

Sudan University of Sciences and Technology
College of post-Graduate Studies

The Study of Female Pelvic Tumor Using
Computed Tomography (CT)

دراسة اورام الحوض لدى الاناث باستخدام الاشعة المقطعية

submitted for partial fulfillment of M.Sc. degree in Diagnostic Radiological
Technology

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الآية

بسم الله الرحمن الرحيم

((رب أوزعني أن أشكر نعمتك التي أنعمت علي وعلى والدي وأن أعمل صالحا ترضاه وأدخلني برحمتك

في عبادك الصالحين))

صدق الله العظيم

سورة النمل: 19

Dedication

this thesis is dedicated with love and appreciation

to

First of all to my father for earning an honest living for us and taught me to trust

in allah , believe in hard work and that so much could be done with little .

and my mother for being my first teacher and for being in my life .

to my beloved family and friends for ongoing support during the period of preparation for this project and encouraging me to believe in myself .

to my wife for supporting and believing in me.

Acknowledgement

For all who help and support me and always standing by me in hard time during this work .

I would like to express my deepest gratitude to my supervisor Dr. Hussein Ahmed Hassan for his useful comments , advices , support , remark throughout this project .

Also I would like to extend my thanks to my friend Khalid Mahmoud for help me in computerized analysis of data and get the results .

Thanks you , every one !

Abstract

The study aimed to determine the accuracy of computed tomography in characterize the female pelvic tumors.

This study was expanded from March 2015 to October 2015, in Yastabshiroon hospital samples of 100 female patients, their ages range from 2 to 82 years, were chosen for CT Abdomen and Pelvis.

CT Abdomen and Pelvis was obtained for the entire subject and the location, shape and computed tomography (CT) number were measure from computer and final diagnosis were taken from radiologist report

Scanning was done using Toshiba (16slices) machine with slice thickness 5-10 mm, collimation of 0.8*16 mm, 120 kvp, and mAs 150 mill ampere.

The result showed, the female within age group (42-52) were more affected group with pelvic tumors while the group of (2-12) were least affected one.

also the result show that the most affected organ is the ovary (54%) especially the right one and the least affected organ is the cervix (3%).

The research concludes that the MDCT is effective modality regarding female pelvic tumor study and provide a variety of information about tumor behavior.

ملخص الدراسة

- الهدف من هذا الدراسة هو معرفة خصائص الأشعة المقطعية في اكتشاف أورام الحوض لدى النساء.
- أجريت هذه الدراسة في مستشفى فيسيتبشر ونفيالفترة من مارس 2015 إلى أكتوبر 2015.
- عينة من 100 مريضة وكان عمر المرضي تراوح 2-82 سنة وتم عمل لصور المقطعية لكل المرضي ثم الحصول على طول وعرض ومساحه ورقم الاشعه المقطعية للورم , وتم قياسه بالكمبيوتر كما تم أخذ التشخيص النهائي من تقرير اخصائي الاشعه .
- تم استخدام جهاز أشعة مقطعية 16 شريحة بسمك شريحة 8 ملو محدد 0.8*16 ملو 120 كيلو فولتو 150 مللي أمبير.
- النتائج أظهرت أن النساء في المرحلة العمرية (42-52) سنة الأكثر إصابة بأورام الحوض بينما ما الفئتين (2-12) هي الأقل إصابة .
- كما أظهرت النتائج أن أكثر الأعضاء الحوضية لدى النساء إصابة هو المبيض بنسبة (54%) وبالأخص المبيض اليمين بنسبه (33%) بينما أقلها إصابة كان عنق الرحم بنسبة (3%).
- خلصت الدراسة الى ان اجهزة الاشعه المقطعية متعددة الكواشف (MDCT) ذات فعالية في دراسه أورام الحوض لدى الاناث وتعطي مجموعه من المعلومات الدقيقه عن سلوك الورم.

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Chapter one

1.1 Introduction:

The female pelvis tumors are widely spread and are named primarily for the types of cells from which they develop. Because the female reproductive system is a very complex collection of tissues, some of them unique in the human body.(baymoon .com).

The pelvic tumor (a growth of the ovary or other tissues in the pelvis) is a common diagnosis affecting women of all ages. The human ovary can develop a large variety of tumors, most of which are not dangerous but as patients go beyond their childbearing years, there is a greater likelihood that an ovarian tumor may be the sign of cancer. Ovarian cancer is the most deadly cancer of the female reproductive system..(baymoon .com).

The gynecological tumors are either Benign Tumors which are by definition, not malignant (not cancerous) or Tumors of Low Malignant Potential This is a class of ovarian tumors that are, as the name implies, not likely to invade and spread or Malignant Tumors (Cancer) that The female reproductive system contains perhaps a greater variety of malignant tumors than any other in the human body. The most common category of gynecologic cancer is Carcinomas, which come from epithelial cells. Epithelial tissue provides the linings and coverings in our body. Common types of gynecological carcinomas are Squamous Cell Carcinoma, Adenocarcinoma and Malignant Melanoma..(baymoon .com).

Colon cancer is cancer of the large intestine (colon), the lower part of digestive system. Rectal cancer is cancer of the last several inches of the colon. Together, they're often referred to as colorectal cancers. Most cases of colon cancer begin as small, noncancerous (benign) clumps of cells called adenomatous polyps. Over time some of these polyps become colon cancers.

Computed Tomography or CT (also known as Computerized Axial Tomography or CAT scan) is a medical imaging procedure that uses x-rays and a computer to produce cross sectional images or 'slices' of the body. The image is created by a computer ,the computer calculates tissue absorption and produces are presentation of the tissues that demonstrate the densities of the various structures. CT scan of the pelvis is an imaging method that uses x-rays to create cross-sectional pictures of the structures inside and near the pelvis. These include the bladder, prostate and other reproductive organs, lymph nodes, and pelvic bones. A CT scan shows detailed images of any part of the body, including the bones, muscles, fat, and organs. CT scans are more detailed than standard x-rays. (muschealth.com)

In standard x-rays, a beam of energy is aimed at the body part being studied. A plate behind the body part captures the variations of the energy beam after it passes through skin, bone, muscle, and other tissue. While much information can be obtained from a standard x-ray, a lot of detail about internal organs and other structures is not available. (muschealth.com)

In computed tomography, the x-ray beam moves in a circle around the body. This allows many different views of the same organ or structure. The x-ray information is sent to a computer that interprets the x-ray data and displays it in a two-dimensional (2D) form on a monitor. (muschealth.com)

CT scans may be done with or without “contrast.” Contrast refers to a substance taken by mouth or injected into an intravenous (IV) line that causes the particular organ or tissue under study to be seen more clearly, in contrast administration the patient need to be fast for a certain period of time before the procedure. (muschealth.com)

1.2 Problem of the study:-

The female pelvis tumors are normally diagnosed by U/S, but CT scan done to answer some clinical questions or to identify the texture of lesion (like in over weighted patient).

1.3 Objectives:-

1.3.1 General objective :-

The purpose of this research is to study common female pelvic tumors using MDCT.

1.3.2 Specific objectives :-

- 1- To show the role of CT in diagnosing female pelvic tumors.
- 2- To show age group among female that most affected by pelvic tumor.
- 3- To identify the most common tumor in the female pelvis.
- 4- to show the most affected organ in female pelvis .

chapter two

background and literature Review

2.1Anatomy :

2.1.1 Ovary :

The ovary is a ductless reproductive gland in which the female reproductive cells are produced. Females have a pair of ovaries, held by a membrane beside the uterus on each side of the lower abdomen. The ovary is needed in reproduction since it is responsible for producing the female reproductive cells, or ova.(balenetal 2004)

During ovulation, a follicle (a small cavity in the ovary) expels an egg under the stimulation of gonadotropic hormones released by the pituitary gland, the luteinizing hormone and the follicle-stimulating hormone. The rest of the follicle, or the corpus luteum, secretes the sex hormones estrogen and progesterone, which regulate menstruation and control the development of the sex organs. The sex hormones and the gonadotropic hormones interact with each other to control the menstrual cycle..(balenetal 2004)

When an egg matures, it is released and passes into the fallopian tube toward the uterus. If the ovum is fertilized by the male reproductive cell, or sperm, conception happens and pregnancy begins. An ovary is normally firm and smooth and is about the size of an almond. Among the various reproductive tract cancers, ovarian cancer is the leading cause of death in women..(balenetal 2004)

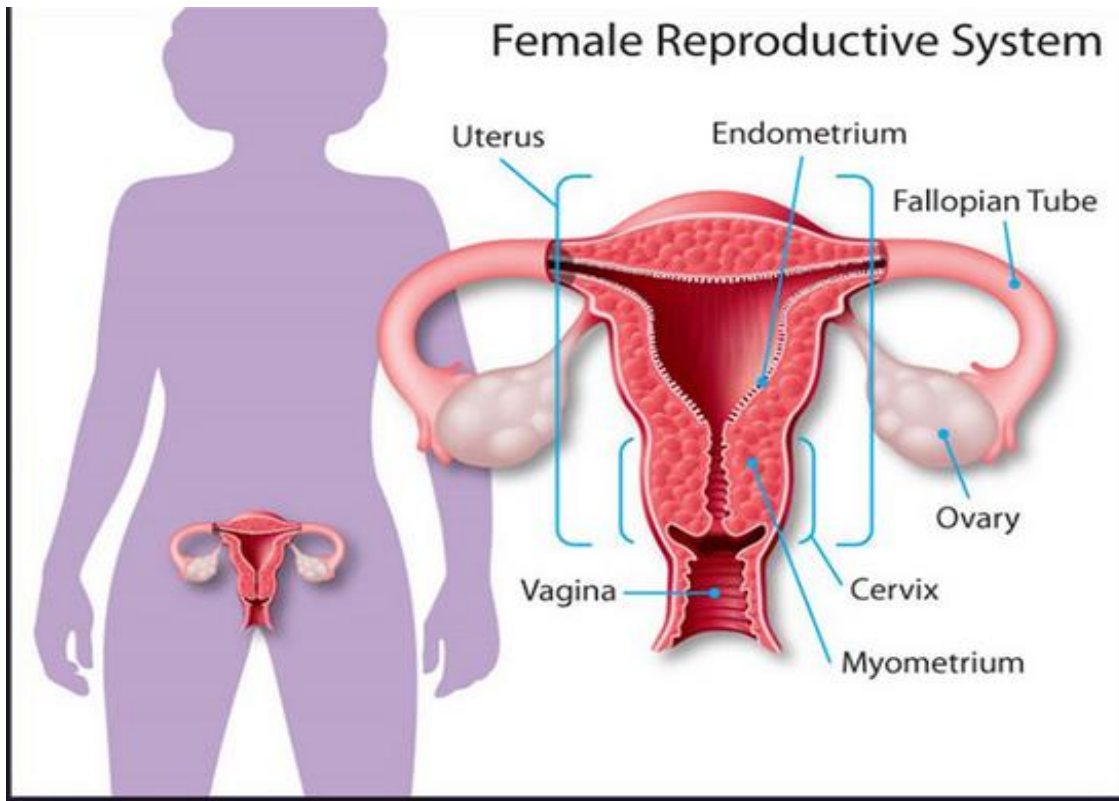


figure (2-1) female reproductive system.(balenetal 2004)

2.1.2 Uterus :

The uterus is a thick-walled, muscular organ situated in the pelvis between the urinary bladder and the rectum (Figs 2.2). It lies posterior to the bladder and uterovesical space and anterior to the rectum and recto-uterine pouch: it is mobile, which means that its position varies with distension of the bladder and rectum. The broad ligaments are lateral.

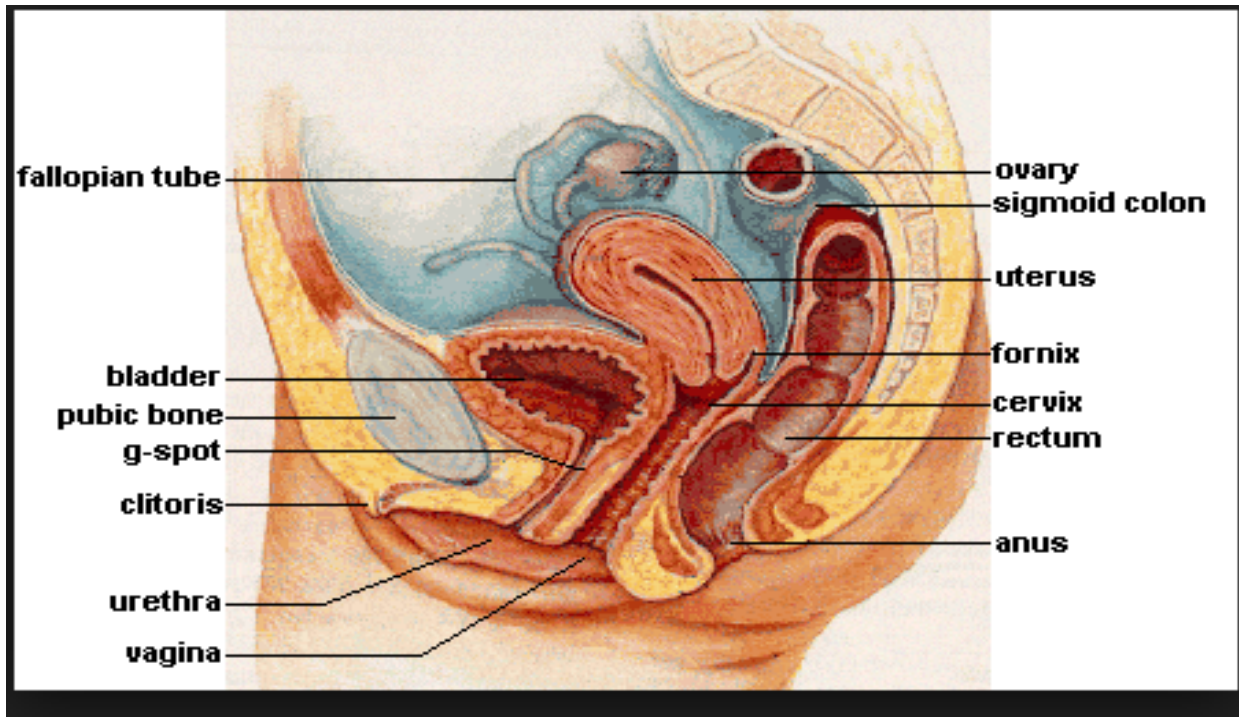


Figure (2.2): anatomical relation of uterus..(balenetal 2004)

The uterus is divided into two main regions: the body of the uterus (corpus uteri) forms the upper two-thirds, and the cervix (cervix uteri) forms the lower third. In the adult nulliparous state the cervix tilts forwards relative to the axis of the vagina (anteversion), and the body of the uterus tilts forward relative to the cervix (anteflexion) (Fig. 2.3). In 10 to 15% of women the whole uterus leans backwards at an angle to the vagina and is said to be retroverted. A uterus that angles backwards on the cervix is described as retroflexed..(balenetal 2004)

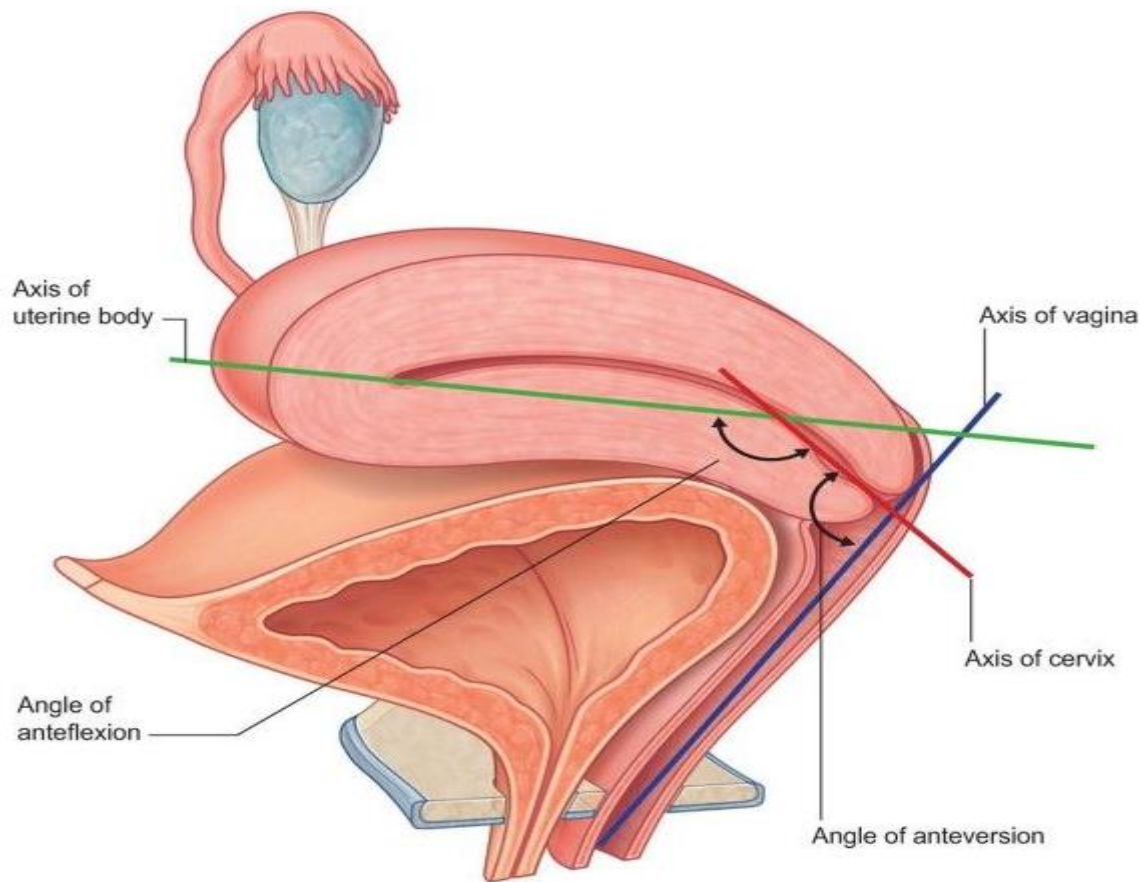


Figure (2.3) angles and axis between the vagina and uterus..(balenetal 2004)

2.1.2.1 Body :

The body of the uterus is pear shaped and extends from the fundus superiorly to the cervix inferiorly. Near its upper end, the uterine tubes enter the uterus on both sides at the uterine cornua. Inferoanterior to each cornu is the round ligament and inferoposterior is the ovarian ligament. The dome-like fundus is superior to the entry points of the uterine tubes and covered by peritoneum which is continuous with that of neighbouring surfaces. The fundus is in contact with coils of small intestine and occasionally by distended sigmoid colon. The lateral margins of the body are convex, and on each side their peritoneum is reflected laterally to form the broad ligament, which extends as a flat sheet to the pelvic wall. The anterior

surface of the uterine body is covered by peritoneum which is reflected onto the bladder at the uterovesical fold. (balenetal 2004)

This normally occurs at the level of the internal os, the most inferior margin of the body of the uterus. The vesico-uterine pouch between the bladder and uterus is obliterated when the bladder is distended, but may be occupied by small intestine when the bladder is empty. The posterior surface of the uterus is convex transversely. Its peritoneal covering continues down to the cervix and upper vagina and is then reflected back to the rectum along the surface of the recto-uterine pouch (of Douglas), which lies posterior to the uterus (Fig. 2.4). The sigmoid colon and occasionally the terminal ileum lie posterior to the uterus..(balenetal 2004)

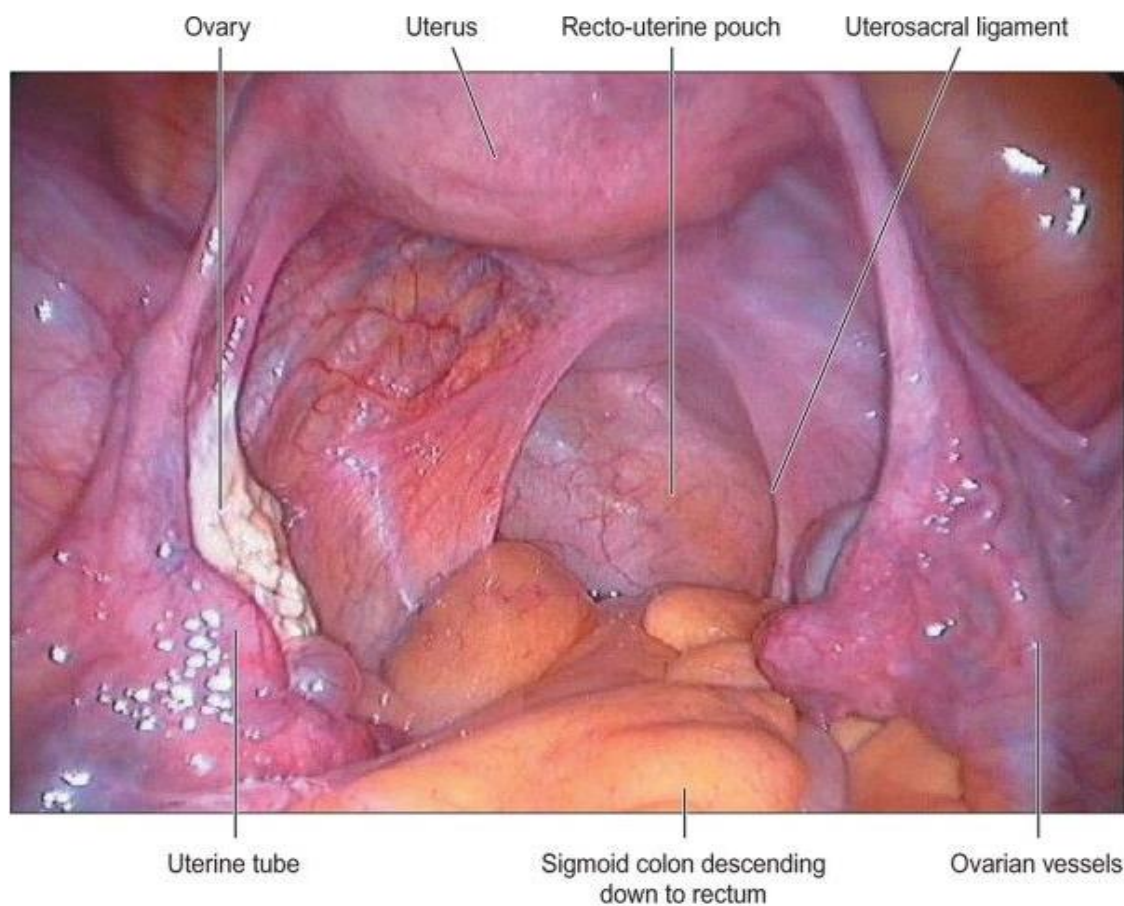


Figure (2.4): endoscopic view represent different structures in a female pelvis..(balenetal 2004)

2.1.2.2 Cervix:

The adult, non-pregnant cervix is narrower and more cylindrical than the body of the uterus and is typically 2.5 cm long. The upper end communicates with the uterine body via the internal os and the lower end opens into the vagina at the external os. In nulliparous women, the external Os is usually a circular aperture, whereas after childbirth it is a transverse slit. Two longitudinal ridges, one each on its anterior and posterior walls, give off small oblique palmate folds that ascend laterally like the branches of a tree (arbor vitae uteri): the folds on opposing walls interdigitate to close the canal. The narrower isthmus forms the upper third of the cervix. Although unaffected in the first month of pregnancy, it is gradually taken up into the uterine body during the second month to form the 'lower uterine segment. In non-pregnant women the isthmus undergoes menstrual changes, although these are less pronounced than those occurring in the uterine body. The external end of the cervix enters the upper end of the vagina, thereby dividing the cervix into supravaginal and vaginal parts. The supravaginal part is separated anteriorly from the bladder by cellular connective tissue, the parametrium, which also passes to the sides of the cervix and laterally between the two layers of the broad ligaments..(balenetal 2004)

2.1.2.3 The Uterine Tubes :

The uterine tubes also called fallopian tubes or oviducts, form the initial part of the female duct system (Figures 2.5). They receive the ovulated oocyte and are the site where fertilization generally occurs. Each uterine tube is about 10 cm (4 inches) long and extends medially from the region of an ovary to empty into the

superolateral region of the uterus via a constricted region called the isthmus . The distal end of each uterine tube expands as it curves around the ovary, forming the ampulla; fertilization usually occurs in this region. The ampulla ends in the infundibulum, an open, funnel-shaped structure bearing ciliated, fingerlike projections called fimbriae that drape over the ovary. Unlike the male duct system, which is continuous with the tubules of the testes, the uterine tubes have little or no actual contact with the ovaries..(balenetal 2004)

An ovulated oocyte is cast into the peritoneal cavity, and many oocytes are lost there. However, the uterine tube performs complex movements to capture oocytes— it bends to drape over the ovary while the fimbriae stiffen and sweep the ovarian surface. The beating cilia on the fimbriae then create currents in the peritoneal fluid that tend to carry an oocyte into the uterine tube, where it begins its journey toward the uterus..(balenetal 2004)

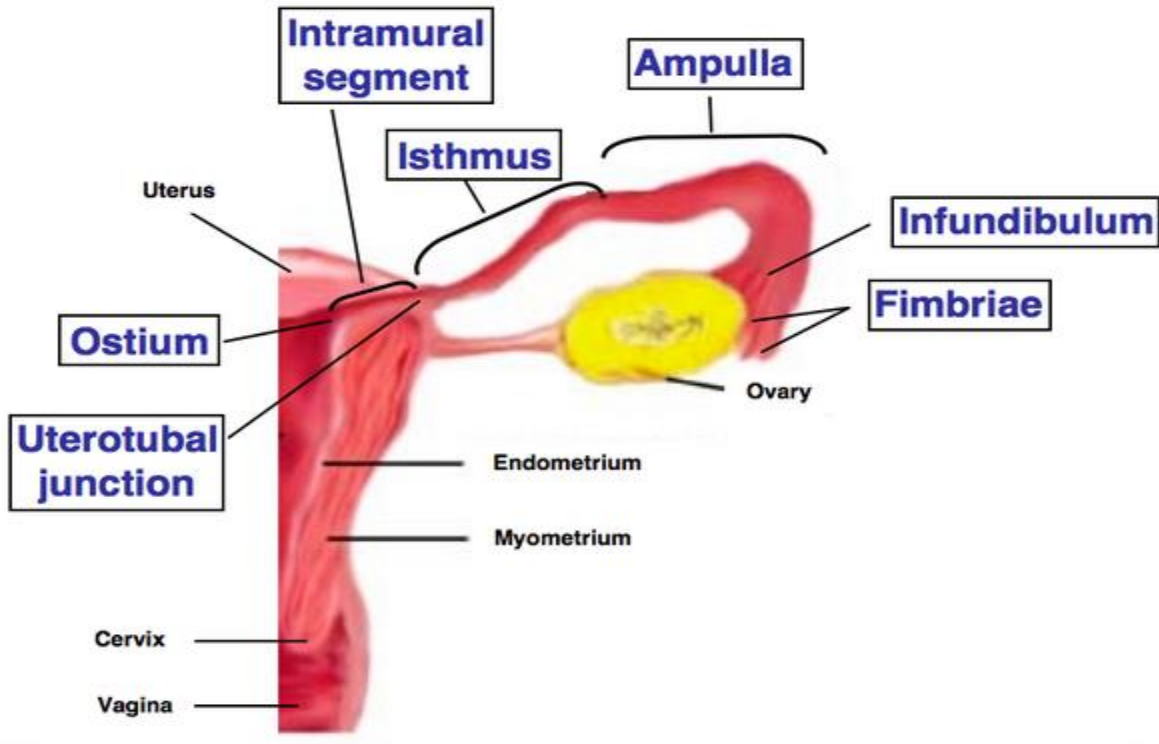


Figure (2.5): anatomical diagram represent uterine tubes..(balenetal 2004)

2.1.3 Vagina:

The vagina is a thin-walled tube, 8–10 cm (3–4 inches) long. It lies between the bladder and the rectum and extends from the cervix to the body exterior. The urethra is embedded in its anterior wall. Often called the birth canal, the vagina provides a passageway for delivery of an infant and for menstrual flow. Since it receives the penis (and semen) during sexual intercourse, it is the female organ of copulation..(balenetal 2004)

2.1.4 Urinary Bladder :

The urinary bladder is a smooth, collapsible, muscular sac that stores urine temporarily. It is located retroperitoneally on the pelvic floor just posterior to the pubic symphysis. The prostate (part of the male reproductive system) surrounds the bladder neck inferiorly where it empties into the urethra. In females, the bladder is anterior to the vagina and uterus. The interior of the bladder has openings for both ureters and the urethra (Figure 2.6). The smooth, triangular region of the bladder base outlined by these three openings is the trigone, important clinically because infections tend to persist in this region..(balenetal 2004)

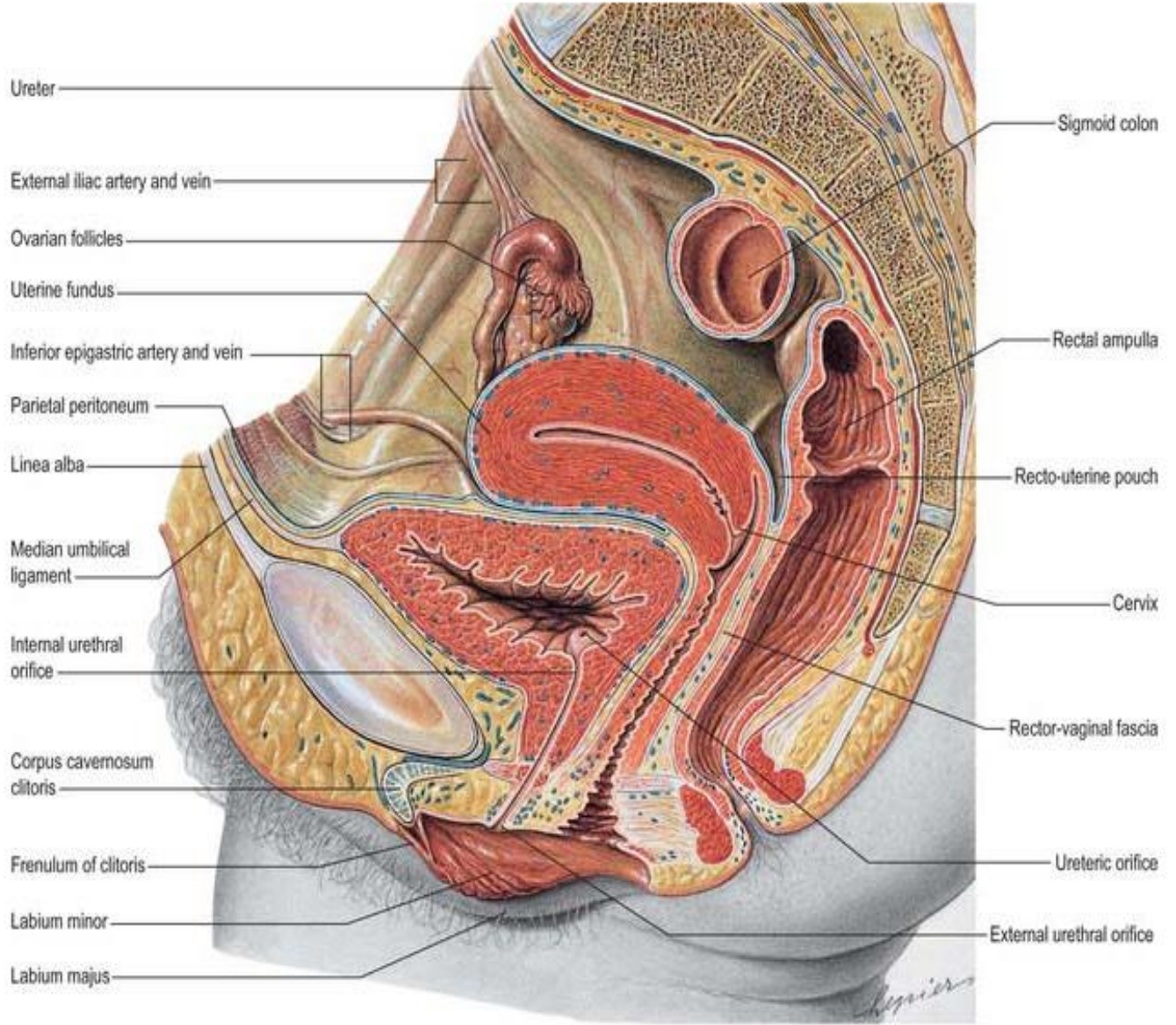


Figure (2.6): relation of urinary bladder..(balenetal 2004)

2.1.5 SIGMOID COLON:

The sigmoid colon begins below the pelvic inlet and ends at the rectum. Characteristically it forms a mobile loop which normally lies in the lesser pelvis, but its length and form are the most variable of all colonic segments. It is usually completely invested in peritoneum and is attached to the lower posterior abdominal wall and the posterior wall of the false pelvis by the fan-shaped sigmoid mesocolon. The root of the sigmoid mesocolon has an inverted 'V' attachment to the posterior abdominal wall..(balenetal 2004)

The sigmoid colon initially descends over the iliac crest into the false pelvis but thereafter its position is extremely variable (fig 2.7).

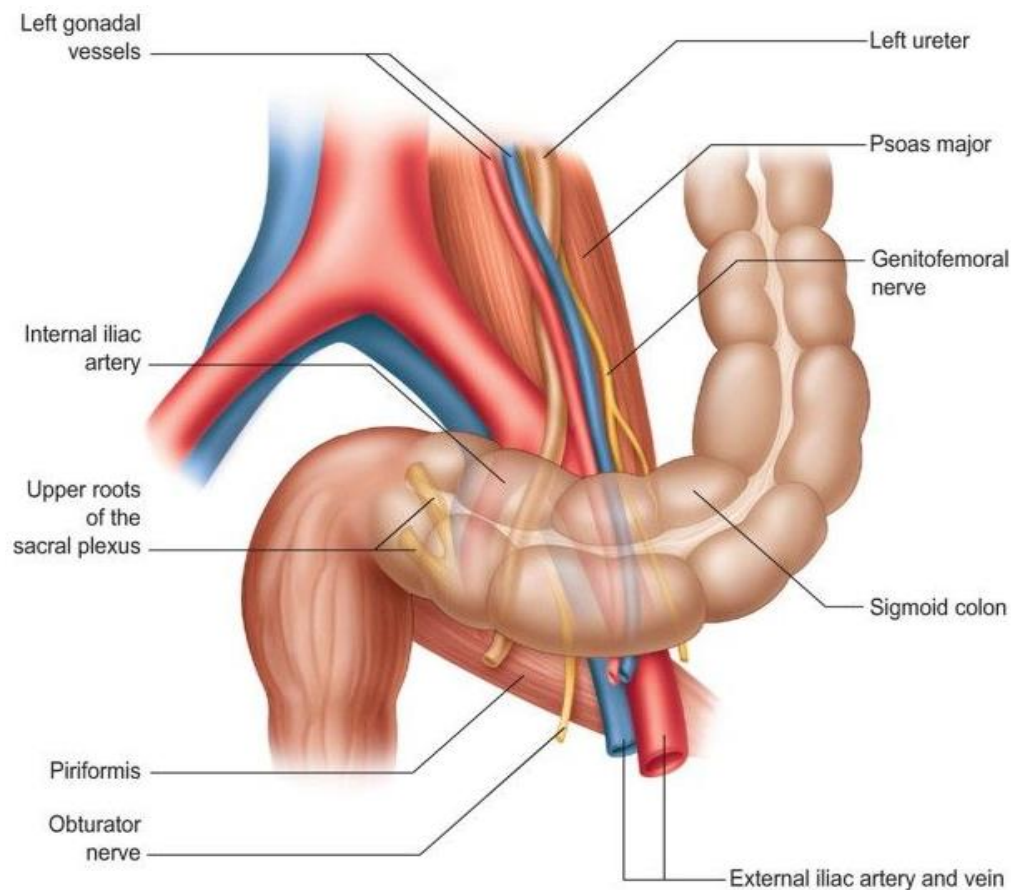


Figure (2.7): the sigmoid colon in relation with common iliac vessels..(balenetal 2004)

2.1.6 RECTUM :

The rectum is continuous with the sigmoid colon at the level of the third sacral vertebra and terminates at the upper end of the anal canal. It descends along the sacrococcygeal concavity as the sacral flexure of the rectum, initially inferoposteriorly and then inferoanteriorly, to join the anal canal by passing through the pelvic diaphragm. The anorectal junction is 2–3 cm in front of and slightly below the tip of the coccyx. From this level the anal canal passes inferiorly and posteriorly from the lower end of the rectum. The posterior bend is termed the perineal flexure of the rectum and the angle it forms with the upper anal canal is the anorectal angle. The rectum also deviates in three lateral curves: upper, convex to the right; middle (the most prominent), convex to the left; lower, convex to the right. Both ends of the rectum are in the median plane (Fig. 2.8)..(balenetal 2004)

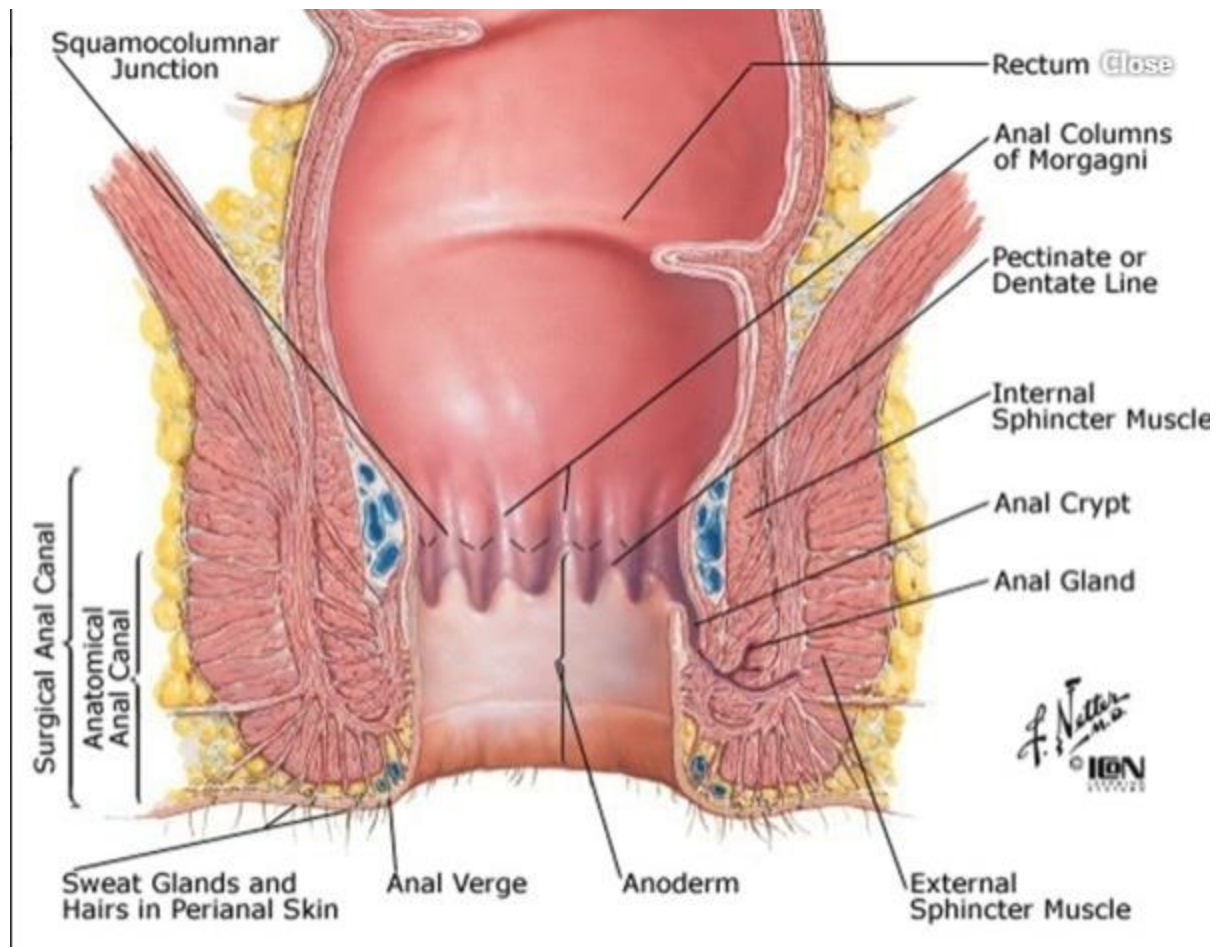


Figure (2.8): anatomical diagram of the rectum .(balenetal 2004)

2.2 physiological :

2.2.1 Ovarian Cycle:

From the time of birth, there are many primordial follicles under the ovarian capsule. Each contains an immature ovum (Figure 2.9). At the start of each cycle, several of these follicles enlarge, and a cavity forms around the ovum (antrum formation).(barrettetal 2010)

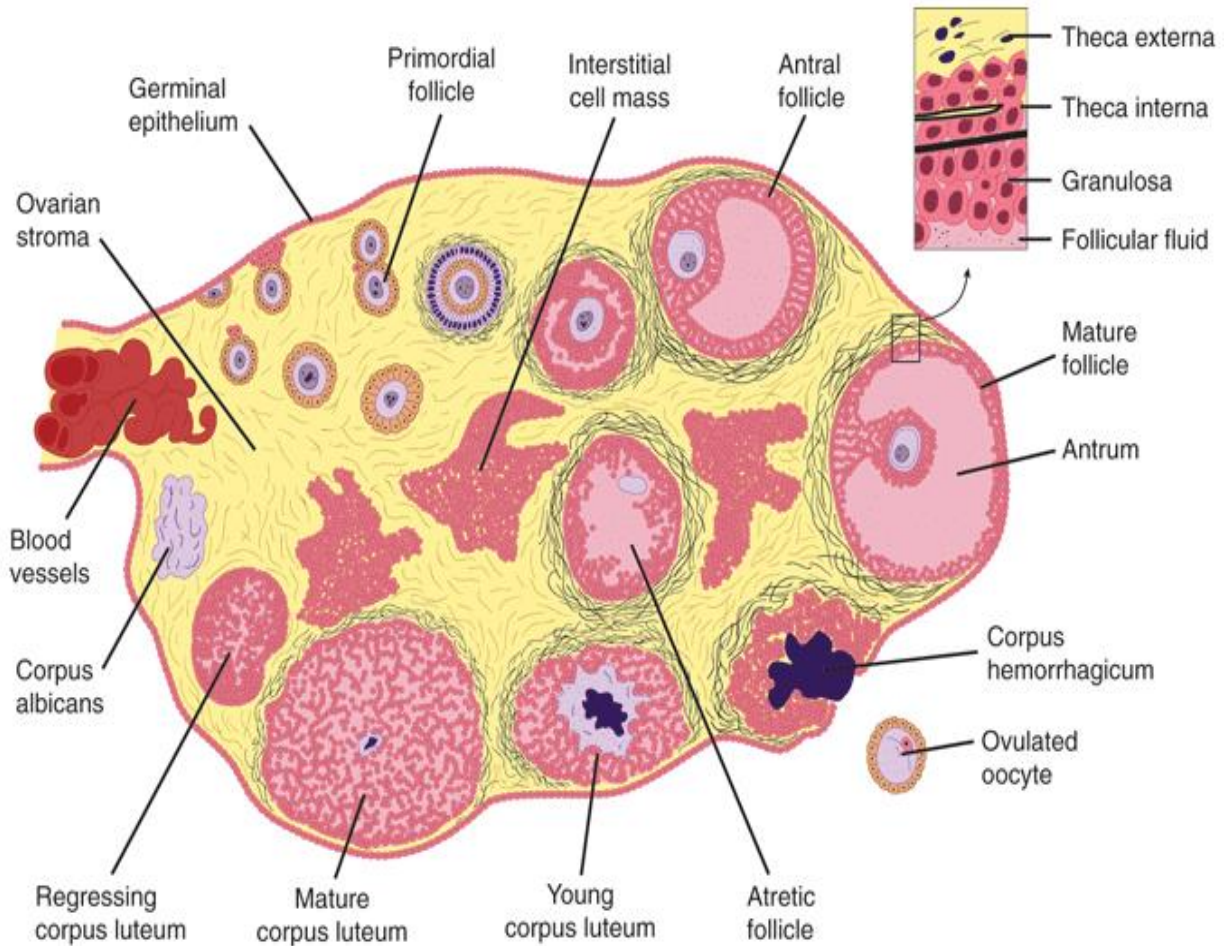


Figure (2.9): changes in follicles within ovarian cycle.(barrettetal 2010)

2.2.2 Uterine Cycle :

At the end of menstruation, all but the deep layers of the endometrium have sloughed. A new endometrium then regrows under the influence of estrogens from the developing follicle. The endometrium increases rapidly in thickness from the 5th to the 14th days of the menstrual cycle. As the thickness increases, the uterine glands are drawn out so that they lengthen (Figure 2.10), but they do not become convoluted or secrete to any degree.(barrettetal 2010)

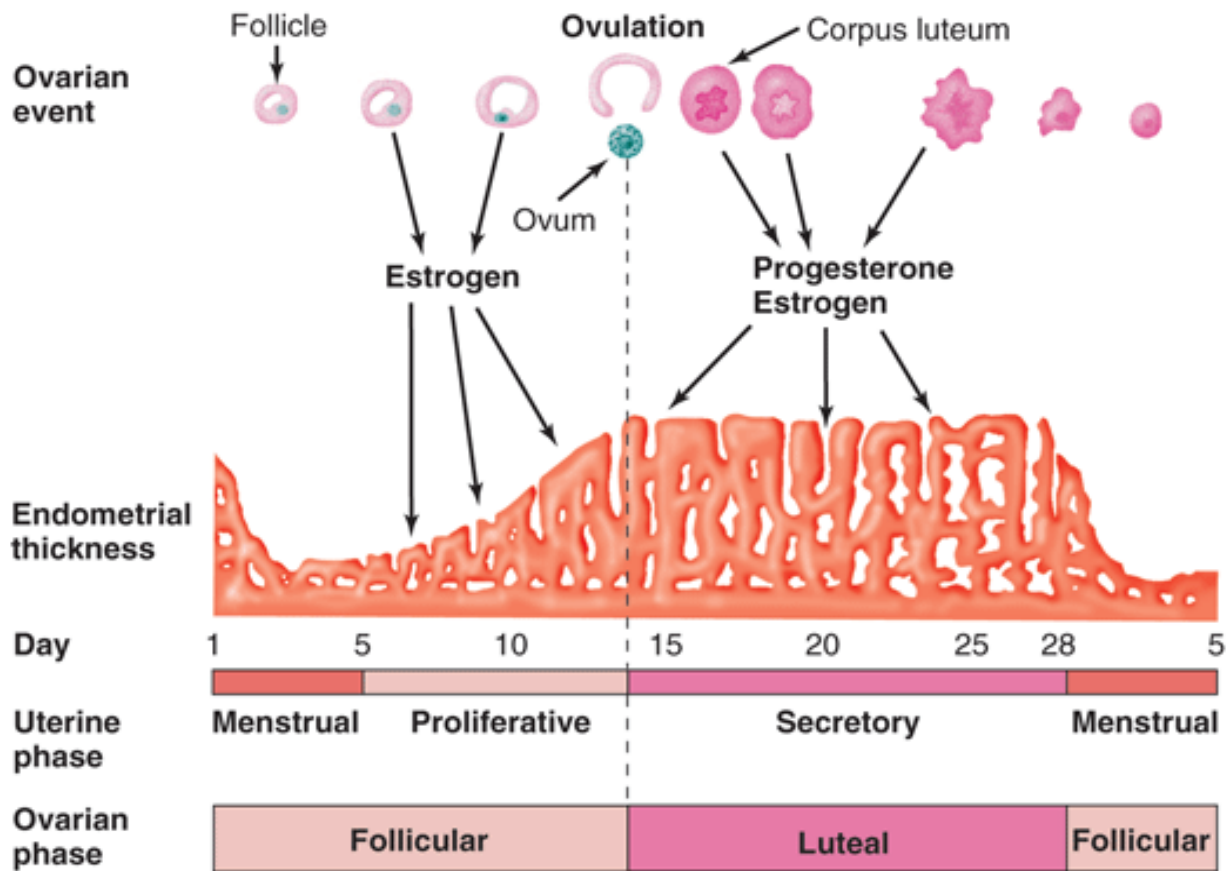


Figure (2.10): changes in endometrium during uterine cycle.(barrettetal 2010)

2.2.3 Micturition :

Micturition, also called urination or voiding, is the act of emptying the bladder. However, most of the time we are not micturating, but storing urine with the help of our storage reflexes. As urine accumulates, distension of the bladder walls activates stretch receptors there. Impulses from the activated receptors travel via visceral afferent fibers to the sacral region of the spinal cord, setting up spinal reflexes that increase sympathetic inhibition of the bladder detrusor muscle, which keeps the internal sphincter closed (temporarily), and stimulate contraction of the external urethral sphincter by activating pudendal motor fibers (Figure 2.11A&B).

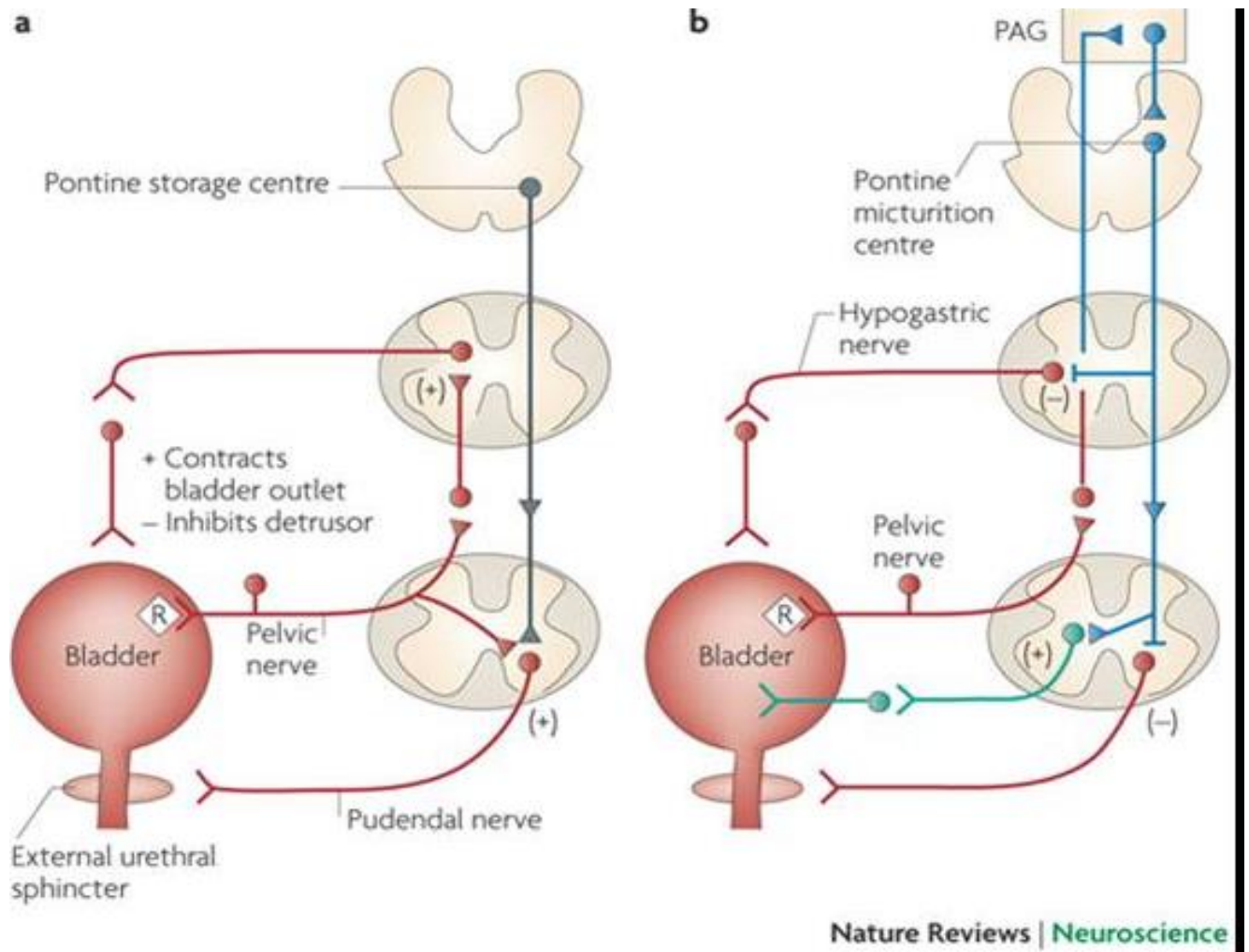


Figure (2.11A&B): neural control of the micturition.(barrettetal 2010)

2.2.4 Defecation:

The rectum is usually empty, but when feces are forced into it by mass movements, stretching of the rectal wall initiates the defecation reflex (Figure 2.12). This is a spinal cord–mediated parasympathetic reflex that causes the sigmoid colon and the rectum to contract, the internal anal sphincter to relax, and the external anal sphincter to contract (initially). As feces are forced into the anal canal, messages reach the brain allowing us to decide whether the external (voluntary) anal sphincter should be opened or remain constricted to stop feces passage temporarily. If defecation is delayed, the reflex contractions end within a few

seconds, and the rectal walls relax. With the next mass movement, the defecation reflex is initiated again—and so on, until one chooses to defecate or the urge to defecate becomes unavoidable. (barrettetal 2010)

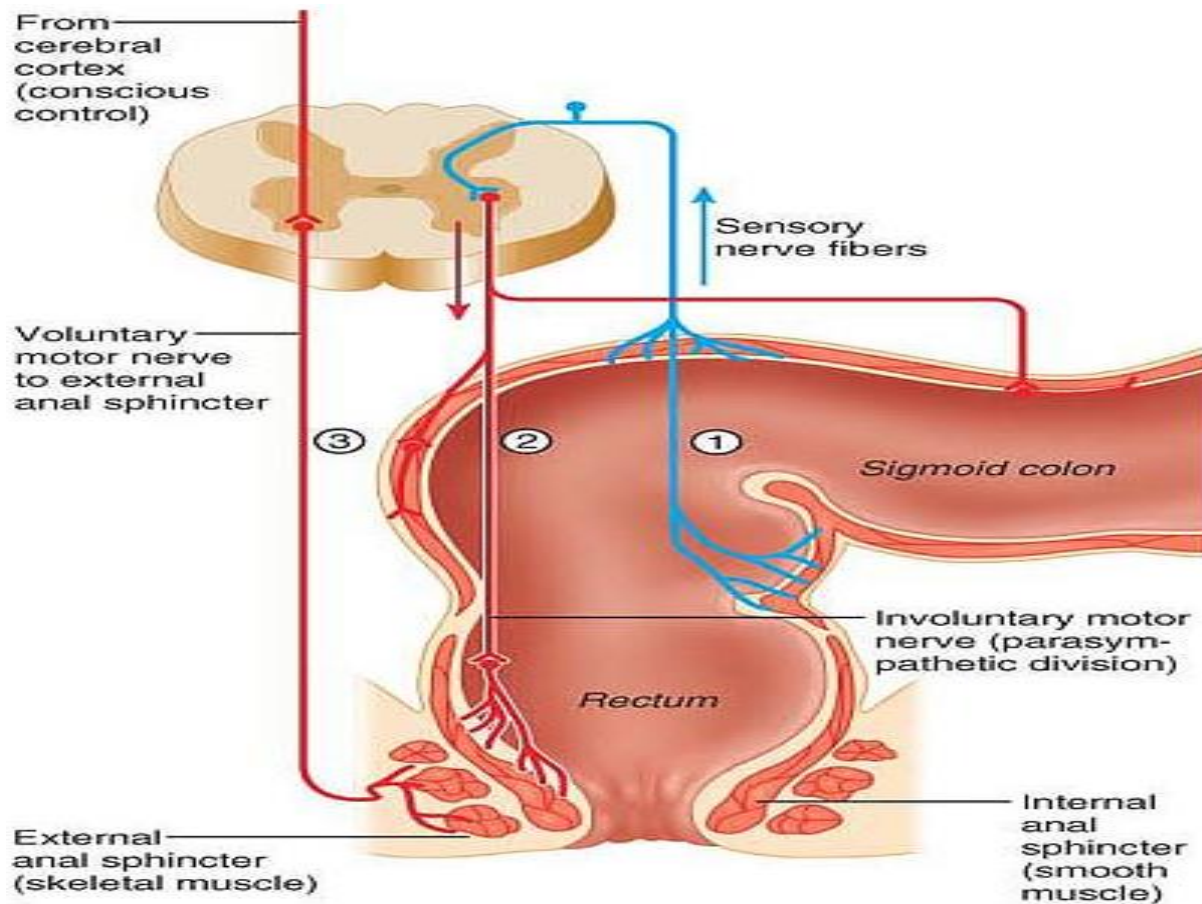


Figure (2.12): neural control of defecation.(barrettetal 2010)

2.3 Pathology :-

2.3.1 Neoplasms of the Ovaries :

Neoplasms of the ovary are relatively common; 75–80% are benign. Malignant ovarian neoplasms account for about 5% of all cancers in women (the fifth most common cancer in American women). Benign neoplasms occur in a younger age group (20–40 years) than malignant ones (40–60 years), but there is considerable overlap. The cause of ovarian neoplasms is unknown; risk factors are poorly defined.(Chandrasoma and Taylor 2006)

2.3.1.1 Classification :

Ovarian neoplasms are classified according to their histogenesis into neoplasms derived from the surface (celomic) epithelium, which are most common, germ cell neoplasms, stromal neoplasms, and metastases.

Ovarian neoplasms are often found incidentally during pelvic examination, radiography, or abdominal surgery. Large neoplasms may produce a sensation of heaviness or discomfort in the lower abdomen. Pressure on the bladder may cause frequency of micturition. Malignant neoplasms often remain silent until they have metastasized.

Hormone-secreting ovarian neoplasms present with manifestations of hormone excess. Estrogen-secreting granulosa-theca cell tumors cause endometrial hyperplasia and adenocarcinoma, leading to abnormal uterine bleeding. Androgen-secreting tumors cause virilization. Very rarely, thyroid tissue or neuroendocrine (carcinoid) elements in an ovarian teratoma lead to hyperthyroidism or carcinoid syndrome, respectively.(Chandrasoma and Taylor 2006)

2.3.1.1.1 Endometrioid Carcinoma :

Endometrioid carcinoma accounts for 20% of malignant ovarian neoplasms. Bilaterality is present in 40% of cases. It is defined by its microscopic resemblance to endometrial carcinoma. Associated endometriosis is found in about 25% of cases. In some cases concurrent endometrial carcinoma is present, raising the question of whether the ovarian neoplasm is metastatic or a second independent primary. Origin of some endometrioid carcinomas from endometriosis has been demonstrated, but the frequency with which this occurs is probably low; in most cases, the tumor is believed to represent endometrioid differentiation of a neoplasm derived from the celomic epithelium.(Chandrasoma and Taylor 2006)

Endometrioid carcinomas grossly appear as solid and cystic masses that frequently show areas of hemorrhage and necrosis. Microscopically, the cells resemble endometrial carcinoma . Squamous metaplasia is seen in 50% of cases.

Endometrioid carcinoma has the best prognosis among ovarian carcinomas, with a 5-year survival rate of 50%. Endometrioid tumors of low malignant potential (borderline endometrioid tumors) have been described but are rare..(Chandrasoma and Taylor 2006)

2.3.1.1.2 Gonadal Stromal Neoplasms :

Gonadal stromal neoplasms account for 5% of ovarian neoplasms. They are composed of variable mixtures of granulosa cells, theca cells, stromal fibroblasts, and cells resembling testicular Sertoli cells and Leydig cells.

2.3.1.1.3 Granulosa-Theca Cell Tumors :

Granulosa-theca cell tumors are derived from the follicular epithelium of the primordial follicles and account for 2% of ovarian neoplasms. They may occur at any age but are most frequently seen in postmenopausal women. A variant—juvenile granulosa cell tumor—occurs in young women. About 5% are bilateral.

Grossly, granulosa-theca cell tumors are solid yellowish fleshy masses that frequently show extensive hemorrhage and cystic change. Microscopically, they are composed of a variable mixture of granulosa and theca cells. The granulosa cells appear as small, uniform cells arranged in solid masses with a follicular or trabecular pattern; the formation of small spaces filled with eosinophilic fluid, recapitulating the normal structure of the graafian follicle (Call-Exner bodies), is characteristic. The more elongated theca cells tend to surround the granulosa cell masses.

Granulosa-theca cell tumors typically secrete estrogens, which produce hyperplasia of the endometrium and predispose to endometrial adenocarcinoma. Abnormal uterine bleeding is the most common mode of presentation.(Chandrasoma and Taylor 2006)

2.3.1.1.4 Fibroma (Fibrothecoma) :

Ovarian fibromas are benign neoplasms that arise in the ovarian mesenchymalstroma. They account for 3% of ovarian neoplasms and occasionally (5%) are bilateral. Fibromas are most often seen in postmenopausal women.

Grossly, fibromas form encapsulated white masses, usually less than 20 cm in diameter. Tumors that have a significant theca cell component are yellow. Microscopically, they are composed of fibroblasts and interspersed theca cells. Approximately 20% are associated with marked ascites, and a small proportion also show pleural effusions (Meigs' syndrome).(Chandrasoma and Taylor 2006)

2.3.1.1.5 Sertoli-Leydig Cell Tumor (Androblastoma; Arrhenoblastoma):

Sertoli-Leydig cell tumors are rare. They occur at all ages, most commonly in the 10- to 30-year age group. Less than 5% are bilateral.

Grossly, they are solid grayish-white neoplasms with areas of hemorrhage, necrosis, and cystic degeneration. Histologically, they are composed of large cells with abundant eosinophilic cytoplasm arranged in nests or tubules.

Sertoli-Leydig cell tumors commonly produce androgens and cause virilization. Rarely, they secrete estrogens. They resemble the corresponding testicular tumors. Most have a benign biologic behavior; the 5-year survival rate is 90%. Malignant behavior is associated with the less well-differentiated neoplasms.(Chandrasoma and Taylor 2006)

2.3.1.1.6 Metastatic Neoplasms :

The ovary is a common site for metastases, particularly in carcinoma of the endometrium, breast, stomach, and colon. Metastatic carcinoma causes solid enlargement of one or both ovaries, which may reach a large size. In some cases, differentiation from primary ovarian carcinoma can be difficult, particularly in undifferentiated carcinoma and metastatic colon and endometrial carcinoma, which resemble endometrioid carcinoma of the ovary.(Chandrasoma and Taylor 2006)

2.3.2 Neoplasms of the Uterine Tubes :

Neoplasms of the uterine tube are rare. The most common benign neoplasm is adenomatoid tumor, which arises in the mesothelial covering of the tube and is identical to its counterpart in the epididymis .

Carcinoma of the uterine tube is very rare. It resembles papillary serous cystadenocarcinoma of the ovary.(Chandrasoma and Taylor 2006)

2.3.3 Neoplasms of the Uterus :

2.3.3.1 Neoplasms of the Endometrium :

2.3.3.1.1 EndometrialadenoCarcinoma :

Endometrial adenocarcinoma is common, accounting for about 10% of cancers in women, and the incidence is increasing in many countries. Ninety percent of cases occur in postmenopausal women, the most common age being 55–65 years. The epidemiology of carcinoma of the endometrium is very different from that of carcinoma of the cervix. (Chandrasoma and Taylor 2006)

2.3.3.1.2 Mixed mesodermal tumor :

Mixed mesodermal tumor is a rare neoplasm that usually occurs in women over age 55. It is believed to originate from residual müllerian cells in the endometrium. Grossly, these tumors appear as bulky, fleshy masses that commonly fill the uterine cavity. They often show extensive necrosis and hemorrhage.

Microscopically, mixed mesodermal tumors are composed of a malignant epithelial component (usually an adenocarcinoma) and a malignant mesenchymal component (usually leiomyosarcoma; occasionally rhabdomyosarcoma, chondrosarcoma, or osteosarcoma). The mesenchymal elements are often poorly differentiated and show a high rate of mitotic figures. Extensive necrosis and hemorrhage are commonly present..(Chandrasoma and Taylor 2006)

2.3.3.1.3 Endometrial Stromal Neoplasms :

Several different types of endometrial stromal neoplasms have been described. All are rare. Firstly benign stromal nodule is a focal collection of stromal cells that appears as a circumscribed nodule. The cells resemble normal endometrial stromal

cells and have a very low rate of mitotic figures. Secondly Endolymphatic stromal myosis consists of collections of well-differentiated stromal cells lying between myometrial bundles or penetrating lymphatic spaces. Thirdly Stromal sarcoma is a malignant proliferation of stromal cells characterized by cytologic atypia and a high rate of mitotic figures. (Chandrasoma and Taylor 2006)

2.3.3.2 Neoplasms of the Myometrium :

2.3.3.2.1 Leiomyoma (Fibroid) :

Leiomyoma is a benign neoplasm of uterine smooth muscle. It is one of the most common neoplasms in females, being found in one of every four women in the reproductive years. Leiomyomas are responsible for 30% of gynecologic admissions to hospitals. (Chandrasoma and Taylor 2006)

Leiomyomas are most common between 20 and 40 years of age and tend to stop growing actively or to regress after menopause. Growth appears to be dependent on estrogens and may be rapid during pregnancy. (Chandrasoma and Taylor 2006)

Leiomyomas may be solitary or multiple and may be located anywhere in the uterine smooth muscle. They often reach large size. Grossly, leiomyomas are circumscribed, firm, grayish-white masses with a characteristic whorled appearance on cut section. Histologically, they are composed of a uniform proliferation of spindle-shaped smooth muscle cells. Cytologic atypia is sometimes present, particularly in areas of hyalinization, but mitotic figures are scarce. Collagen is present in varying amounts (hence fibroid). Leiomyomas are a common cause of excessive uterine bleeding (menorrhagia) and an important cause of infertility. However, most patients are asymptomatic. (Chandrasoma and Taylor 2006)

2.3.3.2.2 Leiomyosarcoma :

Leiomyosarcoma is a rare uterine neoplasm, accounting for 3% of uterine malignant neoplasms. It is nonetheless the most common uterine sarcoma. It arises from smooth muscle of the myometrium, usually de novo rather than from a preexisting leiomyoma. Leiomyosarcomas appear as bulky, fleshy masses that show hemorrhage and necrosis. Marked cytologic pleomorphism and atypia are usually present. The most important diagnostic criterion is a high rate of mitotic figures (over 10 mitoses per 10 high-power fields). Leiomyosarcoma is most common in older women, presenting as postmenopausal bleeding or a uterine mass. Local recurrence and hematogenous metastases are frequent. The 5-year survival rate is about 40%. (Chandrasoma and Taylor 2006)

2.3.3.2.3 Squamous Carcinoma :

Cervical squamous carcinoma is common, causing 7000 deaths annually in the United States. It ranks sixth as a cause of cancer deaths in women. The mortality rate from cervical carcinoma has been falling, partly due to early detection of premalignant epithelial dysplasia by routine cytologic screening of cervical smears (Pap smears); many cases are detected and treated in the preinvasive stage. (Chandrasoma and Taylor 2006)

Most cervical carcinomas arise in a stratified squamous epithelium that shows precancerous change. Dysplasia commonly involves the region of the squamocolumnar junction and the endocervical canal that has undergone squamous metaplasia. Dysplasia is recognized by the presence of cytologic abnormalities in a cervical (Pap) smear and confirmed by cervical biopsy. The cytologic changes include increased nuclear size, increased nuclear:cytoplasmic ratio, hyperchromatism, abnormal chromatin distribution, and nuclear membrane

abnormalities. The extent of these changes permits classification (in order of increasing severity) as mild, moderate, or severe dysplasia and carcinoma in situ. These cytologic changes on a Pap smear correlate accurately with the degree of abnormal maturation of the epithelium in a subsequent cervical biopsy specimen. In carcinoma in situ, biopsy reveals that maturation is totally lacking, and most of the cytologic changes of carcinoma are present except invasion through the basement membrane.(Chandrasoma and Taylor 2006)

Dysplasias are reversible lesions, but the more severe the degree of dysplasia the less the tendency to reverse. The time span for progression of dysplasia is variable. The median time for carcinoma to develop is 7 years for mild dysplasia and 1 year for severe dysplasia. This observation has led to the recommendation that routine cervical Pap smears should be performed in all women at least once every 3 years after two initial examinations 1 year apart have proved negative.(Chandrasoma and Taylor 2006)

Dysplasia affects cervical surface epithelium as well as extending down into endocervical glands (gland duct involvement). The significance of gland duct involvement is the same as that of dysplasia of the surface epithelium.(Chandrasoma and Taylor 2006)

Dysplasia and carcinoma in situ produce no symptoms. Changes in the mucosa on inspection are minimal, but some lesions may be recognized by means of the magnified image provided at colposcopy (eg, abnormal vascular pattern, thickening, and white coloration). Colposcopy and biopsy should be performed in all patients in whom dysplasia of any grade is found on routine cervical cytologic examination.(Chandrasoma and Taylor 2006)

2.3.3.2.4 Microinvasive Carcinoma (Stage IA) :

Microinvasive carcinoma of the cervix is defined as cervical carcinoma in which the total depth of invasion is less than 5 mm from the basement membrane.

Microinvasive carcinoma so defined is rarely associated with metastases, and local surgical excision is curative. It should be recognized that the submucosa of the cervix within this 5-mm zone below the basement membrane does contain lymphatics and blood vessels, and metastases are a hypothetical possibility. Nonetheless, the rarity of metastases is a statistical fact.(Chandrasoma and Taylor 2006)

2.3.3.2.5 Invasive Squamous Carcinoma (Stage IB) :

Invasive carcinoma is defined as carcinoma infiltrating to a depth of greater than 5 mm from the basement membrane. It occurs most frequently in the age group from 30 to 50 years. Invasive carcinoma may present grossly as an exophytic, fungating, necrotic mass, the most common appearance; as a malignant ulcer; or as a diffusely infiltrative lesion with only minimal surface ulceration or nodularity (uncommon).(Chandrasoma and Taylor 2006)

Invasive cervical carcinoma is manifested as abnormal uterine bleeding or vaginal discharge. Obstruction of the cervical canal may cause blood to accumulate in the uterine cavity and result in infection . Colposcopy permits direct visualization and biopsy to make a definitive histologic diagnosis. Cervical carcinoma is staged according to the degree of spread .(Chandrasoma and Taylor 2006)

Treatment is a combination of surgery and radiation therapy, depending on the extent of disease. The prognosis depends primarily on the clinical stage of the disease.

2.3.3.2.6 Endocervical Adenocarcinoma :

Endocervical adenocarcinoma accounts for 10–15% of cervical cancers. It arises in the endocervical glands, presenting as a mass in the endocervical canal. It frequently obstructs the endocervical canal, predisposing to pyometron.(Chandrasoma and Taylor 2006)

2.3.4 Neoplasms of the Bladder :

2.3.4.1 Urothelial Neoplasms :

Bladder cancer is fairly common, and it is responsible for about 3% of cancer deaths in the United States and Europe. The incidence is 40,000 per year in the United States and the death rate is 10,000 per year. The disease has a marked geographic variation. In Japan, the incidence is extremely low, while in Egypt it accounts for 40% of cancers (because of the high incidence of schistosomiasis).

The critical distinction in terms of behavior and treatment is between grade I or II (well-differentiated) and grade III (poorly differentiated) carcinomas. Grade III carcinomas are frequently associated with carcinoma in situ of the adjacent mucosa.(Chandrasoma and Taylor 2006)

Infiltration of the tumor must be assessed independently of histological grade. Infiltration of lamina propria, muscle wall, or blood vessels has adverse prognostic significance.(Chandrasoma and Taylor 2006)

2.3.4.2 Dysplasia and Carcinoma in Situ :

In high-grade bladder carcinomas, the urothelium is believed to progress through dysplasia to carcinoma in situ before it invades the basement membrane. Carcinoma in situ usually occurs in men over 40 years of age and causes no symptoms or gross changes in the bladder mucosa. Random bladder biopsy or cytological examination of urine is necessary for diagnosis. Microscopically, the epithelium shows disturbed maturation and cytological abnormalities such as an increased nuclear:cytoplasmic ratio, disturbed chromatin pattern, and hyperchromasia. Cytological examination of urine shows malignant transitional cells.(Chandrasoma and Taylor 2006)

Carcinoma in situ is frequently multifocal and may extend into the urethra and ureters. The prognosis is bad, with many patients developing high-grade invasive carcinoma.(Chandrasoma and Taylor 2006)

2.3.4.3 Carcinoma of the Colon & Rectum :

Colorectal carcinoma accounts for over 90% of malignant neoplasms of the intestine and is second only to lung cancer as a cause of cancer deaths—over 60,000 a year—when both sexes are considered together. Colorectal carcinoma is common in North America and Europe and uncommon in Asia, Africa, and South America. About 150,000 new cases occur every year in the United States.(Chandrasoma and Taylor 2006)

2.3.4.4 Carcinoma of the Anal Canal :

Anal canal carcinoma is rare but is seen with increasing frequency in anoreceptive male homosexuals. Sexual transmission of a virus—probably a papilloma virus—is strongly suspected of causing this neoplasm.

Pathologically, there is an infiltrative mass in the anal canal. The most common histologic type is squamous carcinoma. The less differentiated basaloid (or cloacogenic) carcinoma is a specific subtype believed to arise in the transitional zone at the anorectal junction. Clinically, patients present with rectal discomfort, discharge, bleeding, or a mass.(Chandrasoma and Taylor 2006)

2.4 Radiological Investigations:

2.4.1 Computed tomography (CT):

2.4.1.1 Introduction:

A CT scan makes use of computer-processed combinations of many X-ray images taken from different angles to produce cross-sectional (tomographic) images of specific areas of a scanned object, allowing the user to see inside the object without cutting. Digital geometry processing is used to generate a three-dimensional image of the inside of the object from a large series of two-dimensional radiographic images taken around a single axis of rotation. Medical imaging is the most common application of X-ray CT. Its cross-sectional images are used for diagnostic and therapeutic purposes in various medical disciplines. (wikipedia.com)

2.4.1.2 CT Scan of Abdomen and Pelvis With and Without Contrast :

the abdomen and pelvis contain the digestive organs as well as the urinary, endocrine, and reproductive systems.

A CT scan of this area may be done to look for abscesses, tumors, kidney stones, infections, or the cause of unexplained abdominal pain. the scan can also be used to monitor the progress of tumor treatment by measuring the growth or atrophy of the tumor. (healdove.com)

2.4.1.2.1 Indications :

Unexplained abdominal pain and tenderness, Nausea, vomiting, or severe or chronic diarrhea, Unexplained fever, Unexplained weight loss, Urinary problems, Bowel changes, Trauma to the spleen, liver, kidneys, or other internal organs, Screening for metastatic cancers.(healdove.com)

2.4.1.2.2 Contrast Used in a CT Scan :

The contrast makes it easier for the doctor to visualize different organs in the abdomen or pelvis. Contrast enhances the appearance of the specific organs, veins, or arteries the doctor wants to see. (healdove.com)

Contrast is also known as "contrast dye," is a substance that shows up very clearly on the scan. If you are scheduled for an abdominal and/or pelvic exam with contrast, patient will either drink an oral contrast, receive barium through a tube in the rectum, or have contrast injected intravenously (IV) . (healdove.com)

The oral contrast used in CT scans will be either a barium sulfate drink or an iodine-based drink. IV contrast is an iodine-based liquid that is injected during the exam into a vein or artificial port at a high flow rate. The contrast will then spread rapidly throughout all the vascular structures and organs in your body. (healdove.com)

2.4.1.2.2.1 Indication for contrast administration:

Aneurism, Tumors, Cysts, Cirrhosis, Impaired urine or blood flow, Appendicitis, Cholecystitis, Diverticulitis, Bowel Obstruction, Tumor, Cancer.

The doctor will consider patient age and health before ordering an exam with IV contrast.

When the contrast is injected, patient may feel heat or warmth in the back of his throat. This sensation may spread down to your pelvis, making the pateint feel as if he has wet himself. He may also get a metallic taste in your mouth.(healdove.com)

It is not always necessary to use contrast to see problems in the abdomen or pelvis. Contrast may actually obscure conditions or anatomy. so it's not needed when looking for renal calculi (kidney stones), the spine or bones of the pelvis, the intestines, when constipation is suspected or retroperitoneal hematoma (blood clot

behind the peritoneum). When a person comes to the emergency department complaining of abdominal pain, many doctors will first order a CT scan without contrast to rule out severe constipation or appendicitis.(healdove.com).

2.4.1.2.3 Techniques :

After checking in for patient exam will be asked to remove his/her shirt, pants, and any piercings that may interfere with the CT image. If patient is to receive IV contrast may have an IV needle inserted at this point.(healdove.com)

patient will then be taken to the CT exam room where will see the actual machine. It is large, with a donut-shaped gantry and a long table that will move in and out of the gantry. then patient will be asked to lie face up on the table with his head facing away from the gantry. The CT technician will explain what will happen and what patient may experience.(healdove.com)

the patient will be asked to rest his arms above his head, and then the table will be moved into position toward the gantry. patient will only advance as far as mid-chest; his head will still be outside the machine.(healdove.com)

The tech will leave the room and start the machine, which will make noise as the internal parts spin around you and the table. The machine will tell you to hold your breath as the table moves you out of the gantry. The machine will stop its backward movement, you will be told you can breathe again, and then the table will move you back to your original position in the gantry.(healdove.com)

There will be a delay as the technician makes adjustments in the control room. Depending on how the doctor ordered the exam and whether you need IV contrast, you will move in and out once or twice more.(healdove.com)

The table will move you out of the gantry and the tech will have you sit up. The IV needle, if any, will be removed and you will be reminded to drink plenty of fluids if you have received oral or IV contrast.

If patient taking certain medicines, patient will be reminded not to take them for 48 hours. (healdove.com)

2.4.2 Abdominal and Pelvic Ultrasound :

A pelvic ultrasound is a noninvasive diagnostic exam that produces images that are used to assess organs and structures within the female pelvis. A pelvic ultrasound allows quick visualization of the female pelvic organs and structures including the uterus, cervix, vagina, fallopian tubes and ovaries.

Pelvic ultrasound may be performed using one or both of two methods
Transabdominal (through the abdomen)A transducer is placed on the abdomen using the conductive gel. orTransvaginal (through the vagina). A long, thin transducer is covered with the conducting gel and a plastic/latex sheath and is inserted into the vagina.

pelvic u/s can give much information about size, location but cannot provide definite diagnosis of cancer or specified disease.certain factor or condition may interfere with result of pelvic u/s which include severe obesity, barium within intestine from recent barium study or intestinal gases and inadequate filling of bladder (in transabdominal u/s).

2.4.3 Magnetic Resonance Imaging (MRI) of the pelvis :

Magnetic resonance (MR) imaging is a valuable technique for the non-invasive evaluation of the female pelvic region (for example diagnosing or staging developmental anomalies, leiomyomas, adenomyosis, vaginal neoplasms, endometrial or cervical carcinoma, ovarian cysts, endometriosis, teratomas or other ovarian masses). (www.webmed.com).

In some cases, contrast material may be used during the MRI scan to show certain structures more clearly in the pictures. The contrast material may be used to check blood flow, find some types of tumors, and show areas of inflammation or infection.(www.webmed.com).

There have been no documented side effects from radio waves and magnetism to date. Patients with Cardiac Pacemakers, tattoos and metal implants are contraindicated due to possible injury to patient or image distortion (artifact). Patient over 350 lb may be over table's weight limit. Any ferromagnetic object may cause trauma/burn. Anxiety, especially anxiety caused by claustrophobia, is common, as is tiredness or annoyance over having to stay still on a hard table for a long period of time. (www.webmed.com).

People who are claustrophobic or get nervous in enclosed spaces may feel uncomfortable in the machine so doctor may prescribe anti-anxiety medication or sedatives to help them to relax.(www.webmed.com).

Although MRI is a safe and valuable test for looking at structures and organs inside the body, it is more expensive than other imaging methods and may not be available in all medical centers. An MRI test usually takes 30 to 60 minutes but can take as long as 2 hours.

You may be able to have an MRI with an open machine that doesn't enclose your entire body. But open MRI machines aren't available everywhere. The pictures from an open MRI may not be as good as those from a standard MRI machine . (Chernecky CC, Berger BJ 2008).

Patients with Cardiac Pacemakers, tattoos and metal implants are contraindicated due to possible injury to patient or image distortion (artifact). Patient over 350 lb may be over table's weight limit. Any ferromagnetic object may cause trauma/burn. Anxiety, especially anxiety caused by claustrophobia, is common, as is tiredness or

annoyance over having to stay still on a hard table for a long period of time.
(diffin.com)

2.5 Previous studies:

A research conducted on Korea 2014 on 146 To compare the diagnostic performance and radiation dose between contrast-enhanced CT (ECT) alone, and combined unenhanced and contrast-enhanced CT (UE + ECT) for the assessment of adnexal mass retrospective study was. The result was the use of unenhanced CT scan in addition to contrast-enhanced CT scan does not improve the detection of adnexal malignancy, but increases radiation exposure. (Sung et al 2014).

Another study conducted in India on 37 patients with epithelial ovarian carcinoma were assessed with computed axial tomography scans of the abdomen and pelvis prior to undergoing a second look laparotomy. Computed axial tomography scan cannot detect small nodules often present in ovarian cancer, and thus even if a computed axial tomography scan is normal it should not exclude a second-look laparotomy. (Sandhu et al 1996).

On the other hand, study conducted on 138 patients revealed that Appropriateness Criteria for revealing cancer of gynecological tumors was rating as CT abdomen and pelvis with contrast 9/10. (Jefferson et al 2013)

Another study conducted in Pakistan 50 patients with adnexal masses admitted in Gynae MCH, General Surgery wards of PIMS, scheduled for surgery, were included, using histopathology as a gold standard.

And the result was Evaluation of adnexal masses whether benign or malignant on the basis of characterization there was not a significant difference between TAUS

and CT scan. TAUS is as accurate as CT scan in characterization of an ovarian mass.(Ahmedetal 2012).

Another study conducted in Iran revealed that to evaluate the diagnostic value of CT scan in pelvic masses in comparison with physical examination-ultrasound based on pathology of the lesion in patients undergoing laparotomic surgery. This analytic-descriptive study focused on age, sonographic findings, physical examinations,CT scan and pathological findings in 139 patients with pelvic mass, gathered with questionnaires and statistically analyzed using the SPSS software programme. ResultOf 139 patients with pelvic mass(patients aged from 17 to 75 years old), 62 (44%) cases were diagnosed as benign and 77(55.4%) as malignant; among them malignantratomaserocystadenocarcinoma with 33 (23.7%) cases and benign myoma with 21(15.2%) cases comprised the most frequent cases. The sensitivity and specificity of sonography-physical examination were 51.9% and 87.9% respectively and the sensitivity and specificity of CT scan images were 79.2% and 91.6% respectively.It was shown that CT scan images were more consistent with pathological findings in predicting appropriate surgical procedures than do sonography-physical examinations.

The sensitivity of CT scan is far higher than that of sonography-physical examination in the diagnosis of pelvic mass malignancy. (Dehghanietal 2011).

chapter three

Material and methods

3-1 Material :

3-1-1 Patient :

100 patients, with age ranging from(2->80) years old, females .underwent CT abdomen and pelvic to assess pelvic tumor , this study was done on February 2013 to August 2013, and the data were collected from Yastebshiroon hospital.

3-1-2 Machine used :

Toshiba 16 slices, the parameters which are used shown in the table below:

Table 3-1 parameters and machine are used

Parameter	Toshiba64 slices
Kvp	120
MAS	150
Slice thickness	5-10 mm
Beam collimation	0.8*16mm
Time per rotation	0.65/0.5mm

Table (3-1)parameters and machine are used

3-2 Methods :

3-2-1 Technique :

All Patient underwent CT scan for abdomen and pelvic with patients positioned insupine, head first, the arms were raised and placed behind the patients head(out of the scan plane), positioning was added by alignment lights, the median sagittal plane was perpendicular and the coronal plane is parallel to the scanner table top, the scanner table height was adjusted to ensure that the coronal plane alignment was at the level of mid axillary line. The patient was moved in to the scanner until the scan reference point was at the level of the xiphoid process. All images were done with contrast media . The scout view was obtained to include the diaphragm and pubis, with slice thickness (5-10)mm, without patient preparation and by using 120 KvP and (140-160)MAS, and then Trans axial images were taken during normal respiration.

- Slice thickness: was from (5 to 10mm)
- Scan time: was from (30 to 60 min)

3-2-2 image interpretation

All images were studied by two technologists and the following data were collected from CT images: location, size and CT number and shape .diagnosis were seen from the radiologist reports.

3-3 Data analysis

The collected data was analyzed statistically by SPSS.

chapter four

Result

Table (4-1) show the age group

Age group	Number
>2	1
2-12	2
12-22	2
22-32	10
32-42	15
42-52	26
52-62	16
62-72	15
72-82	7
<82	6

4.2 Tumor Locations :

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Right Ovary	33	33.0	33.0	33.0
Left Ovary	21	21.0	21.0	54.0
Uterus	23	23.0	23.0	77.0
Rectum	10	10.0	10.0	87.0
Bladder	4	4.0	4.0	91.0
Sigmiod Colon	6	6.0	6.0	97.0
Cervix	3	3.0	3.0	100.0
Total	100	100.0	100.0	

table (4.2) shows the tumor location

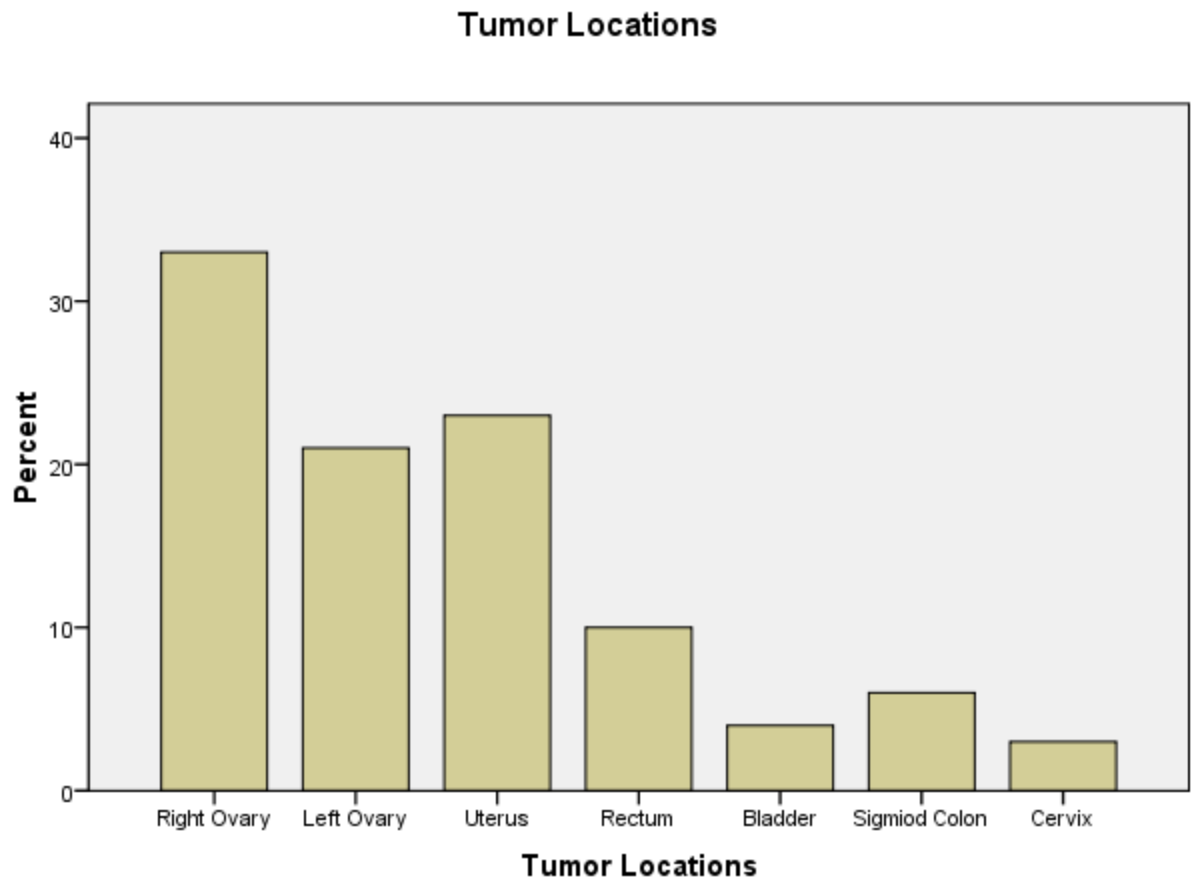


figure (4.2) shows the tumor location

4.3 the CT features of Tumors :

	Frequenc y	Percent	Valid Percent	Cumulative Percent
Valid Hetrogeniou s	85	85.0	85.0	85.0
Homogenio us	15	15.0	15.0	100.0
Total	100	100.0	100.0	

table (4.3) shows the CT No

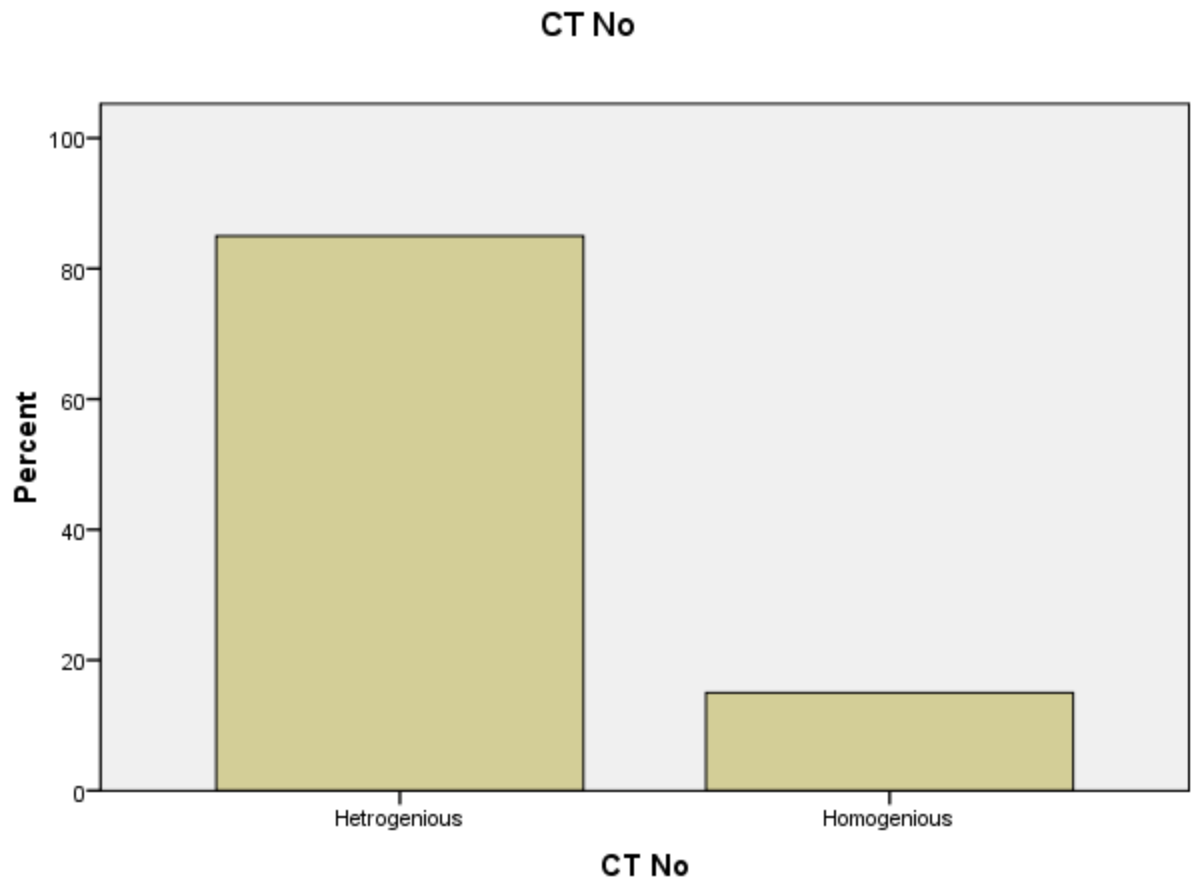


figure (4.3) shows the CT No

4.5 CT Final Diagnosis:

Table (4.5) show the CT Final Diagnosis

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Ca Ovary	26	26.0	26.0	26.0
	CaUteru	3	3.0	3.0	29.0
	Ca.Bladd	3	3.0	3.0	32.0
	CaCervix	3	3.0	3.0	35.0
	CaOvary	1	1.0	1.0	36.0
	CaRectum	10	10.0	10.0	46.0
	Casigmio	6	6.0	6.0	52.0
	CFibriod	5	5.0	5.0	57.0
	Cyctic T	2	2.0	2.0	59.0
	Cystic L	12	12.0	12.0	71.0
	Fibriod	12	12.0	12.0	83.0
	Mass	11	11.0	11.0	94.0
	O.Tertam	2	2.0	2.0	96.0
	R.MSoma	1	1.0	1.0	97.0
	Serous T	1	1.0	1.0	98.0
	U.Tumor	2	2.0	2.0	100.0
	Total	100	100.0	100.0	

Radiologist Oppenion

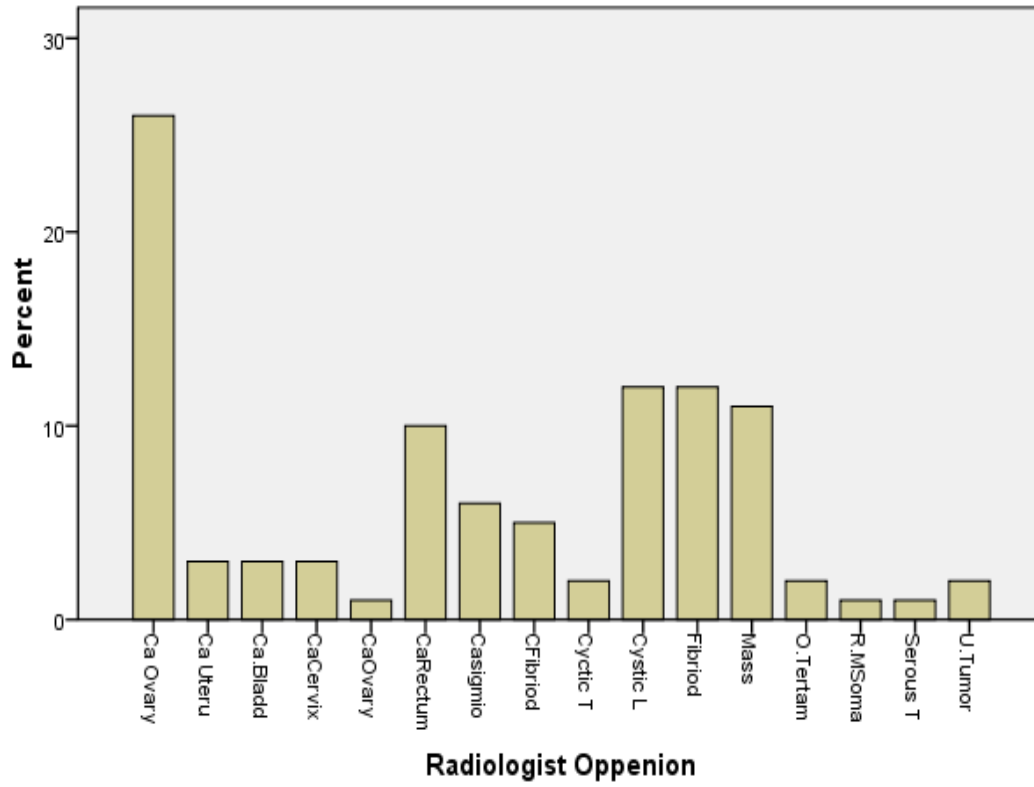


figure (4.4) show the final diagnosis

4.6 Age Group * Tumor Locations Crosstabulation

Age	Tumor location							Total
	Rt Ovary	Lt Ovary	Uterus	Rectum	Bladder	Sigmoid	Cervix	
>2	0	0	0	0	1	0	0	1
2-12	1	1	0	0	0	0	0	2
12-22	0	1	0	1	0	0	0	2
22-32	3	4	3	0	0	0	0	10
32-42	6	5	1	1	0	1	1	15
42-52	13	4	5	2	0	2	0	26
52-62	5	2	3	2	1	1	2	16
62-72	2	2	7	2	1	1	0	15
72-82	3	1	2	0	1	0	0	7
<82	0	1	2	2	0	1	0	6
Total	33	21	23	10	4	6	3	100

table (4.6) shows Age Group * Tumor Locations Crosstabulation

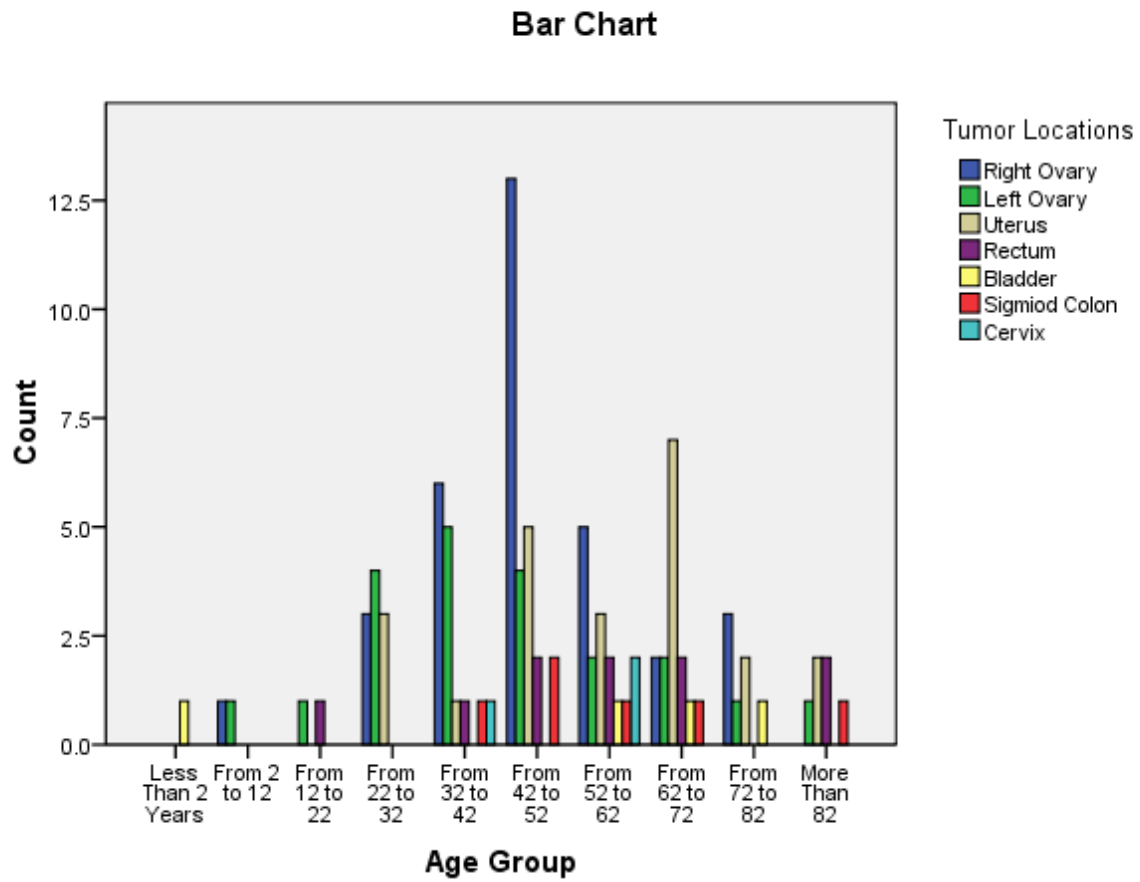


figure (4.6) shows relation between age group and tumor location

chapter five

Discussion ,Conclusion and Recommendations

5.1 Discussion:

the goals of this retrospective analysis were to show the characterization of female pelvic tumor using computed tomography (CT).

in this study CT done for 100 patient who clinical indication show sign of tumors the peak incidence was among the age group between (42 to 52 years) followed by (32-42 years) then between (52-62 years) age group then (62 to 72 years) and (22 to 32 years) age group. As in table &figure (4-1).

This study shows the more common location of the tumor is right Ovary 33%, Utrus 23%, left Ovary 21%, Rectum 10%, Sigmoid colon 6%, bladder 4% then cervix 3% respectively.As in table &figure (4-2).

The study also showed the most tumor shape were heterogeneous 82% and 18% were homogeneousAs in table &figure (4-2).

The study also showed the most tumors according to CT number were heterogeneous 85 % and 15% were homogeneous.As in table &figure (4-3).

according to radiologist opinion showed that the CaRt Ovary represent majority of the cases (26%), followed by the Fibroid (12%) and Cystic lesion (12%), followed by Mass (11%), followed by Ca of the Rectum (10%) , then Ca of the Sigmoid colon (6%), and the Calcified Fibroid (5%) .As in table &figure (4-4).

This result line with Dehghanietal 2011 result in pelvic mass and outline with ahmedetal 2012 result in adnexal mass.

5.2 Conclusion :

the result concluded that there were variety of information we can get from MDCT regarding the tumor behavior.

The most affected age group with pelvic tuomor was (42-52) years old.

This study shows that most common location of the tumor is ovary 54% especially the right ovary 33%.

The majority of tumors were heterogeneous on shape 82%, also the result showed the most tumors according to CT number were heterogeneous 85%.

According to radiologist opinion showed that the Ca right ovary represent majority of the cases 26%.

5.3 Recommendations:

MDCT for abdomen and pelvis are recommended to detect pelvic tumor in patient who are suspected to it.

All pateint in age group of (40-50) years should do MDCT exam for abdomen and pelvis if tumor is suspected.

MDCT is recommended to evaluate the nature of tumors and staging better than other imaging modalities (MRI and U/S).

Further studies should be performed on diagnosing pelvic tumors by using other imaging modaliteticis.

Establishment of specialized center for pelvic tumor studies with all facilities that can be used in proper diagnosis including MDCT, MRI, U/S and lab investigation.

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