	20.2
3	12	4

About 75.8% of the subjects had one child and only 4% of the subjects had 3 children

Table 4

Duration of Intrauterine

Contraceptive device use in Months

Duration in months	Number of Subjects	Percentage (%)
Below 1 year	39	13.08
1 year to below 2 years	173	58.05
2 years	61	20
Above 2 Years	25	8.3

The duration of IUD use varied between 7 months to 4 years. 78% of the subjects used IUD for 1 to 2 years. Only 8.3% of the subjects used IUD above 2 years

Table 5

Colposcopic Changes

Colposcopic Findings	Number of Subjects	Percentage (%)
Normal Study	**216**	**72.5**
Colpitis	**59**	**19.8**
Ectopy	**18**	**60**
Low Grade Squamous Intraepithelial lesion (LSIL)	**4**	**1.3**
High grade Squamous Intraepithelial lesion (HSIL)	**1**	**0.3**

Table 6

COLPOSCOPIC CHANGES

COLPOSCOPIC CHANGES		AGE	AGE AT MARRIAGE	DURATION OF IUD USE IN MONTHS
Normal study N=216	Mean Std deviation	23.8 3.664	20.07 1.776	15.73 7.324
Colpitis N=59 is	Mean S-D	26.12 4.056	20.66 1.516	21.02 8.617
Ectopy N=18	Mean SD	30.06 4.45	21.89 2.72	24.33 7.554
LSIL N=4	Mean SD	38.50 2.646	18.50 0.5	31.50 5.745
HSIL N=1	Mean	36.00	2.00	18

NORMAL STUDY

72.5% of the subjects had normal colposcopic features and the mean age of the subjects was 23.8 years. The mean duration of IUD use was 15.73 months. 81.9% of the subjects were primi para

COLPITIS

19.8% of the subjects had colpitis. The mean age of the subjects was 26.12 years. The mean duration of IUD use was 15.73 months.

ECTOPY:

6.0% of the subjects had ectopy. The mean age of the subject was 30.06 Years. Mean duration of IUD use was 24.33 months.

Table 7

Cytology

Cytology	Number of Subjects	Percentage (%)
Normal Study	65	21.8
Inflammatory Changes	228	76.5
LSIL	5	1.7

TABLE 8

CYTOLOGICAL CHANGES

Cytology		Age	Marriage	Duration of IUD use in

				Months
Normal Study	Means SD	22.82 3.67	19.51 1.79	14.12 7.347
Inflammatory Changes	Mean SD	25.17 4.116	20.53 1.809	18.23 8.058
Dysplastic change LSIL	Mean SD	38 2.5	18 0.8	28.80 7.823

NORMAL

The mean age of the subjects in the study was 22.8 years, and the mean duration of IUD use in months was 14.12, mean age at marriage was 19.5 years, 89.2% of the subjects were primipara.

INFLAMMATORY CHANGES

The mean age of the subject was 25.17 years, and mean duration of IUD use was 18.23 months.

LOW GRADE SQUAMOUS INTRA EPITHELIAL LESIONS (LSIL)

Only 5 subjects had LSIL in cytology, of this 4 subjects had LSIL and 1 subject had HSIL in colposcopy.

Colposcopically directed biopsy was done for these 5 subjects. 4 subjects with LSIL had chronic non specific cervicitis in histopathology. 1 subject with HSIL showed severe dysplasia in histopathology and this subject with severe dysplasia was 36 years old and has 3 children and she was not willing for conservative line of management ;so total hysterectomy was done. Other 4 subjects with Chronic non specific cervicitis are followed with papsmear regularly once in 6 months.

Colposcopic and Cytological Changes with relation to Duration of IUD' use

Table 9

COLPOSCOPIC CHANGES

Duration of IUD use in Months		Observed N
Below 1 Year n=39	Normal Study	37
	Infection	2
1 to Below 2 Years n=173	Normal Study	137
	Infection	30
	Ectopy	5
	High grade SIL	1
2 and above Years n=86	Normal Study	42
	Infection	27
	Ectopy	13
	Low grade SIL	4

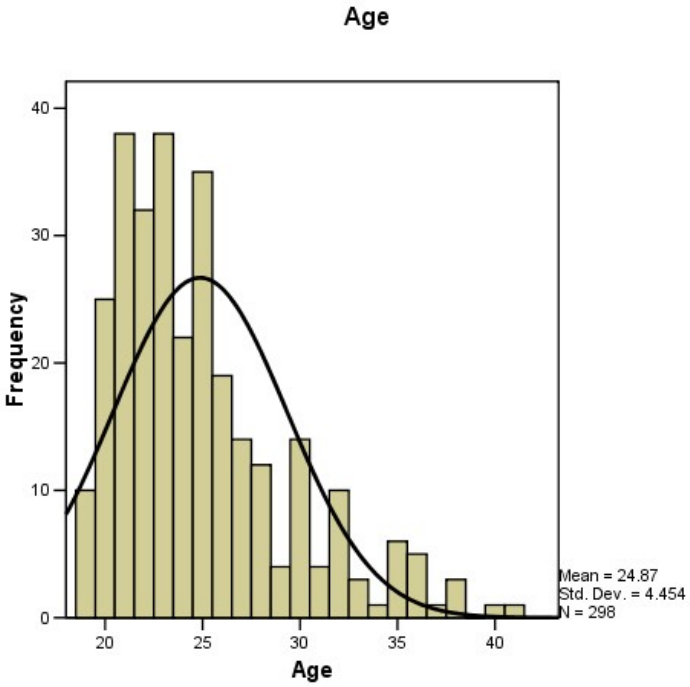
Table 10

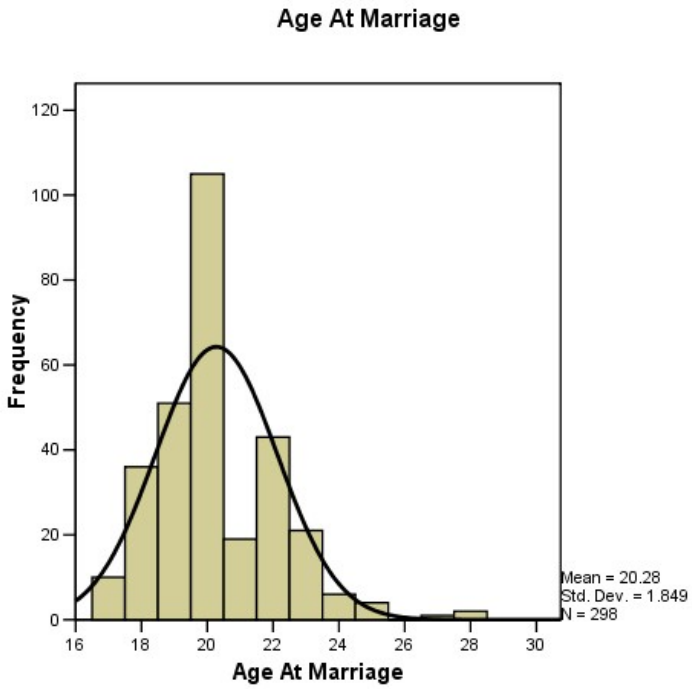
CYTOLOGY

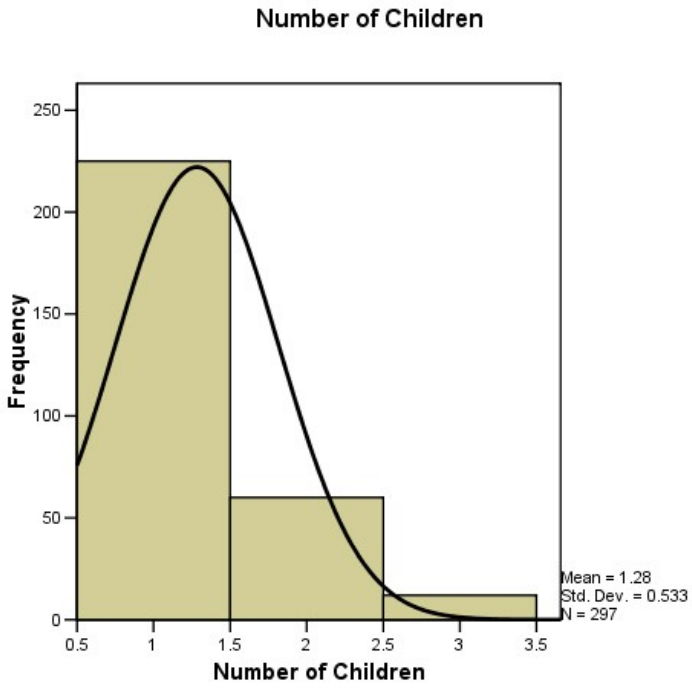
Duration of IUD use in Months		Observed N
Below 1 Year N=39	Normal Study	22
	Inflammatory Changes	17

1 to Below 2 Years n=173	**Normal Study**	32
	Inflammatory Changes	140
	LSIL	1
2 and above Years n=86	**Normal Study**	11
	Inflammatory Changes	71
	LSIL	4

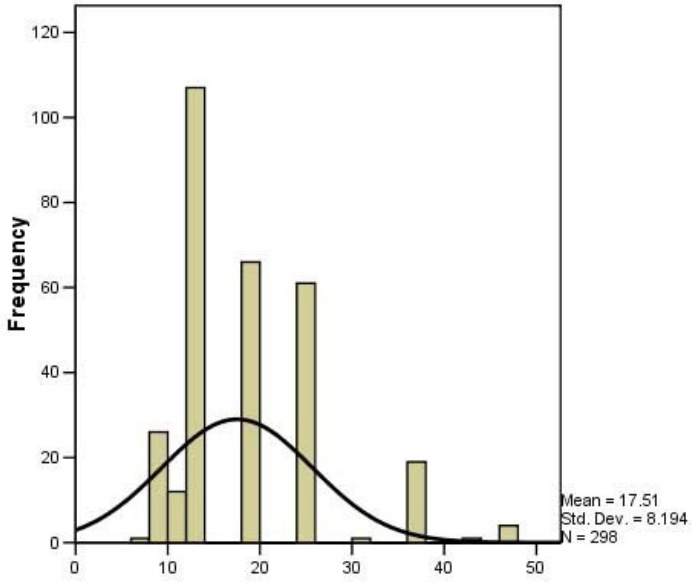
By applying chi square test it was found that with increase in duration of IUD, there is statically significant increase (p less than 0.01) in inflammatory changes in cytology & colposcopy, But only 1.7% of the subjects had low grade squamous intraepithelial lesion, which is same as the incidence in general population[1.6%], and due to very less subjects with LSIL their association with duration of IUD use cannot be established.


Age
Frequency
40
30
20
10
0
20
25
30
35
40
Age
Mean = 24.87
Std. Dev. = 4.454
N = 298


Age At Marriage
Frequency
120
100
80
60
40
20
0
16
18
20
22
24
26
28
30
Age At Marriage
Mean = 20.28
Std. Dev. = 1.849
N = 298

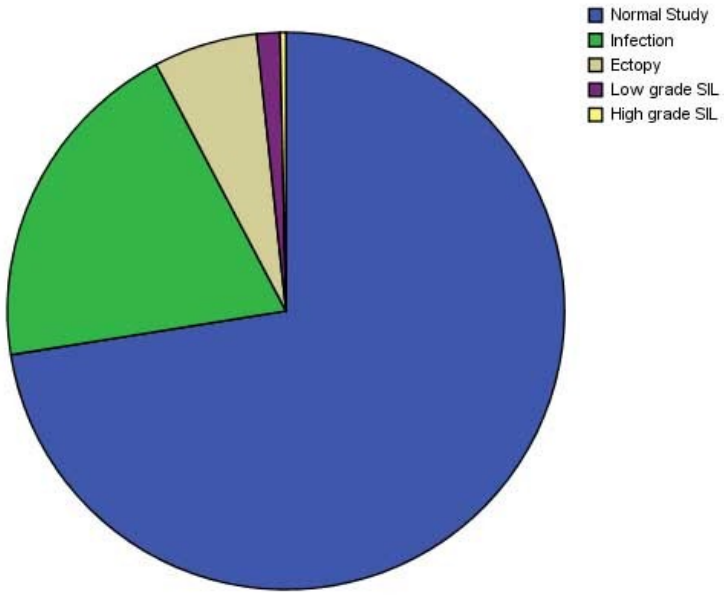


Duration of IUD use in Months

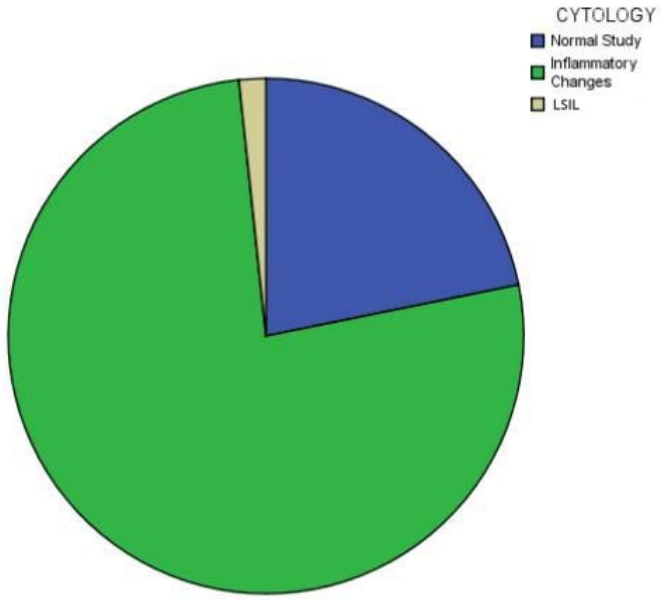


Duration of IUD use in Months

COLPOSCOPIC CHANGES



CYTOLOGY --



DISCUSSION

In this study 298 subjects using intrauterine contraceptive device between 6 months to 4 years were studied. They were examined colposcopically and cytologically for associated cervical pathological lesions.

AGE:

The mean age of IUD users was 26.4 years

AGE AT MARRIAGE

The mean age at marriage of the subjects was 20 .8 years.

PARITY

75% of the subjects had one child

DURATION OF IUD USE

The mean duration of IUD use was 17.5 months.

Agarwal Krishna – etal. In their study of microbiological and cytopathological study of intrauterine, device users, studied a total of 100 IUD users and 50 matched controls. The mean duration of IUD use in their study was 2 years.

COLPOSCOPIC CHANGES

About 216 subjects i.e., 72.5 % had normal Colposcopic changes.

About 19.8% had colpitis which appeared as pepper spot appearance which is suggestive of trichomonas vaginalis infection. Microbiological confirmation was done by wet film preparation.

Fiore-N in study of epidemiological data, cytology and colposcopy in IUD users, Estroprogestones and diaphragn users found that there is high frequency of trichomonas vaginalis infection in IUD users.

Ectopy

Ectopy of cervix is found in 6% of IUD users .The thread of IUD tail being source of constant irritation and may be responsible for cervical erosion (Agarwal Krishna et al)

Agarwal Krishna et al in the study of micro biological and cytopathological study in IUD users, 100 intra uterine device users were compared with 50 controls, found that cervical erosion is found in 20% among IUD users. Versus none in controls. Though cervical erosion in not considered something with severe implication but it may be responsible for white discharge in IUD users, .

Nayar et al in their study of incidence of actinomyces infection in women using IUD reported 13% of cervical erosion among IUD users

CYTOLOGY

21.8% of the subjects had normal cytology

INFLAMMATORY CHANGES

76.5% of the IUD users in the present study had inflammatory changes in the cytology. Ismail H, el Tewil A, Fahmy k, in their study of cervical pathology with IUD – a cyto – colpo-pathological study. They studied 100 Lippes loop users and 100 Cu-T – 200 users for >1 year and 200 control non users by cytology, colposcopy and histo pathology for associated cervical pathology. They found significant increase in non specific inflammatory changes (P less than 0.05).in the IUD users than the non users. Ashwani etal reported an incidence of inflammatory changes of 57% at 6 wks, 72.6% at 6 months of Cu-T insertion.

Agarwal Krishna et al in their study of microbiological and cytopathological study of intra uterine device users found that there is slightly increased incidence of inflammatory smear in the IUD users compared to non users.

DYSPLASTIC CHANGES

Only 5 cases i.e., 1.7% of cases had low-grade squamous intraepithelial neoplasm, by cytology. Out of the 5 cases 4 cases had LSIL by colposcopy and 1 case had HSIL by colposcopy. For this 5 cases colposcopically directed cervical biopsy was done. Only the HSIL lesion was found have severe dysplasia in histopathology. Other 4 cases was found to be chronic non specific cervicitis in histopathology. The incidence of

dysplasia in the study group is comparable to the incidence of general population general population which is 1.6%.

Famhy K etal in their study of cervico pathology in IUD users – a cyto – colpo – pathological study reported there was statistically no significant difference($p > 0.05$) in the incidence of dyskaryosis or CIN between both groups by cytology and colposcopy.

Medbat etal in their case control study under took to investigate the effects of IUD on the histology of cervical epithelium. 91 women who had used IUDs for 2–13 years where case subjects and were compared with the same number of non users.2subgroups were investigated group A and group B .Group A consisted of 53 IUD users and 53 controls coming to family planning and gynaecolgy clinics.Group B consisted of 38 cases of IUD users and 38 controls from dysplasia clinics. Cervical cytology and colposcopically directed biopsy were taken in all women. There was no differnce between IUD users and control subjects in the proportion or the severity of dysplasia in either Group A or Group B. . There was no evidence of an increase in the prevalence or severity of dysplasia with prolonged IUD use.

Agarwal Krishna etal their study found that the incidence of dysplastic changes in IUD users is comparable with general population.

The present study showed incidence of inflammatory smear as 43% at 1 year of use, 80% at 2 years of IUD insertion.

Ashwani etal reported an incidence of inflammatory smear as 57% at 6 weeks, 72.6% at 6 month of Cu-T insertion.

There is significant increase in non specific inflammatory changes in cytology in IUD users. No significant increase in the dysplastic changes in IUD users in both colposcopy and cytology.

SUMMARY

1. In this study the mean duration of IUD use is 17.5 months

2. 76 % of the study subjects had inflammatory changes in cytology

3. The incidence of inflammatory change is associated with the duration of the intra uterine contraceptive device use.

4. There is no significant increase in incidence of low grade intraepithelial neoplasia and high grade intraepithelial neoplasia in IUD users.

CONCLUSION

The present study indicates that there is a definite change in the cervical architecture in IUD users and the change is also dependent on the duration of use. A simple technique like colposcope is highly useful in diagnosing these changes and combating them by early interference wherever necessary. However the present study and some of the earlier studies does not reveal any increased risk of dysplasia in IUD users over their non using sisters. However the need for regular and periodical follow up cannot be over emphasized particularly those who wish to use the IUD as a long term contraception.

PROFORMA

Name Age O.P .NO

Occupation

Socio economic status

Address

Duration of IUD use

Type of IUD use

Complaints

History of present illness

Mode of onset

Duration

Course

Symptoms

Menstrual history

Duration of flow

Length of cycle

Amount of flow

Associated Pain

Last menstrual period

Marital History

Age at marriage

Living with the husband or not

Any high risk behaviour of both the partners

Obstetric History

Number of children Alive

Type of delivery

Last child birth

General examination

Built

Aneamia

Lymphadenopathy

Abdominal examination

Any distension or mass

Any tenderness

Speculum examination

Position of thread of IUD

Status of cervix

Colposcopic examination and cytological examination

Bimanual pelvic examination

Position of cervix

Size of uterus

Position of uterus

Mobility

Consistency

Fornices

Colposcopic findings

Satisfactory or unsatisfactory

Type of study

If abnormal –site of lesion

If there is features suggestive of colpitis, wet film preparation for trichomonas vaginalis

Cytological findings

If there is LSIL or HSIL by colposcopy and cytology then colposcopically directed ectocervix biopsy is taken and specimen sent for histopathology.

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MASTER CHART

S.No	Name	Age	Age At Marriage	Number of Children	Duration of Cu T use in Months	COLPOSCOPIC CHANGES	CYTOLOGY	Socio Economic Status
1	VANAJA	30	27	1	24	Normal Study	Normal Study	4
2	SHAKILA	25	19	1	36	Colpitis	Inflammatory changes	5
3	PARVEEN	23	18	2	24	Normal Study	Inflammatory changes	5
4	JEYANTHI	25	20	1	12	Normal Study	Inflammatory changes	5
5	SATHYA	23	20	1	12	Normal Study	Inflammatory changes	5
6	MARI	20	18	1	18	Normal Study	Normal Study	5
7	RENUKA	22	19	1	24	Colpitis	Inflammatory changes	5
8	KANIMOZHI	19	18	--	8	Normal Study	Inflammatory changes	5
9	VIJAYALAKSHMI	26	23	1	8	Normal Study	Inflammatory changes	5
10	BINDHU	30	23	1	24	Normal Study	Inflammatory changes	5
11	SABEENA	21	19	1	8	Normal Study	Normal Study	3
12	UMAMAHESHWARI	21	17	1	12	Ectopy	Inflammatory changes	4
13	NAVANEETHAM	24	19	2	18	Normal Study	Inflammatory changes	4
14	NARMADHA	20	18	1	12	Normal Study	Normal Study	4
15	KALAIARASI	25	20	2	18	Normal Study	Normal Study	4
16	VIMALA	29	22	2	12	Normal Study	Inflammatory changes	5
17	SAMAYAPURAM	30	19	3	24	Normal Study	Inflammatory changes	5
18	DEEPA	25	23	1	12	Normal Study	Inflammatory changes	5
19	YUVARANI	21	18	1	18	Normal Study	Inflammatory changes	5
20	USHA	24	20	1	36	Ectopy	Inflammatory changes	3
21	CHANDRA	22	19	1	24	Normal Study	Inflammatory changes	3
22	KALAISELVI	22	20	1	12	Colpitis	Inflammatory changes	3
23	SELVI	29	21	1	36	Colpitis	Inflammatory changes	4
24	SUDHA	25	21	1	18	Normal Study	Normal Study	4
25	LAKSHMI	21	18	1	18	Normal Study	Inflammatory changes	4
26	MUTHAMMA	35	18	3	36	LSIL	LSIL	3
27	JEYANTHI	32	25	2	12	Normal Study	Inflammatory changes	3
28	SARASWATHI	30	20	2	24	Normal Study	Inflammatory changes	4
29	DHARANIDEVI	22	20	1	12	Normal Study	Inflammatory changes	4
30	SABEENA	38	19	3	30	LSIL	LSIL	4
31	ALAMELU	35	25	3	24	Ectopy	Inflammatory changes	4
32	LAKSHMI	23	20	1	24	Normal Study	Inflammatory changes	5

S.No	Name	Age	Age At Marriage	Number of Children	Duration of Cu T use in Months	COLPOSCOPIC CHANGES	CYTOLOGY	Socio Economic Status
33	SANDHIYA	25	23	1	12	Colpitis	Inflammatory changes	5
34	RANI	27	19	1	24	Colpitis	Inflammatory changes	5
35	SREEMATHI	36	20	2	24	Normal Study	Normal Study	5
36	SELVI	37	20	2	42	Normal Study	Inflammatory changes	3
37	SARALA	27	23	1	24	Normal Study	Normal Study	3
38	FATHIMA	21	19	1	12	Normal Study	Normal Study	4
39	KASTHURI	32	23	2	24	Colpitis	Inflammatory changes	4
40	MAHALAKSHMI	32	22	2	36	Normal Study	Inflammatory changes	4
41	ANANDHI	22	20	1	24	Normal Study	Inflammatory changes	4
42	SARASU	25	22	1	12	Colpitis	Inflammatory changes	4
43	MURKAAN	21	19	1	12	Normal Study	Normal Study	5
44	RESHMA	20	18	1	24	Normal Study	Normal Study	5
45	MALLIGA	25	22	1	48	Colpitis	Inflammatory changes	5
46	MALA	30	20	2	48	Normal Study	Inflammatory changes	5
47	NITHAYALAKSHMI	20	18	1	24	Normal Study	Inflammatory changes	5
48	SARALA	33	22	2	36	Normal Study	Inflammatory changes	4
49	ABRAMI	25	20	1	24	Normal Study	Normal Study	4
50	SYED ALI FATHIMA	20	18	1	12	Normal Study	Normal Study	4
51	LALITHA	24	20	1	18	Colpitis	Inflammatory changes	4
52	CHANDRA	25	22	1	24	Normal Study	Inflammatory changes	5
53	GEETHA	21	19	1	12	Normal Study	Normal Study	5
54	GAYATHRI	24	22	1	12	Normal Study	Inflammatory changes	5
55	SELVI	25	20	2	18	Normal Study	Inflammatory changes	4
56	AMMLU	26	23	1	24	Ectopy	Inflammatory changes	5
57	SARANYA	23	20	1	12	Normal Study	Normal Study	4
58	AMUDHA	24	22	1	12	Normal Study	Normal Study	5
59	GOMATHY	23	20	1	24	Normal Study	Inflammatory changes	4
60	PARVATHY	23	20	1	18	Normal Study	Normal Study	5
61	KAVITHA	23	21	1	12	Normal Study	Normal Study	4
62	RUBA	40	18	3	36	LSIL	LSIL	5
63	CHITRA	27	23	1	48	Normal Study	Normal Study	4
64	RANI	36	24	2	36	Colpitis	Inflammatory changes	5
65	SHAMEEM	21	19	1	12	Normal Study	Inflammatory changes	4
66	SIVAGAMI	30	24	2	24	Normal Study	Inflammatory changes	5
67	PARVEEN	24	20	1	24	Normal Study	Normal Study	5
68	KALPANA	28	22	1	36	Normal Study	Normal Study	5
69	VARALAKHSMI	24	20	1	18	Colpitis	Inflammatory changes	5
70	SUNDARI	23	20	1	18	Normal Study	Normal Study	5

S.No	Name	Age	Age At Marriage	Number of Children	Duration of Cu T use in Months	COLPOSCOPIC CHANGES	CYTOLOGY	Socio Economic Status
71	VASANTHI	21	19	1	12	Normal Study	Inflammatory changes	3
72	PRIYA	20	18	1	12	Colpitis	Inflammatory changes	4
73	RESHMA	22	19	1	24	Normal Study	Inflammatory changes	5
74	MANJULA	30	20	2	18	Ectopy	Inflammatory changes	3
75	UMARANI	20	18	1	12	Normal Study	Inflammatory changes	4
76	MARIYA	27	20	2	18	Colpitis	Inflammatory changes	5
77	DEVI	21	19	1	12	Normal Study	Inflammatory changes	5
78	SUDHA	27	20	2	24	Normal Study	Normal Study	5
79	SATHYA	23	19	1	18	Normal Study	Inflammatory changes	5
80	SHALINI	31	21	2	36	Ectopy	Inflammatory changes	5
81	LAKSHMI	38	20	3	24	Normal Study	Inflammatory changes	3
82	GEETHA	25	20	1	36	Colpitis	Inflammatory changes	3
83	RANI	33	20	2	48	Normal Study	Inflammatory changes	4
84	CHITRALEKHA	25	21	1	18	Normal Study	Inflammatory changes	5
85	SUMATHI	22	20	1	12	Normal Study	Normal Study	4
86	MUKTHIYAR BEGUM	19	17	1	8	Normal Study	Normal Study	5
87	MALATHI	23	20	1	12	Colpitis	Inflammatory changes	4
88	GEETHA	22	20	1	12	Normal Study	Inflammatory changes	5
89	FATHIMA	24	21	1	24	Colpitis	Inflammatory changes	4
90	DEVI	21	19	1	12	Normal Study	Normal Study	5
91	SANGEETHA	23	20	1	24	Normal Study	Inflammatory changes	4
92	DEVI	25	22	1	18	Normal Study	Inflammatory changes	5
93	MARI	20	18	1	18	Normal Study	Inflammatory changes	4
94	LAKHSMI	23	20	1	24	Colpitis	Normal Study	5
95	PATHMALATHA	25	22	1	18	Normal Study	Inflammatory changes	4
96	SATYA	23	20	1	12	Normal Study	Inflammatory changes	4
97	SREEMATHI	26	20	2	12	Colpitis	Inflammatory changes	4
98	KALAIVANI	23	20	1	12	Normal Study	Normal Study	5
99	SASIKALA	23	19	1	18	Normal Study	Inflammatory changes	5
100	DHARANI	32	20	2	24	Colpitis	Inflammatory changes	5
101	SIKANDAR	22	20	1	12	Normal Study	Inflammatory changes	4
102	UMARANI	20	18	1	12	Normal Study	Inflammatory changes	4

S.No	Name	Age	Age At Marriage	Number of Children	Duration of Cu T use in Months	COLPOSCOPIC CHANGES	CYTOLOGY	Socio Economic Status
103	SUMATHI	21	19	1	18	Normal Study	Inflammatory changes	4
104	JHANSI RANI	26	22	1	24	Normal Study	Inflammatory changes	4
105	JEYASUDHA	35	25	2	36	Ectopy	Inflammatory changes	5
106	JASMINE	20	18	1	10	Normal Study	Normal Study	5
107	DHANALAKSHMI	28	20	2	24	Colpitis	Inflammatory changes	5
108	HAJEERA	25	22	1	12	Normal Study	Inflammatory changes	5
109	VASANTHI	23	20	1	18	Normal Study	Inflammatory changes	4
110	NARMADHA	28	21	2	24	Colpitis	Inflammatory changes	4
111	JAYALAKSHMI	22	20	1	12	Normal Study	Inflammatory changes	4
112	SUJATHA	28	24	1	18	Normal Study	Inflammatory changes	5
113	NIRMALA	26	23	1	18	Ectopy	Inflammatory changes	5
114	YASODHA	27	20	2	12	Normal Study	Normal Study	5
115	SHOBANA	23	20	1	8	Normal Study	Normal Study	5
116	RAJALAKHMI	26	23	1	12	Colpitis	Inflammatory changes	3
117	RAHEMA BEE	19	17	1	8	Normal Study	Normal Study	3
118	SARESWATHI	25	22	1	18	Normal Study	Inflammatory changes	4
119	GANDHIMATHI	22	20	1	12	Normal Study	Normal Study	5
120	LALITHA	32	22	2	36	Colpitis	Inflammatory changes	4
121	YAMUNA	25	20	1	24	Normal Study	Inflammatory changes	5
122	PRIYA	30	20	2	12	Normal Study	Inflammatory changes	4
123	BHARATHI	23	20	1	18	Normal Study	Inflammatory changes	5
124	SYED ALIFATHIMA	22	19	1	12	Normal Study	Normal Study	5
125	DEVIKA	20	18	1	8	Normal Study	Normal Study	5
126	JEYALAKSHMI	35	20	3	24	Ectopy	Inflammatory changes	5
127	SHOBA	21	19	1	12	Normal Study	Inflammatory changes	3
128	SHABANA	20	18	1	8	Normal Study	Normal Study	3
129	SAKILA	24	21	1	18	Normal Study	Inflammatory changes	4
130	ARULMOZHIL	19	17	1	8	Normal Study	Normal Study	4
131	SELVI	21	19	1	12	Normal Study	Inflammatory changes	5
132	MAHESWARI	26	22	1	36	Colpitis	Inflammatory changes	4
133	VARALAKSHMI	24	21	1	24	Normal Study	Inflammatory changes	5
134	MANISHA	19	17	1	7	Normal Study	Inflammatory changes	5
135	JAYANTHI	24	20	1	18	Normal Study	Inflammatory changes	5
136	AMULU	30	20	2	24	Colpitis	Inflammatory changes	5

S.No	Name	Age	Age At Marriage	Number of Children	Duration of Cu T use in Months	COLPOSCOPIC CHANGES	CYTOLOGY	Socio Economic Status
137	MAHESWARI	25	21	1	24	Normal Study	Inflammatory changes	4
138	SHANTHI	32	20	2	24	Ectopy	Inflammatory changes	4
139	SIVAKAMI	19	17	1	8	Normal Study	Normal Study	4
140	SARASWATHI	25	22	1	12	Normal Study	Inflammatory changes	5
141	AYESHA BEGAM	22	20	1	12	Normal Study	Inflammatory changes	5
142	NIRMALA	23	19	1	24	Colpitis	Inflammatory changes	5
143	SHANTHI	32	28	1	18	Normal Study	Inflammatory changes	5
144	KANNAGI	25	22	1	18	Normal Study	Inflammatory changes	5
145	SASIKALA	28	20	2	12	Normal Study	Inflammatory changes	4
146	MAHESWARI	27	23	1	24	Ectopy	Inflammatory changes	4
147	DEEPA	24	22	1	12	Normal Study	Inflammatory changes	4
148	RENUGA	20	18	1	12	Normal Study	Inflammatory changes	4
149	LATHA	20	18	1	8	Normal Study	Normal Study	4
150	JEYALAKSHMI	31	20	2	18	Normal Study	Inflammatory changes	3
151	SASIKALA	23	20	1	12	Normal Study	Inflammatory changes	3
152	SANTHAKUMARI	22	20	1	12	Normal Study	Inflammatory changes	4
153	MALLIGA	25	2	1	8	Normal Study	Normal Study	5
154	DEVAKI	26	22	1	24	Colpitis	Inflammatory changes	4
155	SAVITHA	22	20	1	12	Normal Study	Inflammatory changes	5
156	DHANALAKSHMI	20	18	1	8	Normal Study	Normal Study	4
157	RENUKA	24	20	1	36	Normal Study	Inflammatory changes	4
158	SARASWATHI	24	22	1	12	Normal Study	Inflammatory changes	5
159	KANMANI	24	20	1	18	Normal Study	Inflammatory changes	4
160	BHAVANI	22	20	1	12	Normal Study	Inflammatory changes	5
161	VIJAYALAKSHMI	20	18	1	8	Normal Study	Inflammatory changes	4
162	KAVITHA	21	19	1	10	Normal Study	Normal Study	5
163	EPSI	30	24	1	36	Normal Study	Inflammatory changes	4
164	VAHINI	26	22	1	24	Normal Study	Inflammatory changes	4
165	MURUGAMMAL	22	20	1	12	Normal Study	Inflammatory changes	3
166	VARALAKSHMI	32	20	2	24	Ectopy	Inflammatory changes	3
167	UMA	25	22	1	18	Normal Study	Inflammatory changes	4
168	RAMYAEE	21	19	1	12	Normal Study	Inflammatory changes	5

S.No	Name	Age	Age At Marriage	Number of Children	Duration of Cu T use in Months	COLPOSCOPIC CHANGES	CYTOLOGY	Socio Economic Status
169	FATHIMA	32	22	2	24	Colpitis	Inflammatory changes	4
170	MEENAKSHI	24	22	1	12	Normal Study	Inflammatory changes	4
171	SASIREKHA	20	18	1	8	Normal Study	Normal Study	5
172	SAPNA	23	20	1	12	Normal Study	Inflammatory changes	5
173	PUSHPARANI	22	20	1	10	Normal Study	Normal Study	4
174	LAKSHMI	24	22	1	12	Normal Study	Inflammatory changes	5
175	AYESHA	23	21	1	18	Normal Study	Inflammatory changes	4
176	NITHYALAKSHMI	19	17	1	8	Normal Study	Normal Study	5
177	SUDHA	20	18	1	8	Normal Study	Inflammatory changes	5
178	KASTHURI	36	20	3	36	Colpitis	Inflammatory changes	5
179	GIRIJA	23	20	1	12	Normal Study	Inflammatory changes	5
180	SASIKALA	22	20	1	10	Normal Study	Inflammatory changes	4
181	SARASWATHY	25	22	1	24	Colpitis	Inflammatory changes	3
182	JOTHI	29	20	2	12	Normal Study	Inflammatory changes	4
183	SHAMEEM	21	18	1	12	Normal Study	Inflammatory changes	3
184	SAKTHI	23	20	1	12	Normal Study	Inflammatory changes	4
185	VIJAYA	35	22	2	24	Normal Study	Inflammatory changes	4
186	DHARANI	26	23	1	18	Normal Study	Inflammatory changes	3
187	UMA	22	20	1	12	Normal Study	Normal Study	3
188	AMBIKA	36	22	2	24	Ectopy	Inflammatory changes	4
189	LAKSHMI	22	20	1	12	Normal Study	Inflammatory changes	4
190	ASHMATH	21	19	1	12	Normal Study	Inflammatory changes	4
191	GIRIJA	38	23	36	12	Colpitis	Inflammatory changes	5
192	MAHALAKSHMI	30	21	2	18	Colpitis	Inflammatory changes	4
193	PARAMESWARI	25	22	1	18	Normal Study	Inflammatory changes	4
194	INDIRANI	22	20	1	12	Normal Study	Normal Study	5
195	KAMATCHI	36	20	3	18	HSIL	LSIL	4
196	LALITHA	21	19	1	10	Normal Study	Normal Study	5
197	SUMATHI	28	22	1	24	Normal Study	Inflammatory changes	4
198	SAKUNTHALA	25	22	1	12	Normal Study	Inflammatory changes	5
199	KAMURINEESA	33	24	2	24	Normal Study	Inflammatory changes	4
200	AMUDHA	29	20	2	18	Colpitis	Inflammatory changes	5
201	FATHIMA	23	21	1	12	Colpitis	Inflammatory changes	5

S.No	Name	Age	Age At Marriage	Number of Children	Duration of Cu T use in Months	COLPOSCOPIC CHANGES	CYTOLOGY	Socio Economic Status
202	BHAVANI	21	19	1	10	Normal Study	Normal Study	5
203	PARVATHY	26	22	1	24	Colpitis	Inflammatory changes	5
204	SAMEEM	21	19	1	12	Normal Study	Normal Study	5
205	NAGESWARI	26	22	1	18	Normal Study	Inflammatory changes	4
206	MAHARANI	20	18	1	12	Normal Study	Inflammatory changes	4
207	ASMATH BEGUM	27	20	2	12	Colpitis	Inflammatory changes	4
208	KAVITHA	23	20	1	12	Normal Study	Inflammatory changes	4
209	SUGUNA	24	21	1	18	Colpitis	Inflammatory changes	4
210	DEEPA	24	21	1	18	Normal Study	Inflammatory changes	5
211	CHITRA	28	20	2	12	Normal Study	Normal Study	4
212	PUNITHA	23	20	1	18	Colpitis	Inflammatory changes	4
213	THULASI	41	19	3	24	LSIL	LSIL	5
214	NALINI	20	18	1	8	Normal Study	Normal Study	4
215	KALIAMMAL	26	20	2	12	Normal Study	Inflammatory changes	5
216	GEETHA	22	20	1	12	Normal Study	Inflammatory changes	4
217	UMAMAHESWARI	21	19	1	12	Normal Study	Inflammatory changes	5
218	DHILSHATH	28	20	2	18	Colpitis	Inflammatory changes	4
219	VIJAYALAKSHMI	26	24	1	12	Normal Study	Normal Study	4
220	SHANTHALAKSHMI	21	19	1	12	Normal Study	Inflammatory changes	3
221	RAJESWARI	30	23	2	18	Normal Study	Inflammatory changes	3
222	YESODADEVI	28	25	1	12	Ectopy	Inflammatory changes	4
223	PONNI	21	18	1	12	Normal Study	Normal Study	5
224	REAS BEGUM	21	18	1	12	Normal Study	Inflammatory changes	5
225	RENUKA	23	20	2	18	Normal Study	Inflammatory changes	5
226	VALLIAMMAL	25	23	1	12	Colpitis	Inflammatory changes	5
227	JAYA	22	20	1	10	Normal Study	Inflammatory changes	4
228	RAMANI	26	23	1	24	Colpitis	Inflammatory changes	4
229	DILSHA	23	20	1	12	Normal Study	Normal Study	4
230	BHARATHI	21	19	1	8	Normal Study	Inflammatory changes	4
231	MEENA	23	20	1	12	Normal Study	Normal Study	5
232	FATHIMA	21	19	1	8	Normal Study	Inflammatory changes	5
233	MYTHILI	26	23	2	24	Colpitis	Inflammatory changes	5
234	JEBAMARY	28	20	1	12	Normal Study	Inflammatory changes	5
235	KAYALVIZHI	25	22	1	18	Normal Study	Inflammatory changes	4

S.No	Name	Age	Age At Marriage	Number of Children	Duration of Cu T use in Months	COLPOSCOPIC CHANGES	CYTOLOGY	Socio Economic Status
236	REVATHY	21	19	1	8	Colpitis	Inflammatory changes	4
237	RIYAZ	21	19	1	10	Normal Study	Inflammatory changes	4
238	VASUKI	32	20	1	24	Ectopy	Inflammatory changes	4
239	USHA	25	22	1	12	Normal Study	Inflammatory changes	5
240	KANAKA	23	21	1	12	Normal Study	Inflammatory changes	5
241	RANI	30	20	2	18	Colpitis	Inflammatory changes	5
242	SUMATHI	27	23	2	18	Normal Study	Inflammatory changes	5
243	SHAHIN	27	19	1	18	Normal Study	Inflammatory changes	4
244	DEVIKA	25	22	1	18	Normal Study	Inflammatory changes	4
245	BARKAT BANU	21	19	1	12	Normal Study	Inflammatory changes	4
246	JAMUNA	25	22	1	18	Colpitis	Inflammatory changes	4
247	SANGEETHA	20	18	1	10	Normal Study	Inflammatory changes	5
248	LATHA	25	23	1	12	Normal Study	Inflammatory changes	5
249	JAYANTHI	21	19	1	12	Normal Study	Inflammatory changes	5
250	SARALA	22	19	1	18	Colpitis	Inflammatory changes	5
251	SHAMEEM	19	17	1	8	Normal Study	Normal Study	4
252	KAVITHA	23	20	1	12	Normal Study	Inflammatory changes	4
253	MALINI	26	22	1	24	Colpitis	Inflammatory changes	4
254	MALA	30	20	2	18	Normal Study	Inflammatory changes	4
255	KAVITHA	31	21	2	24	Normal Study	Inflammatory changes	5
256	SATHYA	20	18	1	10	Normal Study	Inflammatory changes	5
257	MUMTAJ	20	18	1	8	Normal Study	Normal Study	5
258	SHEELA	34	20	2	24	Colpitis	Inflammatory changes	5
259	VASANTHI	23	20	1	18	Normal Study	Inflammatory changes	4
260	RASHITHA	21	19	1	12	Normal Study	Inflammatory changes	4
261	SHANTHI	27	20	2	12	Normal Study	Inflammatory changes	4
262	BABY	27	19	2	18	Normal Study	Inflammatory changes	4
263	VIJAYA	35	28	1	24	Ectopy	Inflammatory changes	4
264	JAMEELA	22	20	1	12	Normal Study	Normal Study	5
265	SHAKILA	21	19	1	8	Normal Study	Inflammatory changes	5
266	VEERALAKSHMI	24	21	1	12	Normal Study	Inflammatory changes	5

S.No	Name	Age	Age At Marriage	Number of Children	Duration of Cu T use in Months	COLPOSCOPIC CHANGES	CYTOLOGY	Socio Economic Status
267	JAMEELA	19	17	1	8	Colpitis	Inflammatory changes	5
268	ANUSHYA	23	21	1	12	Normal Study	Inflammatory changes	4
269	JAMUNA BEGUM	27	20	2	18	Normal Study	Normal Study	4
270	JAI BANU	22	20	1	12	Normal Study	Inflammatory changes	4
271	NALINI	25	22	1	18	Colpitis	Inflammatory changes	4
272	JAYANTHI	22	20	1	12	Normal Study	Normal Study	5
273	BINDU	22	19	1	18	Colpitis	Inflammatory changes	5
274	GEETHA	21	19	1	10	Normal Study	Inflammatory changes	5
275	MUMTAJ	21	18	1	12	Normal Study	Normal Study	5
276	JAYANTHI	22	20	1	12	Normal Study	Inflammatory changes	4
277	USHA RANI	22	19	1	18	Colpitis	Inflammatory changes	4
278	MAHESWARI	25	22	1	24	Normal Study	Inflammatory changes	4
279	NAJIMUNIEESHA	27	19	2	24	Normal Study	Inflammatory changes	4
280	FATHIMA	25	23	1	36	Ectopy	Inflammatory changes	5
281	ALAMELU	21	19	1	12	Normal Study	Inflammatory changes	5
282	SIKANTHAR	21	19	1	12	Colpitis	Inflammatory changes	5
283	SAVITHA	28	20	2	18	Normal Study	Inflammatory changes	5
284	GOWRI	22	20	1	12	Colpitis	Inflammatory changes	4
285	SATHYA	23	20	1	18	Normal Study	Inflammatory changes	4
286	JAYABARATHI	31	19	3	18	Ectopy	Inflammatory changes	4
287	LATHA	28	18	2	36	Colpitis	Inflammatory changes	4
288	MALA	24	22	1	12	Colpitis	Inflammatory changes	5
289	SHERLY	19	17	1	8	Normal Study	Normal Study	5
290	MAHALAKSHMI	20	19	1	12	Normal Study	Inflammatory changes	5
291	MOHANA	24	20	1	18	Colpitis	Normal Study	5
292	KALIYAMMA	26	20	2	10	Normal Study	Inflammatory changes	4
293	MARY	23	20	1	18	Colpitis	Normal Study	4
294	JESIMA BEGUM	20	18	1	12	Normal Study	Inflammatory changes	4
295	SUMATHI	23	20	1	18	Normal Study	Inflammatory changes	4
296	JANSI RANI	26	23	1	24	Normal Study	Inflammatory changes	5
297	SUMITHA	21	18	1	18	Normal Study	Inflammatory changes	5
298	VANATHI	23	20	1	12	Normal Study	Inflammatory changes	4

GLOSSARY

IUD-Intrauterine contraceptive Device

CuT-Copper T copper wire wound round the vertical limb

WHO - World Health Organisation

NSAIDS-Non-Steroidal Antiinflammatory Drugs

PID-Pelvic Inflammatory Disease

ML Cu250-Multi Load Copper realizing device with 250 sq. mm. of exposed copper the form of wire wrapped around the vertical shaft .The arms are flexible plastic serrated fins.

STI-sexually Transmitted Infection

LNG 20-Levonorgesterol Intrauterine contraceptive device/releases 20 micro gm per day.

ASCUS-Atypical Squamous Cells of Undetermined Significance

CIN-Cervical Intraepithelial Neoplasia

BCC-Benign Cellular Changes

LSIL-Low Grade Squamous Intraepithelial Lesion

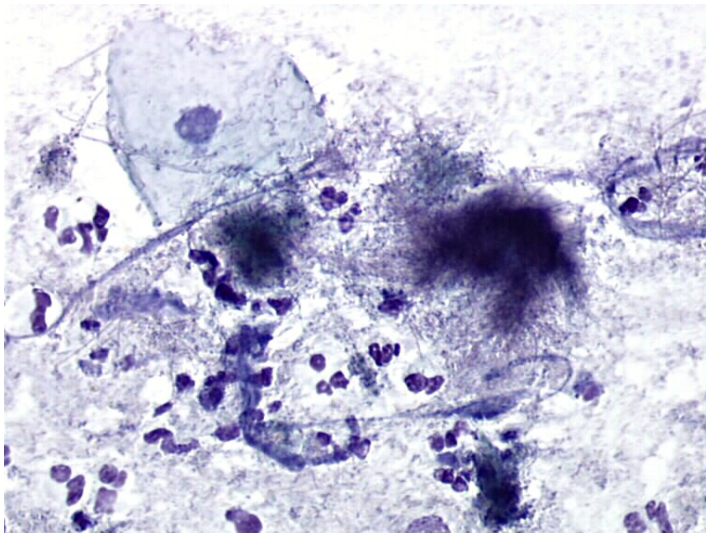
HSIL-High Grade Squamous Intraepithelial Lesion

CuT380 A-'T' shaped and have 314 square mm copper wire on the vertical stem and 33 sqaure mm copper sleeves on each of the two transverse arms

CuT200-'T' shaped device made of polypropylene and carries 120 milligram of copper wire wound round the vertical limb

CYTOLOGY PICTURES

Actinomyces – Typical aggregates of pseudo filamentous material – smear from a women with IUD



Pap Smear – Inflammatory changes. Morphological changes frequently seen affecting parabasal metaplastic cells in women using IUD