International Journal of Science and Research (IJSR)
ISSN: 2319-7064
SJIF (2019): 7.583

Study of Using Ultra-Sonography in the Diagnosis of Different Pelvic Pathologies 2018-2019

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Abstract: ***This was a descriptive retrospective study deal with the role of sonography in the diagnosis of different pelvic pathologies among menopaused Sudanese women. This study done in Omdurman hospitals from the period 2018 –to the 2019. The study confirmed that Vaginal bleeding in menopaused women was a sign of underlying pathologic condition, the result showed that malignant causes in which the cervix lesion was the most common causes of PMB in this study which contributed to (48%) and the low pelvic pain, abdominal distention and urinary symptoms were the most common symptoms of ovarian cancer. Ca-cervix is the main finding in the study increase with age which form (40%) in age group 45-55 years and (47.36%) in age 56-5 years old and in more than 65years was 52.38% and increase in multiparity more than in nulliparity . Ca-ovary was increase in multiparity 86 % were nulliparity women 14% only. The incidence of ca-ovary in multiparity (86%) and (14%) in nulliparity. Most of ca-ovary with ca breast patients are more in age group 45-55 years old was(12 patients) 60% and are less when the patients age were more than 65 years old and ca-cervix with ca breast increase in age group more than 65 years old were 22 patients (68.75 %).***

Keywords: Ultrasound findings, Sudanese menopausal women, pelvic pain, Ca breast

1. Introduction

Ultrasonography is one of the well accepted and high sensitive imaging modality for the diagnosis and follow-up of postmenopausal uterus &ovaries. Advantages of using ultrasonic imaging include its mobility and low cost as well as the ability to measure the dimensions of the uterus and adnexa, check for the presence of masses or cysts and evaluate the structure and echogenicity of the parenchyma. Uterine ultrasound examination provides an objective and precise method for detection of a change in the size and shape and endometrial thickness as well (1). The female pelvis is a complex anatomical region, comprising of few important organs and systems performing different and independent functions. The uro-genital system and portions of other organs and systems usually generate pelvic masses even in para-physiologic conditions.(2) Most pelvic masses are diagnosed through classical physical examination, including rectovaginal examination. Ultrasound plays a vital role in diagnosis and classification of symptomatic and sometimes asymptomatic pelvic masses. (3)

Menopause is the transition period in woman's life when the ovaries stop producing eggs. When the ovaries stop producing eggs, menstrual activity decreases and eventually ceases and the body decreases the production of the female hormones, estrogen and progesterone. Menopause affects individual women differently. In some women menstrual activity stops suddenly. In other women, menstrual activity tapers off until it completely stops. It may take up to 3 years for the menstrual cycle to completely stop. Menopause is a natural event (4). The occurrence of menopause is different for each woman. Menopause usually occurs between the ages of 40 and 55 menopause up from 55. The age of when menopause occurs is affected by several factors, including nutrition, Malnourished women begin menopause about 4 years earlier than well-nourished women. The other factor is early onset of menstruation women who begin menstruation at an early age are more likely to begin menopause late each of these symptoms are a result of hormonal changes. From our orientation, in the Sudan there is careless in health of menopause women may be due to poor knowledge about this period which have a high risk of disease, or due to economic reasons. (4-5-6). Postmenopausal women present with a range of the common gynaecological symptoms and complaints including postmenopausal bleeding and abnormal bleeding on hormone replacement therapy (HRT) Women may also be referred to rapid access clinics with a co-incidental finding (e.g. on imaging for other reasons) of a thickened endometrium, fibroids or polyps that are completely asymptomatic. It is essential therefore that gynaecologists have knowledge of the normal physiological changes that occur around the menopause, and also the normal ultrasound appearance of the endometrium during the menstrual cycle and menopause. Efforts are needed for an adaptable and evolving attitude to the provision of women's health care, focusing on lifestyle changes, beside an increasing demand for medical proficiency in the management of postmenopausal health problems (7).

Ultrasound of menopause women has flourished since the advent of high resolution endovaginal transducers. The main clinical application are evaluation of menopaused bleeding and evaluation of palpable pelvic mass menopaused women are at increased risk for several gynecologic disease including; cancer of the breast, ovary and endometrial. Myomatous disease of the uterus is less common after menopause in women without any exogenous hormone therapy (4). From previous study, it suggested that there is a positive association between menopaused hormone use (PMH) and ovarian cancer. Particularly for specific hormone formulation. In other study menopaused bleeding is an import indicator that heralds the presence of malignancy the malignant causes were more frequent than benign causes (8). Acute pelvic pain is a common presenting complaint, both in the emergency room and the outpatient setting (9). Acute

pelvic pain is defined as pain in the lower abdomen or pelvis lasting more than 3 months (10), However, approximately 15% of women presenting with acute pelvic pain are in the perimenopausal or postmenopausal reproductive stage (11). US pelvis transabdominal and transvaginal are usually appropriate for the initial imaging of postmenopausal pelvic pain. They are usually performed together and are complementary (i.e., more than one procedure is ordered at the same time where each procedure provides unique clinical information to effectively manage the patient's care) (12).

The uterus is a hollow, thick-walled muscular organ. Its internal structure consists of a muscular layer, or myometrium, which forms most of the substance of the uterus and a mucous layer, the endometrium, which is firmly adherent to the myometrium. The uterus is located between the two layers of the broad ligament laterally, the bladder anteriorly, and the recto sigmoid colon posteriorly. The uterus is divided into two major portions, the body and the cervix, by a slight narrowing at the level of the internal OS. The fundus is the superior area of the body above the entrance of the fallopian tubes. The area of the body where the tubes enter the uterus is called the cornua. The anterior surface of the uterine fundus and body is covered by peritoneum. The peritoneal space anterior to the uterus is the vesico-uterine pouch, or anterior cul-de-sac. This space is usually empty, but it may contain small bowel loops. Posteriorly, the peritoneal reflection extends to the posterior fornix of the vagina, forming the recto-uterine recess, or posterior cul-de-sac. Laterally, the peritoneal reflection forms the broad ligaments, which extend from the lateral aspect of the uterus to the lateral pelvic side walls. (13). The round ligaments arise from the uterine cornua anterior to the fallopian tubes in the broad ligaments; extend anterolateral and course through the inguinal canals to insert into the fascia of the labia majora. The cervix is located posterior to the angle of the bladder and is anchored to the bladder angle by the parametrium. The cervix opens into the upper vagina through the external OS. At menopause, the uterus begins to atrophy gradually due hypoestrogenism. Most of the uterine atrophy occurs in the body, resulting in a lower body to cervix ratio. In the seventh and eighth decade, the cervix typically appears larger than the body**.** Like the uterus, the size of the normal ovary is most dependent on the age group of the patient (the ovary exhibits only minor changes in volume with the menstrual cycle). The ovary gradually increases in size during infancy and attains its largest volume during the reproductive years; after menopause, the ovary gradually atrophies. (6). The ovaries are more difficult to find and visualize following menopause for the following reasons: they atrophy and are smaller in volume, reduced blood flow developing and maturing follicles are absent. Ovarian volume decreases gradually with increasing years. The postmenopausal uterus gradually atrophies and in older women may quite small and difficult to visualize. In women who are more than 5 years PM, the uterus measures 3.5 to 7.5 cm in length, 2 to 4 cm in width, and 1.7 to 3.3 cm in anteroposterior dimension, the reduction in uterine size is directly related to years since menopause, and the atrophy is most rapid in the first decade after the onset of menopause. Uterine atrophy is most predominant in the body (the cervix also shrinks but much less than the body). Thus, in post menopause women, the body appears to be small compared to the cervix (mean body-to-cervix ratio of 1.4:1 in postmenopausal women compared to 2:1 in premenopausal women). Cervix called the vaginal fornix. Although the space is continuous it is divided into anterior, posterior, and two lateral fornices**.** (14). The two fallopian tubes run laterally from the uterus in the upper free margin of the broad ligament. Each tube varies from 7 to 12 cm in length and is divided into intramural, isthmic, ampullary and infundibular portions. The intramural, or interstitial, portion is approximately 1 cm long, is contained within the muscular wall of the uterus, and is the narrowest part of the tube. The isthmus, constituting the medial third, is slightly wider, round, cordlike, and continuous with the ampulla, which is tortuous and forms approximately one-half the length of tube. The ampulla terminates in the most distal portion, the infundibulum, or fimbriated end, which is funnel shaped and opens into the peritoneal cavity. The ovaries are elliptical in shape, with the long axis usually oriented vertically. The surface of the ovary is not covered by peritoneum but by a single layer of cuboidal or columnar cells called the germinal epithelium that becomes continuous with the peritoneum at the hilum of the ovary. The internal structure of the ovary is divided into an outer cortex and inner medulla. (15,16,17). In the nulliparous female, the ovary is located in a depression on the lateral pelvic wall called the ovarian fossa, which is bounded anteriorly by the obliterated umbilical artery, posteriorly by the ureter and the internal iliac artery, and superiorly by the external iliac vein**.** (17). The fimbriae of the fallopian tube lie superior and lateral to the ovary. The anterior surface of the ovary is attached to the posterior surface of the broad ligament by a short mesovarium. The lower pole of the ovary is attached to 18 the uterus by the ovarian ligament, whereas the upper pole is attached to the lateral wall of the pelvis by the lateral extension of the broad ligament known as the suspensory ligament of the ovary (15).

2. Materials and Methods

2.1 Material

We used Mindray real time ultrasound machine with triplex system accompanied with both trans-abdominal and trans-vaginal probes (Mindray china PC6 2009 trans-abdominal curvilinear 3.5-5 MH. and trans-vaginal transducers 7.5 MH) & philips HD7 ultrasound machine.

2.2 Methodology

A retrospective descriptive study was carried out in Omdurman state in the ultrasound departments of Omdurman hospital. During the period from January 2018 to January 2019 using the patient files to get the information needed for this study (vaginal bleeding, abdominal distention, complication, and us finding). 100 case of post-menopausal women with postmenopausal pelvic pain has been selected by the non-probability technique (quota). Menopause women with pelvic pain, abdominal distention, and vaginal bleeding, with or without ca breast has been included in the study. Mindray real-time ultrasound machine with triplex system accompanied with both Transabdominal and transvaginal probe. Clinical datasheets, were used to

collect the data. The data were analyzed by using SPSS (Statistical Package for Social Science and the results were presented in form of graphs and tables.

3. Results

Table 1: Distribution of percentage according to Bleeding

Bleeding	Frequency	Percentage
No Bleeding	28	28
With bleeding	72	72
Total	100	100

Table 2: Distribution of percentage according to abdominal pain

Abdominal pain	Frequency	Percentage
No Abdominal pain	42	42
With Abdominal pain	58	58
Total	100	100

Table 3: Distribution of percentage according to abdominal Distention

Abdominal Distention	Frequency	Percentage
No Abdominal Distention	66	66
With Abdominal Distention	43	43
Total	100	100

Table 4: Distribution of percentage according to the Diagnosis

Diagnosis	Frequency	Percentage
Ca- Cervix	48	48
Ca –Endometrium	12	12
Ca Ovaries	40	40
Total	100	100

Table 5: The relation between Final Diagnosis and age groups

Age groups		Final Diagnosis			Total
		Ca-Cervix	Ca – Endometrium	Ca Ovaries	
45-55	Frequency	8	0	12	20
	Percentage	40%	0%	60%	100%
56-65	Frequency	18	2	18	38
	Percentage	47.36%	5.26%	47.36	100%
>65	Frequency	22	10	10	42
	Percentage	52.38%	23.80%	23.80%	100%
Total		48	12	40	100

Table 6: The relation between Ca ovaries and ca cervix with ca Brest:

Age Group	Ca ovaries with Ca Brest		Ca cervix with Ca BREST		Total	
	Frequency	Percentages	Frequency	Percentages	Frequency	Percentages
45-55	12	60%	8	40 %	20	100%
56-65	18	50%	18	50%	36	100%
>65	10	31.25%	22	67.75	32	100%
Total	40	100%	48	100%	88	100%

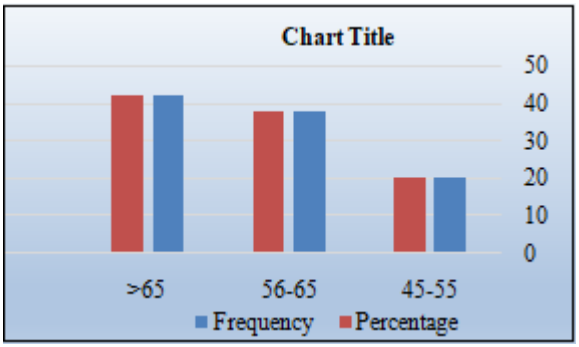

Figure 1: Distribution of percentage according to the patient's age:

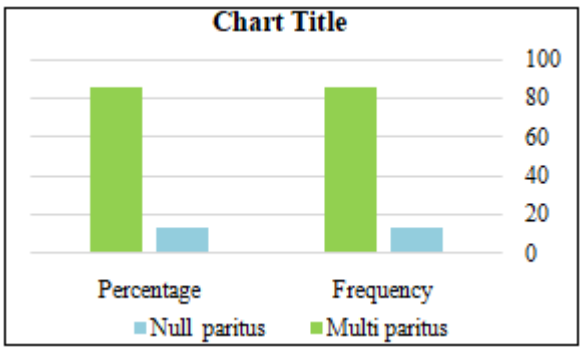

Figure 2: Distribution of percentage according to the parity

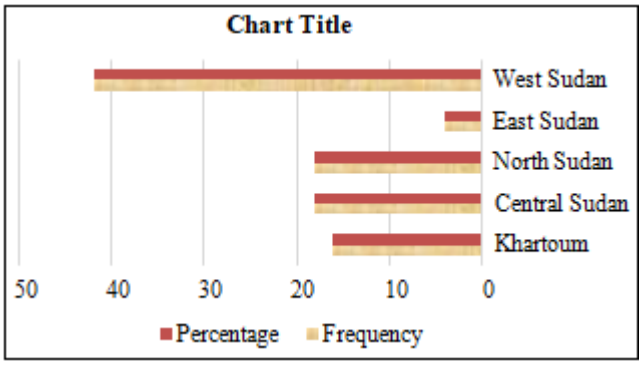

Figure 3: Distribution of percentage according to geographic area

4. Discussion

The main objective of this study was to determine the role of ultrasound in the evaluation of a post-menopause woman with pelvic pain. The study ware carried out on 100 post-menopausal patients with pelvic pain occurring at least one years after the last menstruation in Omdurman hospitals during a period extended from 2018 to 2019, a total of 100 women with post-menopausal, 48 cases (48%) had cervical mass, endometrial cancer had 12 cases (12%), 40 cases (40%) had ovarian mass. A sample size of PMB was occurring between ages (45-more than 65 years). which represents the category (45-55)years form(20%) from the total percentage, the category (56-65) years form (38%) , and the category more than 65years form (42%) from the

total percentage. Related to parity showed the frequency distribution of the menopaused women included in this study, which classified them to null parity (14%) and multiparty (86%). The frequency distribution according to the region of the study population, which represent the western Sudan women is the dominant category form (42%) may be due to their nature because they have mountains may involve radiated material or due to their nutrition or habits, and the southern is the smaller one which form (2%). in this study more than (50%) of the menopaused women included had menopaused vaginal bleeding. A previous study of veena, naik et al showed that the genital tract bleeding in menopaused women is a sign of underlying pathologic condition. And the study showed the malignant causes 53 were the most common while functional and organic causes had equal distribution. similar to the research result the cervical lesion was the most common cause of PMB which contributed to (48%) in the study this high incidence may point to the ineffectiveness of existing surveillance and the need for more public awareness to integrate routine gynecological screening as a routine method.

In the study (58%) of the total percentage had abdominal pain and (42%) it came without pain and (34%) from the menopaused women included in this study had abdominal distention and (66%) did not, the previous study of over Bakos showed 12% of his patients came with pain and they do a transvaginal ultrasound that found a gynecological tumor. The incidence of ca-cervix increase with age, which forms (40%) in the age group 45-55 years, (47.36%) in the age group 56-65 years, and (52.38%) in age more than 65years. the prevalence of ca endometrium was less incidence in this study might be due to the small sample size. from the total, the incidence of pelvic gynecologic pathology concentrated in age more than 55 years which form(29.6 %) from the total percentage, the study of Helena C, van Doorn, et al demonstrates that in menopaused women with vaginal bleeding the risk of (pre) malignancy of the endometrium is low in women under 50, increases considerably until 55 and rises only modestly with further advancing age. In this study most of the ca-cervix and ca-ovary concentrated at the western Sudan women, the incidence of ca-cervix at both approximately (48%) and ca-ovary at western (40%) there was no previous studies talk about complications.

5. Conclusion

The Study concluded that ultrasound is excellent method for evaluation women with post-menopausal. It was easy do, take short time, and none invasive procedure for women. In addition, study found that ultrasound (TVS &TAS) had excellent reporting in adnexal masses

References

[1] Gynecological and obstetric u/s berwin institute of u/s./module 4/page56.
[2] Alessandrino F, Dellafiore C, Eshja E, Alfano F, Ricci G, Cassani C, et al. Differential diagnosis for female pelvic masses. Medical Imaging in Clinical Practice: IntechOpen; 2013.
[3] Schutter EM, Kenemans P, Sohn C, Kristen P, Crombach G, Westermann R, et al. Diagnostic value of pelvic examination, ultrasound, and serum CA 125 in postmenopausal women with a pelvic mass. An international multicenter study. Cancer. 1994;74(4):1398-406.
[4] British Journal of Cancer (2007) **96**, 151–156. doi:10.1038/sj.bjc.6603527 http://www.bjcancer.com/.
[5] Clinical Anatomy for Medical Student, 5th edition, Richard S. Snell, M.D. PH.D.
[6] Berwin institute/gynecology/module 4/pages 30 to 53.
[7] Otify, Mohamed, et al. "Endometrial pathology in the postmenopausal woman–an evidence based approach to management." *The Obstetrician & Gynaecologist* 17.1 (2015): 29-38.
[8] Berwin institute/gynecology/module 4/page-58-59-60-61.
[9] Allison SO, Lev-Toaff AS. Acute pelvic pain: what we have learned from the ER. Ultrasound Q 2010;26:211-8.
[10] Bhosale PR, Javitt MC, Atri M, et al. ACR Appropriateness Criteria® Acute Pelvic Pain in the Reproductive Age Group. Ultrasound Q 2016;32:108-15.
[11] Kurt S, Uyar I, Demirtas O, Celikel E, Beyan E, Tasyurt A. Acute pelvic pain: evaluation of 503 cases. Arch Iran Med 2013;16:397-400
[12] Henrichsen, Tara L., et al. "Postmenopausal Acute Pelvic Pain." (2020).
[13] Kurman RJ, editor. Blaustein's pathology of the female genital tract, 5th ed. New York: Springer-Verlag; 2002.
[14] Lin MC, Gosink BB, Wolf SI. Endometrial thickness after menopause: effect of hormone replacement. Radiology 1991; 180:427-432.
[15] Merz E, Miric-Tesanic D, Bahlmann F, et al. Sonographic size of uterus and ovaries in pre- and postmenopausal women. Ultrasound Obstetric Gynecologic 1996; 7:38-42.
[16] British Journal of Cancer (2007) 96, 151–156. doi:10.1038/sj.bjc.6603527http://www.bjcancer.com/ Published online 19 December 2006 .
[17] Carol M. Rumack, Stephanie R. Wilson, J. William Charboneau, Deborah Choo YC, Mak KC, Hsu C, et al. Postmenopausal uterine bleeding of nonorganic cause. Obstetric Gynecologic1985; 66:225-228.