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The ratio of benign and malignant cases of hysterectomy in Najaf governorate according to age-group of patients

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Abstract:

The study objected to analyze statistically the causes of hysterectomy from the results of histopathological diagnosis. In the period from January 2007 to July 2008, 125 case of hysterectomy patients women were collected from the many private clinical laboratory in Najaf governorate. All cases were classified, according to histopatological diagnosis in to two group of tumor (benign & malignant). The age range of patients from 20 to 79 years. A total of 125 cases were included, 113 (90.4%) patients with benign conditions represented by clinical diagnosis , Leiomyoma, was considered the most common cases 65(52%) from the total percentage of benign conditions 113(90.4%), this ratio among women between age (29-50) years. Adenomyosis, 23(18.4%) among women between age (38-50) years. Endometrial hyperplasia & Endomaterial polyp 20 (16%) among women between age (30-70) years , and other conditions such Ovarian cyst 3(2.4%) and hormonal imbalance with bleeding 2(1.6%) among women between age (40-50) years. A group of 12(9.6%) patients with malignant conditions represented; cervix cancer (well-moderately differentiation squamous cell carcinoma) 5(4%) among women between age (50-55) years, well differentiation Adenocarcinoma 4(3.2%) among women between age (45-50) years, Endometrial carcinoma 2(1.6%) among women between age (50-60) years, well differentiation leiomyosarcoma 1(0.8%) among women age 35 years. The most common indication of hysterectomy is benign condition and less malignant . among women less than 50 years old often associated with hysterectomy .but in the malignant more than 50 years old. The conclusion summarized by the rate of hysterectomy differed by age, geographic region and causes of hysterectomy .

الخلاصة:

تمت دراسة حالات استئصال الرحم ومسبباتها إحصائيا ومن الفترة كانون الثاني 2007 إلى شهر تموز2008. أخذت 125 حالة من النساء المصابات باستئصال الرحم ومن المختبرات الأهلية في محافظة النجف. صنفت جميع الحالات طبقا إلى التشخيص النسيجي الامراضي إلى مجموعتين رئيسية(حميدة وخبيثة). توزعت الحالات بين الفئات العمرية (20-70) سنة. أشارت النتائج إلى ارتفاع نسبة الإصابة بورم تليف الرحم (fibroid) حيث سجلت حوالي 65 (52%) إصابة من المجموع الكلي للحالات الحميدة 113(90.4%) وللفئات العمرية (30-50) سنة اما الـ Adenomyosis حيث سجلت حوالي 23(18.4) (52%) وللفئات العمرية (30-50) سنة, Endometrial hyperplasia & Endomaterial polyp 20 (16%) وللفئات العمرية (30-70)سنة . اما بقية الحالات فتوزعت بين الكيس المبيضي3(2.4%) وحالات الاختلال الهرموني والنزف الشديد 2(1.6%) وللفئات العمرية (40-50) سنة. اما حالات الأورام الخبيثة فسجلت 12 (9.6%) من حالات استئصال الرحم وتوزعت بين سرطان عنق الرحم(cervix cancer) well-moderately differentiation squamous cell carcinoma 5 (4%) وللفئات العمرية (50-55) سنة وسرطان بطانة الرحم Adenocarcinoma 4(3.2%) بين الفئات العمرية (40-50) سنة, Endometrial carcinoma 2(1.6%) بين الفئات العمرية (50-60) سنة و well differentiation leiomyosarcoma 1(0,8%) وللفئة العمرية 35سنة .ونستنتج من هذه الدراسة بان نسبة الأورام الحميدة في حالات استئصال الرحم هي أكثر مما عليه في الأورام الخبيثة . وتكثر في النساء ذوات الفئات العمرية دون الـ سنة50. اما في حالات الاورام الخبيثة فتكون للفئات العمرية فوق الـ50 سنة . وتختلف نسبة استئصال الرحم حسب العمر والرقعة الجغرافية ومسببات استئصال الرحم.

Introduction:

Hysterectomy is the most commonly performed major gynecologic operation and among the top five most commonly preformed surgical procedures in the untied states, each year more than 600.000 hysterectomy are done[1], and the incidence of hysterectomy differ by the geographical region, in the African women tend to develop causes of hysterectomy more than White women (1 and 2)

Uterine fibroids (Leiomyoma) are the most common neoplasm in uterus (60%) ,benign (non-cancerous) tumors in at lease one quarter of all women ,That grow in muscle of the uterus(3 and 4). which may be extrinsic (subserous). Alternatively they may be intramural or submucosal (projecting in to the endometrial cavity). Fibroid are not typically painful unless they degeneration, usually in pregnancy (5). Estimates are that more than 45% of women have leiomyomas by the fifth decade of life, but most are asymptomatic[2].Uterine fibroids may be a cause of abnormal uterine bleeding. About 30 percent of women between 25 to 45 are diagnosed with fibroids, according to the federal Agency for Healthcare Research and Quality. For unknown reasons, fibroids are diagnosed in black women two to three times more frequently than in white women, and fibroids account for about twice the number of hysterectomies among black women than among white women. About 200,000 hysterectomies each year are performed in the United States to treat fibroids (3 and 4). The Endomaterial hyperplasia is a premalignant lesion represents an overabundant growth of the endometrium generally caused by persistent levels of estrogen unopposed by progesterone. Hyperplasia is most frequently seen at the extremes of women's reproductive years when ovulation is infrequent (2). The Endomaterial polyps mostly are not neoplasm but polypoid project in the uterine cavity. this polyp can occur in women of any age although they are more common in older women and may be asymptomatic or cause irregular bleeding (4). Endomaterial carcinoma is the forth most common cancer in women, with more than 40,000 new cases occurring in 2005 according to the American Cancer Society 2005. They are occurs mainly in post-menopausal women, and nulliparous women have a greater tendency to develop the tumor than parous women. There are two types of endometrial cancers, designated type I and type II. Type I endometrial cancer is estrogen-dependent and is thought to progress typically from hyperplasia to cancer. This type of malignancy typically occurs in younger perimenopausal women with a history of exposure to unopposed estrogen. These tumors tend to arise in areas of hyperplasia, to be well differentiated and to be associated with a more favorable prognosis. Type II endometrial cancer occurs in older women without estrogen stimulation of the endometrium, is not often associated with endometrial hyperplasia and tends to be more commonly associated with poorly differentiated cancer or those of unusual histological type (6) . It is usually ereceded by endometrial hyperplasia. The tumor may be localized to one part of the uterine cavity but more often the whole of the cavity contains a polypoid rather nodular fungating mass which enlarges the uterus (7). Adenomyosis, island of endometrial tissue (endometrial gland and stroma) are abnormally deep in the myomatrium. Its common in older women (more than 35 or 40 years of age) (4 and 5).

Ovarian cyst (teratoma): are common and there is very little chance that is malignant or that removing it will affect her fertility (4).Ovarian tumor are relatively common, with the majority (approximately 80%) being benign occurring in women of reproductive age. Malignant tumors occur in older women most commonly aged 40-65 years, although certain uncommon tumor types do occur at a younger age (8).

Cervix cancer: squamous carcinoma of the cervix is a fairly common tumor, which tend to occur in middle- aged women (40 year or more) (4)

Each year, rates were highest among women aged 40-44 years old and lowest among women aged 15-24 years old (7).

Material & method

Material

Patient: This study was performed from January 2007 to July 2008, 125 cases from women with hysterectomy were collected according to the type of specimens (uterus with many sites, cervix and ovaries) from many private clinical laboratories in Najaf governorate. All cases were classified according to histopatological diagnosis, which contains full information about clinical data, organ, clinical diagnosis, age and date. That facilitated the classification in to different group's dependant on age, type of specimens, benign and malignant condition with number of patients and percentage.

Methods

All histopathology reports in our laboratories include the clinical history provided on the specimen request form. The clinical history was noted and cases were excluded if the indication for removal was malignant disease or if there was any previous history of, or suspicion of, neoplastic disease, including an abnormal cervical smear. The macroscopic description of the included cases was reviewed. Specimens not assessed macroscopically by a consultant or those showing any macroscopic abnormality such as leiomyomas, endometrial irregularity, or suspected endometriosis were also excluded.

The routine technique H & E (Hematoxylin & Eosin staining) used to diagnosis all tissue or cells that removed from a patient, the simple technique of light microscopy is the bedrock of preparation image. A vary thin about 0.5 cm of specimen were fix in 10% formalin for 24-48 hours (To prevent the tissue digesting itself through release of proteolytic enzymes, the tissue is immersed in a fixative, usually formaldehyde, which cross-links the proteins and inactivates any enzymatic activity(7 and 8) then, washed and dehydrated in ascending series of ethanol solution (70,80,90,95)% for 2h in each concentration and 4 h divided on two changes for 100% (v/v) cleared in two changes of xylene. 15 minutes for each, then embedded in paraffin wax. Thin section (6 mm) was dewaxed in xylene for 6 min, hydrated in descending of a series of ethanol (2 min for each changes in 100% , then 2 min in each of (95,90,80, and 70)% and transferred to distilled water for 2 min. the section were stained in hematoxylin for 2-5 min. washed in running tap water for 2-3 min, discolored in 0.5-1% HCL in 70% alcohol for few second, washed in running tap water for at least 5 min, and stained in 1% aqueous eosin for 1-2 min. the section was washed in tap water and dehydrated though ascending graded ethanol (70,80,90, and 100)% (v/v) for the same period of hydration, cleared in xylene and mounted in DPX[9]. After diagnostic all cases by the macroscopic and microscopy examination with history in the reports the cases classified according to the:

Age group we study all age group between 20 years old to 70 years old.

Type of specimen We classified all cases depend on the type of specimens (Uterus mass, Endometrium, Myometrium, Cervix and Ovarian cyst) that provided to histopathologiacl diagnosis.

Benign group Clinical data in reports with diagnosis of microscopy examination, that shown in results, dependant in this classifying group and arranged from (65-5).

Malignant group: To study this group we are depend on clinical data in reports and microscopy examination. It's arranged from (5-1).

Statistical analysis:

Categorical data was calculated using the number of cases with their percentage. An odd ratio (ORs) was calculated with the variable of age. Test of significance 2_ tailed P <0.05 indicated significance.

Results

In all 125 cases of hysterectomy scoring was assessed by counting the percentage of age group; about 49(39.2%) among women between age (40-49) years old , 40(32%) among women between (50-59) years old , 23 (18.4%)1.6% among women between(30-39) years old,7 (5.6%) among women between(60-69) years old, 4(3.2%) among women 70 years old, 2 (1.6%) among women between (20-29) years old as summarized in Table (1).

Benign group a total of 125 case was included, the intensity scoring 113 patients with benign condition represented by Leiomyoma, from uterus mass, (52%) reported in 65 patients among women between age (29-50) years old. Adenomyosis, from Myometrium of uterus, (18.4%) was estimated in 23 patients among women between age (38-50) years old , Endometriosis, show in picture (3), (16%) detected in 20 patients distributed in Endometrium of uterus(11) and endometrial polyp(9) , finally the ovarian cyst, (2.4%) scoring in a few patients (3) among women between age (40-50) and other condition such hormonal imbalance with bleeding 2 (1.6%) among women (45-50) as show in Table (2,3).

Malignant group (9.6%) reported in 12 women from the total 125 cases of hysterectomy collected from different specimens .well-moderately differentiated squamous cell carcinoma, 5(4%) from the cervix among women age (50-55) years old. Adenocarcinoma, 4(3.2%), from Myometrium of uterus, among women age (50-60) years old. Endomaterial carcinoma show in picture (7), 2(1.6%) from the endometrium of uterus, among women age (60-65) years old finally the rare cases its well differentiation leiomyosarcoma 1(0.8%) among women age (30-35) years old. table (2,4).

Some of the diagnostic slide obtained it from the laboratories and other cases diagnostic its from the clinical data of the doctors.

1- Leiomyoma: A large tumor may have significant mechanical effects, whereas a small lesion projecting into the lumen of the uterus may interfere with conception or become ulcerated and cause heavy bleeding[7]. the tumor consist of broad bundles of mature smooth muscle cells that run at a various angles, so that some bundles are visible in longitudinal section (thin arrow) and others in cross-section (thick arrow). There is some fibrous tissue between the bundles of muscle cells and it usually increases. As a result, older tumors become hard and fibrous (fibromyoma or fibroids). Figure (1)
2- Endometrial hyperplasia: the glands are crowded (slightly back –to- back), moderately dilated and lined with a single layer of closely packed palisade tall columnar epithelial calls with a small amount of cytoplasm (thin arrow). The nuclei are elongated and markedly hyperchromatic. The cells show no evidence of secretory activity. The stroma also is intensely cellular, consisting of very large numbers of cells (thick arrow). Figure (2).
3- Ovarian cysts: in mature ovarian teratomas, skin and its appendages are usually the dominant tissue and the product is a cell full of sebaceous debris. This teratoma was a large unilocular (dermoid) cyst full of sebaceous material and hais. Most of this part of the wall consists of mature sebaceous glands, lined by large epithelial cells with abundant pale cytoplasm and a small round central nucleus (thin arrow). Figure(3)
4- Squamous cell carcinoma. The tumor cells are arranged in clumps, and characteristically show no tendency to keratinazation or cell nest formation. They have abundant eosinophilic cytoplasm and large pleomorphic nuclei (thin arrow). Figure (4).

To determine the risk factor of age between woman that suffering from hysterectomy in the age (40-59) years, odd ratios (ORs) was 2.05 with 95%, CI 0.62-6.80 compared with other age groups show in table (5).

Table (1): Number of cases according to age distribution

Age / year (rang)	No. of patients	%
20-29	2	1.6%
30-39	23	18.4%
40-49*	49	39.2%
50-59*	40	32%
60-69	7	5.6%
70	4	3.2%
Total	**125**	**100**

Table (2): Number of cases according to the type of specimens

Type of specimen	Clinical diagnosis	No. of patients	Age range	Type of tumor
Uterus mass	Leiomyoma	65	(29-50*)	Benign
	Leiomyosarcoma (low grade)	1	(30)	Malignant
Endometrium	Endomaterial hyperplasia (low grade)	11	(30-50*)	Benign
	Endomaterial polyp	9	(*40-70)	Benign
	Well differentiated papillary endometrial carcinoma	2	(60-65)	Malignant
Myometrium	Few & abundant foci of adenomyosis with multi focal	23	(38-50*)	Benign
	Adenocarcinoma	4	(*50-60)	Malignant
Cervix	Well-moderately differentiated squamous cell carcinoma	5	(50-55)*	Malignant
Ovarian cyst	Multiple follicular leutinizing cysts	1	(35)	Benign
	Mature cyst (teratoma)	2	(40-50)*	Benign
Miscellaneous	Hormonal imbalance with bleeding	2	(45-50)*	Benign
Total		**125**	**(29-70)**	

*OR= 2.05 CI (0.62- 6.8%) 95%

Table (3): The Clinical diagnosis of Benign group with No. of patients and its percentage

Clinical diagnosis	No. of patients	%
Leiomyoma	65	52 %
Adenomyosis	23	18.4 %
Endometriosis	20	16 %
Ovarian cyst	3	2.4 %
Miscellaneous	2	1.6%
Total	**113**	**90.4%**

Table (4): The Clinical diagnosis of malignant group with No. of patients and its percentage

Clinical diagnosis	No. of patients	%
Well to moderately differentiation squamous cell carcinoma	5	4 %
Adenocarcinoma	4	3.2 %
Endometrial carcinoma	2	1.6 %
Well differentiation leiomyosarcoma	1	0.8 %
Total	**12**	**9.6%**

Table (5): The risk factor age in hysterectomy women

subject	Positive	Negative	Total
Benign (40-59) yr	79	37	113
Malignant (40-59) yr	6	6	12
Total	85	43	125

OR= 2.05 CI (0.62- 6.8%) 95%

Discussion

The most common indication for hysterectomy remains uterus leiomyoma (fibroid) (60%), followed by relaxation (11%), pain (9%), and bleeding (8%). cancer accounts for roughly 10% of the hysterectomies performed, and endometrial hyperplasia (a premalignant condition) accounts for 2% (3). the our resent study shown the rates were highest among women aged 40-49 years old and lowest among women aged 20-29 years old. Approximately

it goes with many studies that represented to peak age at diagnosis is between the ages of 50 and 65. Approximately 25% of all cases of endometrial carcinoma are diagnosed in premenopausal women, and only 5% are diagnosed in women younger than age 40 (6).

The most common indication of hysterectomy is benign condition among women less than 50 were uterine leiomyoma (fibroid tumors) (10), Fibroids may grow as a single tumor or in clusters. A single fibroid can be smaller than one inch across or can grow to more than eight inches across. A bunch or cluster of fibroids can also vary in size. It is generally accepted that the size of a non-pregnant uterus ranges from 8 cm x 4 cm x 4 cm to 12 cm. A 10-week gestational size uterus measures 12 cm in length, and a 12-week size uterus measures approximately 14 cm or greater in length. Most fibroids grow within the wall of the uterus. Fibroids may cause infertility because they interfere with conception or implantation. They may cause premature delivery because of decreased area within the uterine cavity. Severe pain or excessively heavy bleeding with fibroids may necessitate emergency surgery. Rarely, malignant changes may occur. However, these usually take place in postmenopausal women. The most common warning sign is the rapid enlargement of a fibroid, and definitive diagnosis is usually not made until the time of surgery (11). More than 30 years old often associated with hysterectomy were adenomyosis; Adenomyosis is caused by the presence of functioning ectopic endometrial tissue in the myometrium. It appears to be most common in women ages 41-50, it's approximately goes with the resent study in Najaf governorate; Adenomyosis occurs in 15-20% of uteri and may be diffuse or focal. The pathogenesis of adenomyosis remains unclear. The presenting symptoms of adenomyosis overlap with those of other common gynecological disorders, uterine leiomyoma and endometriosis. There is also a slightly increased rate of endometrial carcinoma in patients with adenomyosis. There is no proven medical treatment for adenomyosis (12). Endometriosis is the presence and growth in the lining of the uterus in an aberrant or heterotopic location. The classic symptoms of endometriosis are cyclic pelvic pain and infertility. Endometrial hyperplasia is generally considered a precursor to endometrial cancer. The risk of endometrial cancer increases with dosage and duration of estrogen use. Progestin prevents the development of endometrial hyperplasia that is otherwise associated with unopposed estrogen use. The incidence of atypical or adenomatous endometrial hyperplasia decreases from 35% to 1% with progestin use. At least five studies have examined the effect of estrogen plus progestin therapy on endometrial cancer risk, and none found a significant increase. This absence of risk with progestin has been confirmed by the Women's Health Initiative (WHI) trial. Endometrial cancer is the fourth most common cancer in women and is the most common invasive gynecological cancer in U.S. women, with more than 40,000 new cases occurring in 2005(13).endometriosis and other condition such as bleeding and hormonal imbalance, Ovarian cysts and cancer, it approximately resemble the of many results about the Value national hysterectomy study (10). The ratio of benign condition is more than malignant condition .Only 10% of hysterectomy is performed for cancer its goes with study of center for disease control (14).The most common cancer is cervical cancer, called squamous cell carcinoma, among the over 50 years old but it can affect all age group. Cervical cancer is the sixth most common cancer in women in the UK. It can only be diagnosed through a biopsy of the cervix. The other major type after the cervical cancer it's the adenocarcinom (13) .The secondary types of cancer are uterine sarcoma, endometrial carcinoma, cancer of the ovaries or fallopian tubes (1).

The statistical analysis show the proportion of the (OR) are significant between women age 40-59 and non significant between women with other age groups. This proportion it goes with many studies (3) and (6).

Conclusions:

This study describes women who undergo hysterectomy in Najaf, and presents results on most common condition associated with age. From all study the conclusions summarized by:

1. Rates of hysterectomy differ by age.
2. The hitopathological diagnosis most often associated with hysterectomy was uterine leiomyoma (fibroid tumors), adenomyosis, endometriosis, bleeding & hormonal imbalance and uterine cancer.

Recommendation:

Hysterectomy rate it also differs by geographical region and the races so we recommend to study the cause of hysterectomy and its ratio in different region.

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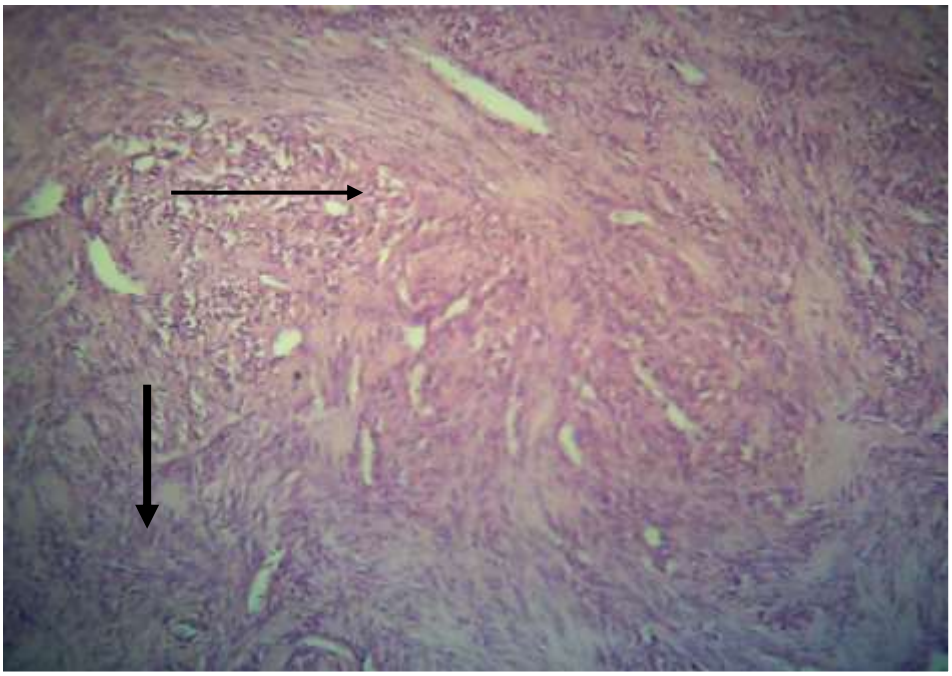

Figure (1)
Slide showed the leiomyoma of uterus H&E (100X)

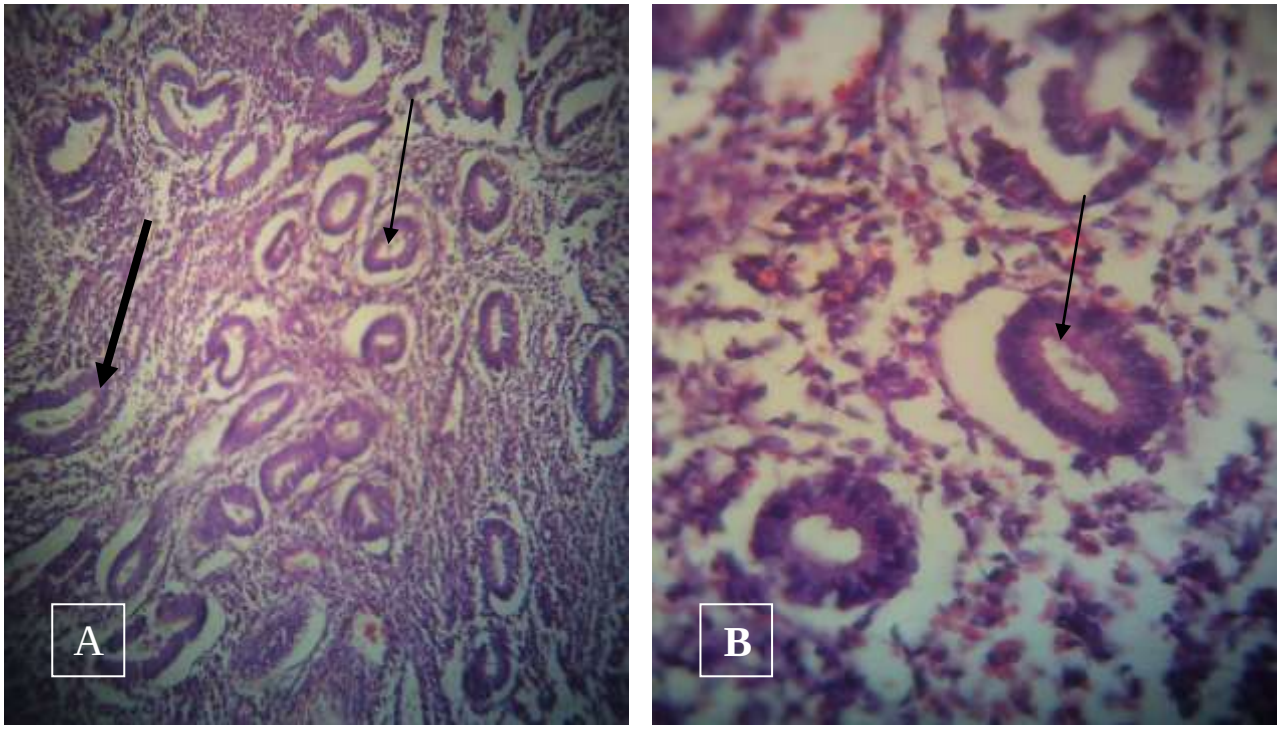

Figure (2)
Slide showed the Endomaterial hyperplasia of uterus H&E A (100X), B (400X)

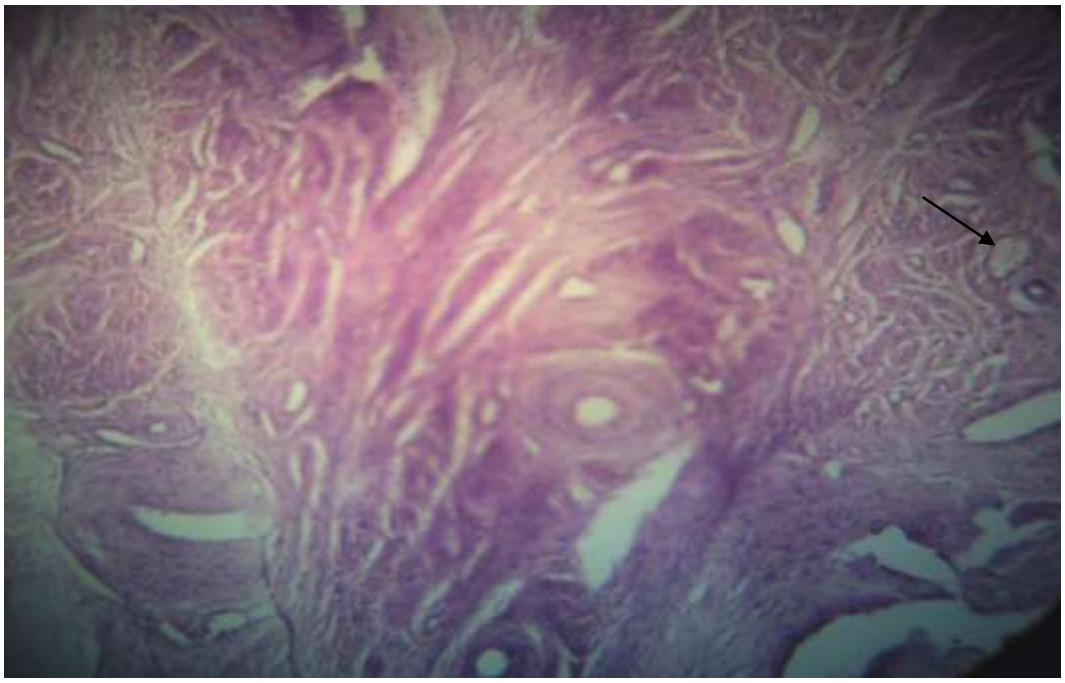

Figure (3)
Slide showed the Ovarian cysts (dermoid cyst) H&E (100X)

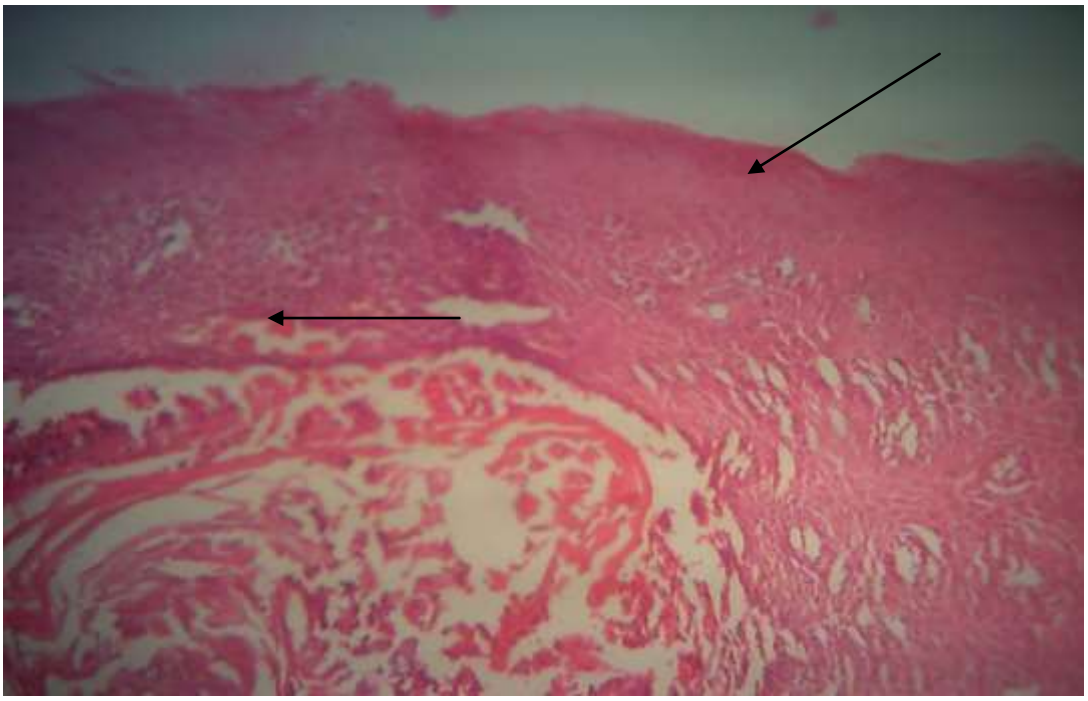

Figure (4)
Slide showed the Squamous cell carcinoma of cervix H&E (100X)