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Detection and frequency of abnormal endometrial pathologies in reproductive-aged females via saline infusion sonohysterography (SIS)

Saline infusion sonohysterography

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ABSTRACT

Objective. Assess the diagnostic efficacy of SIS in identifying various endometrial abnormalities, including polyps, fibroids, hyperplasia, and other structural irregularities, reproductive age women.

Materials and Methods. A cross-sectional study was conducted on 240 married women aged 18 to 42 years, suffering from abnormal uterine bleeding or reproductive problems. Using the SIS ultrasound technique performed by a trained radiologist and diagnostic hysteroscopy without using anesthesia or antibiotics. In the city of Mosul from July 2023 to April 2024, and focusing on women with suspected uterine lesions or endometrial thickness ≥12 mm.

Results. The results from 239 cases with various diagnoses showed: endometrial hyperplasia 13.8%, fibroids 14.6%, normal 46.5%, polyps 23.4%, and uterine septum 1.7%, with significant statistical significance ($P < 0.001$). For young women (19-30 years), the diagnosis rates were as follows: endometrial hyperplasia 1.4%, fibroids 13.0%, normal cases 56.1%, polyps 27.3%, and uterine septum 2.2%. Among them, fibroids were more common in cases of Miscarriage was 25% and infertility was 20.7%, while normal cases represented a large percentage of vaginal infections, 65.2%. Analyzing results by age helps determine prevalence differences across age groups, assess age's impact on uterine health, identify age-related risks, and guide tailored healthcare interventions and future research.

Conclusions. The study emphasized the role of SIS technology in diagnosing endometrial lesions and abnormalities in women of reproductive age. SIS was distinguished by its ability to reliably differentiate between pathological conditions localized and diffuse in the endometrium, which helped in understanding the causes of infertility, persistent bleeding, and infection.

Key words

Saline infusion sonohysterography; endometrial hyperplasia; fibroids; polyps; uterine septum.

Introduction

By distending the endometrial cavity with saline, a single layer of the uterine lining can be evaluated using the minimally invasive technique known as saline infusion sonohysterography (SIS). By use of SIS, the radiologist can accurately differentiate between focal and diffuse endometrial pathologic diseases. Comparing it to hysteroscopy, it is less costly, less involved, and takes less time to identify and describe intracavitary anomalies. The most often carried out test to assess irregular uterine bleeding in women both pre- and postmenopausal is SIS. Other signs are congenital uterine abnormalities, recurrent pregnancy loss, and infertility [1,2]. Adding three-dimensional (3D) to regular sonohysterography makes it more accurate at finding problems with the endometrium. By showing three parallel planes at the same time, you can get a better picture of the area being checked and see planes that aren't visible with regular two-dimensional tests. Surface rendering of the intracavitary pathological finds lets you see how big their areas are and tells you important things about how they are positioned on the ground [3]. This method makes it easier to look more closely at endometrial and subendometrial diseases and the structure of the uterus in cases of birth defects. The diagnostic accuracy of this method is about the same as that of the diagnostic hysteroscop [4,5]. In some unusual cases, endometrial hyperplasia can lead to endometrioid adenocarcinoma of the endometrium, which is the most common type of gynecologic cancer in developed nations. Endocrine hyperplasia is when the endometrial cells grow out of control. It happens when estrogens stimulate the endometrial tissue without enough progesterone to balance things out. In clinical practice, this is often called "unopposed." People who are overweight, have chronic anovulation, early menarche, late menopause, or estrogen-secreting tumors may experience this problem [6,7]. The most common benign growth in women is a leiomyoma or fibroids in the uterus. A study done by Baird et al. in early 2003 found that 70% of white women aged 50 and up had fibroids, while over 80% of black women had them. Having a lot of estrogen in the blood can cause fibroids to grow in the myometrium, which is made up of smooth muscle cells in the uterus. A lot more information about how fibroids form is not well known. Fibroids can show up on images by accident when there are no symptoms or when there are symptoms. Some common signs are abnormal uterine bleeding, pelvic pain, problems with the bowels and bladder in the pelvic area, and back pain [8,9]. Endometrial polyps are extra endometrial cells and stroma that grow inside the uterus. Polyps in the endometrium can be anywhere from a few millimeters to several centimeters across. Polyps can be a single growth or a group of growths that fill the whole endometrial canal. Endometrial polyps can happen to people of any age, but most of them happen to women between the ages of 40 and 49. These polyps are usually harmless, but there is a small chance that they could turn into cancer [10,11]. The most common Müllerian abnormality is a uterus that is split into two parts. For ASRM, a septate uterus has a depression that is more than 15 mm deep and less than 90° from the midline. The European Society of

Human Reproduction and Embryology (ESHRE), on the other hand, says that a uterus is septate if the indentation-to-wall-thickness (I:WT) is greater than 50%, and the Congenital Uterine Malformation by Experts (CUME) says that the depression depth should be at least 1 cm. Because of these different but agreed upon meanings [12,13], it is hard and controversial for doctors to decide if a septate uterus needs surgery. Abnormal uterine bleeding, or AUB, is a broad term for problems with the menstrual cycle that don't happen during pregnancy. These problems can include changes in the amount, frequency, or consistency of bleeding. Up to one-third of women will have irregular vaginal bleeding at some point in their lives. These problems most often happen during puberty and the time before menopause [14]. Endometritis is inflammation localized to the endometrium, the inner uterine lining, commonly due to an infectious etiology. Infection that extends to the fallopian tubes, ovaries, or pelvic peritoneum is termed pelvic inflammatory disease (PID). Endometritis is traditionally classified into 2 types: acute and chronic. Postpartum endometritis is a subtype of acute endometritis associated with pregnancy [15,16]. The aim of the study was evaluate SIS effectiveness in diagnosing endometrial issues in reproductive-aged women.

Materials and Methods

Participants

240 cases were recommended for a cross-sectional study, which was conducted at an outpatient clinic from july 2023 to april 2024. The cases were chosen based on the criteria for inclusion. Pregnancies and anesthesia or antibiotics patient were excluded, focusing on women with suspected uterine lesions or endometrial thickness ≥12 mm. All of the participants were married and between the ages of 18 and 42. By segmenting the data by age, researchers can explore how age-related physiological changes, hormonal fluctuations, and reproductive factors may influence the presentation of abnormal uterine bleeding and reproductive problems. They had a history of AUB or recurrent abortion and infertility. Their vital signs were stable, and they were thought to have a focal lesion in their uterine cavity, such as polyps, submucosal myomas, irregular endometrium, or adhesions. The endometrium had to be at least 12 mm thick when they were not in menopause. The people who took part had never had diabetes, high blood pressure, thyroid disease, pelvic inflammatory disease, or surgery on their uterus. At the time of recommendation, they did not have any proof that they were pregnant.

Measurements

240 participate female were included in our study that done in Mosul city. First Between the third and seventh days of the menstrual cycle, a well-trained doctor did a TVS exam for every woman and then a SIS exam. A transvaginal transducer (15M.Hertz probe) was used to find out how thick the endometrium was and where myomas and polyps were located. A sterile speculum was passed through the cervix and Betadine solution was used to clean it before the SIS was put in place. It was done by inserting a flexible Foley catheter (15 cm long, 2 mm wide) with an inflatable balloon (made by Supa, Tehran, Iran) through the cervical canal until the uterine was found. At the proper position of the catheter, 10 ml of sterile saline solution (0.9%) were injected by 50 ml volume syringe into the uterine cavity slowly and the injection was continued to obtain optimal view of the endometrial cavity. There was no local anesthesia or antibiotic used as a preventative measure during this operation. All the women who were in the proliferative phase of their period had diagnostic operative hysteroscopy, which involves putting

a telescope (2.7–4 mm in diameter) into the endometrium canal while they are asleep. The hysteroscopy was done while the cervix was opened up and two misoprostol vaginal tablets were taken six hours before the surgery. A hysteroscopy was used to do the gold standard tests of focal lesion resection and endometrium sample.

Ethical approval

The study was approved by the human ethics committee of College of Medicine, University of Mosul. Everyone who took part in the study was told about it and asked to sign a consent form. The patient was also guaranteed that his information would be kept private.

Statistical analysis

Statistical analysis is often used to analyze quantitative data, and provides methods for data description, simple inference for continuous and categorical data. The procedure involves the collection of data leading to test of the relationship between two statistical data sets. In this study all data are presented as frequency and percentage. The statistical analyses were performed using SPSS (version 26) and using dependent t-test (two-tailed) and independent t-test (two-tailed) for normally distribution variables, whereas the Mann-Whitney U and Wilcoxon test, Chi-square test used for those variables that were not normally distributed . P < 0.05 was considered statistically significant.

Results

The relationship between clinical complaints and uterine diseases in adolescent girls: analysis of the distribution of cases of endometrial hyperplasia, fibroids, normality, polyps, and uterine septum

In a study of adolescent women diagnosed with uterine pathology, the frequency and proportion of transvaginal ultrasound (SIS) diagnoses was found to vary by medical complaint. The diagnosis rate for endometrial hyperplasia was 13.8%, fibroids 14.6%, normal uterine conditions 46.5%, polyps 23.4%, and uterine septum 1.7% of the total cases studied (239 cases). It was noted that there is a significant and statistically significant correlation (P < 0.001) between the type of medical complaint and the results of SIS. For example, among those who complained of miscarriage, 20% had fibroids, 30% were diagnosed with uterine abnormalities, 30% were found to have a polyp, and 15% had a uterine septum. On the other hand, in cases complaining of infertility, 17.9% had fibroids and 41% had polyps. Vaginal infections were diagnosed with a normal uterus in 61.2% of cases, while vaginal bleeding appeared in the highest percentage (46%) of diagnoses of a normal uterus. These data highlight the importance of the SIS technique as a diagnostic tool in adolescent women with reproductive system problems, Table 1 and Figure 1.

The relationship between clinical complaints and uterine diseases in adolescent girls, analysis of the distribution of cases of endometrial hyperplasia, fibroids, normality, polyps, and uterine septum The group ranges in age from 19-30 years

The rationale for categorizing results by age groups in studies, especially in medical research, lies in the significant impact of age on clinical outcomes, disease prevalence, and treatment responses. Different age groups may face distinct health risks, physiological changes, and

treatment reactions, which can influence study findings. For example, younger individuals may experience different reproductive health issues compared to older women, and age-related factors like hormonal changes can affect treatment efficacy. Analyzing data by age provides a clearer understanding of the unique challenges each group faces, leading to more accurate diagnoses and better-targeted interventions. In a study evaluating the diagnosis of uterine disorders using transvaginal ultrasound (SIS) in young women in the age group of 19 to 30 years, the results show that endometrial hyperplasia (E. hyperplasia) was diagnosed in 1.4% of cases, while Fibroids are responsible for 13.0% of problems. Normal results were the highest at 56.1%, and polyps appeared in 27.3% of cases, while the presence of a uterine septum (Septum) was observed in only 2.2% of the 139 total cases. In terms of medical complaints, there was diversity in the results of the diagnosis of SIS: of the women complaining of miscarriage, none of them showed endometrial hyperplasia, while 25% showed fibroids, 25% showed normal results, 33.3% polyps, and 16.4% showed septa. Uterine out of a total of 12 cases, representing 8.6% of the total cases. As for women suffering from infertility, 20.7% of them had fibroids, 34.5% of them had normal results, 34.5% had polyps, and 3.4% had a uterine septum, out of a total of 29 cases, representing 20.9%. For those suffering from vaginal infections, the most common normal results were 65.2%, with 8.7% suffering from fibroids and 26.1% suffering from polyps, out of a total of 46 cases, representing 33.1%. In women suffering from vaginal bleeding, normal results were recorded in 67.3%, while fibroids were recorded in 9.6% and polyps in 23.1% out of a total of 52 cases, representing 37.4%. The data showed significant statistical significance (P value < 0.001), indicating the strength of the association between medical complaints and SIS diagnostic results, Table 2 and Figure 2.

The relationship between clinical complaints and uterine diseases in adolescent girls, analysis of the distribution of cases of endometrial hyperplasia, fibroids, normality, polyps, and uterine septum The group ranges in age from 31-42 years

The study on the diagnosis of uterine pathology using transvaginal ultrasound (SIS) in women older than 31 to 42 years showed that endometrial hyperplasia (E. hyperplasia) was diagnosed in 31% of cases. While fibroids were diagnosed in 17%, and normal uterine findings were 33%. Polyps were observed in 18% of cases, and uterine septum (septum) in only 1% of the total number of 100 cases. Considering the symptoms presented by the patients, it was found that among the women complaining of miscarriage, there was an almost equal distribution: 12.5% endometrial hyperplasia, 12.5% fibroids, 37.5% normal uterine findings, 25% polyps and 12.5% uterine septum from A total of 8 cases (8%). In infertile women, polyps are the main cause in 60% of their cases, with smaller percentages of fibroids and endometrial hyperplasia, each at 10%, and normal findings in 20% of the 10 cases (10%). Of the women complaining of vaginal infections, 52.9% showed normal uterine findings, while fibroids represented 23.8% and the lowest percentage of polyps was 9.5% out of a total of 21 cases (21%). As for vaginal bleeding, it was more common in the normal uterus at a rate of 27.9%, and endometrial hyperplasia was diagnosed in 42.6% of cases, fibroids in 16.4%, and polyps in 13.1% of the total 61 cases complaining of bleeding (61%). These data are statistically significant and enhance our understanding of the frequency of uterine diseases and how they are diagnosed in this age group, with a P value < 0.001* indicating statistical significance, Table 3 and Figure 3.

The relationship between the number of uterine polyps and clinical manifestations, a statistical analysis of the rates of miscarriage, infertility, vaginal infections, and uterine bleeding

The result shows the distribution of the number of uterine polyps (multiple vs. solitary) and its association with clinical complications. Data were analyzed based on patients' complaints and the number of uterine polyps diagnosed. In cases complaining of miscarriage, 66.7% of cases were recorded as having multiple polyps, while 33.3% had only one polyp out of a total of 6 cases (10.7%). Infertility was diagnosed more often in cases with one polyp, at 68.75%, compared to 31.25% in cases with multiple polyps, out of a total of 16 cases (28.6%). For vaginal infections, 14.3% of cases had multiple polyps compared with 85.7% for a single polyp out of 14 cases (25%). As for vaginal bleeding, it was distributed between 25% of cases with multiple polyps and 75% of cases with one polyp, out of a total of 20 cases (35.7%). In total, the study found that 28.6% of cases had multiple polyps, while 71.4% of cases had one polyp out of a total of 56 cases (100%). However, the extracted data did not show significant statistical significance (P = 0.11NS), meaning that the relationship between the number of uterine polyps and clinical complications was not statistically significant, Table 4 and Figure 4.

Discussion

Saline infusion ultrasound (SIS) is a non-invasive technique that involves dilating the uterine cavity with saline, allowing for evaluation of a single layer of the endometrium. Using this technique, physicians can accurately differentiate between focal and diffuse uterine pathology. Compared with hysteroscopy, SIS is less expensive, faster, and less invasive, making it an effective tool for detecting and describing abnormalities within the uterine cavity. SIS is the most common test for evaluating abnormal uterine bleeding in pre- and postmenopausal women. It is also used to detect other conditions such as congenital uterine anomalies, recurrent miscarriage, and infertility. The results of 239 cases with various diagnoses showed the following proportions: endometrial hyperplasia 13.8%, fibroids 14.6%, normal cases 46.5%, polyps 23.4%, and uterine septum 1.7%, with strong statistical significance (P < 0.001). For young women (19–30 years), the diagnoses were as follows: endometrial hyperplasia 1.4%, fibroids 13.0%, normal cases 56.1%, polyps 27.3%, and uterine septum 2.2%. Fibroids were most common in miscarriage (25%) and infertility (20.7%), while normal cases represented a significant proportion of vaginal infections (65.2%). This studu is agree with [17,18]. Saline infusion sonohysterography is an alternative to diagnostic hysteroscopy. It is simple, safe, and well accepted. Since it is added to TVS, it provides the unique benefit of viewing both the uterus and the adnexa in a single setting. It was also shown to make the endometrium easier to see and to help find problems inside the uterus and uterine abnormalities [17]. Recently, a meta-analysis of 2,278 treatments found that SIS was just as good at diagnosing AUB as diagnostic hysteroscopy, with sensitivity and specificity of 95% and 88%, respectively [18, 19]. When Kim et al. looked at 72 women who had SIS to check their uterus before IVF, they found that 11.1% of them had intracavitary results, mostly polyps [20]. In a study involving 50 women awaiting donated eggs, it was identified that 38% of them experienced uterine issues like polyps, submucous fibroids, adhesions, and a bicornuate uterus through Saline Infusion Sonohysterography (SIS) [21, 22]. In order to make the study more meaningful, we also looked at a group of 409 women who were sent to SIS at the same time for AUB investigations. As expected, a lot more patients in this group (39.6%) had abnormal results inside the cavity, such as polyps and fibroids [23], which found that polyps and myomata were the most common finds in people with AUB. Also, like our sick patients, others said that a lot of AUB patients had intracavitary abnormalities found by SIS [24,25]. The results show that among women aged 19

to 30, endometrial hyperplasia occurred 1.4% of the time, fibroids 13.0% of the time, normal finds 56.1% of the time, polyps 27.3% of the time, and uterine septum 2.2% of the time. In 12 cases of miscarriage, 25% had tumors, 25% had normal results, 33.3% had polyps, and 16.4% had a uterine septum. Infertility: 20.7% of cases had fibroids, 34.5% had normal results, 34.5% had polyps, and 3.4% had a uterine septum. Vaginal infection, normal findings 65.2%, fibroids 8.7%, polyps 26.1% of 46 cases. Vaginal bleeding: normal results 67.3%, fibroids 9.6%, polyps 23.1% of 52 cases. Statistical significance $P < 0.001$. the result is agree with [26]. The presence of various uterine conditions among women aged 19 to 30, such as endometrial hyperplasia, fibroids, polyps, and uterine septum, can be attributed to hormonal changes, genetic factors, lifestyle choices, and environmental influences. Endometrial hyperplasia, fibroids, and polyps are often linked to hormonal imbalances, while uterine septum may result from developmental anomalies. Miscarriages with tumors, polyps, and uterine septum may indicate fertility issues or structural abnormalities affecting the uterine environment [25]. Infertility cases involving fibroids, polyps, and uterine septum suggest potential obstacles to conception and pregnancy. Vaginal infections and bleeding are commonly associated with microbial imbalances, inflammation, or hormonal fluctuations. Each condition warrants further medical evaluation and tailored treatment approaches to address underlying causes and support reproductive health [26]. For results adjusted for highest and lowest recurrence for women (31-42 years) the normal results 33%, endometrial hyperplasia 31%, polyps 18%, fibroids 17%, uterine septum 1% of 100 cases. While Miscarriage the result shows, normal results 37.5%, polyposis 25%, endometrial hyperplasia and fibroids 12.5% each, uterine septum 12.5% of 8 cases. While Infertility the result shows, polyps 60%, normal findings 20%, fibroids and endometrial hyperplasia 10% each of 10 cases. Vaginal infections: normal results 52.9%, fibroids 23.8%, polyps 9.5% of 21 cases. In Vaginal bleeding the result shows, endometrial hyperplasia 42.6%, normal findings 27.9%, fibroids 16.4%, polyps 13.1% of 61 cases. Distribution of uterine fibroids (multiple vs. solitary) the result shows Miscarriage, multiple 66.7% vs. solitary 33.3% of 6 cases (10.7%). Infertility was more common in single tumors (68.75%) compared to 31.25% in multiple tumors out of 16 cases (28.6%). Vaginal infections were 14.3% for multiple tumors compared to 85.7% for single tumors out of 14 cases (25%). Vaginal bleeding was 25% for multiple tumors and 75% for single tumors out of 20 cases (35.7%). Overall, 28.6% cases were found to have multiple tumors compared to 71.4% cases with single tumors out of a total of 56 cases (100%). This result is agree with [27,28].

The prevalence of various uterine conditions, including endometrial hyperplasia, fibroids, polyps, and uterine septum, found in women aged 31 to 42, can be linked to age-related changes in hormonal levels, genetic predisposition, and environmental factors. Endometrial hyperplasia, fibroids, and polyps are often influenced by hormonal fluctuations, while uterine septum may stem from developmental anomalies or genetic factors [27]. Miscarriages with normal results, polyposis, and fibroids may suggest potential challenges in maintaining a healthy pregnancy, potentially related to uterine abnormalities. Infertility cases showing a high prevalence of polyps may indicate structural issues affecting fertility, requiring further evaluation and management. Instances of vaginal infections and bleeding may result from microbial imbalances, inflammation, or hormonal disturbances, necessitating targeted interventions. The distribution of uterine fibroids, whether multiple or solitary, may impact outcomes such as miscarriage, infertility, and vaginal health, highlighting the importance of individualized treatment approaches based on the specific characteristics of the fibroids. Comprehensive medical assessment and tailored treatment strategies are essential to address these diverse uterine conditions effectively

and support women's reproductive health [28,29]. It looks like a homogenously echogenic polypoid tumor on ultrasound, and it can bleed, die, or have an infarction. On TVS, it's hard to tell the difference between an endometrial polyp and diffuse endometrial hyperplasia because they both look like the uterus getting thicker in a way that isn't specific. When you use SIS, anechoic saltwater separates the endometrial walls, making the lesion stand out more. This helps you figure out what kind of lesion it is. Most of the time, an endometrial polyp has a stalk with one food tube. Lesions that are echogenic and have a smooth edge can also be told apart from cancer. Endometrial polyps can't be told whether they are normal or malignant by imaging, so they have to be surgically removed [30,31]. It is the irregular spread of stroma and endometrial glands, which is different from the focal spread that is seen in endometrial polyps. There are three types of atypia, which are simple, complicated, and atypical hyperplasia. The types depend on how many are present and how bad they are. Endometrial hyperplasia shows up on SIS as uniform growth of the endometrium. There may be different types of endometrial swelling and cystic degeneration. An uneven thickening of the endometrium can look like certain tumors, such as fibroids, polyps, or cancer. If you have endometrial hyperplasia with or without atypia, the best ways to treat it are surgery or cyclic progesterone therapy [32]. The most important risk factor for endometrial hyperplasia and, in turn, endometroid adenocarcinoma is the aforementioned chronic imbalance of or "unopposed" estrogen. The source of exposure to excessive estrogen without the protective effects of progestin can be endogenous, exogenous, or genetic [33]. Endometrial polyps are growths of the endometrial cells and stroma that stick out from the endometrium. No one knows for sure what causes uterine polyps. uterine hyperplasia and uterine polyps are linked, though, so estrogen that doesn't get blocked is thought to be a risk factor. Higher uterine aromatase activity, TGF-beta, VEGF, BCL-2, and genetic factors are some of the other things that have been linked to the growth of polyps [34,35]. Malignant endometrial polyps are also more likely to happen if you are older than 60, have big polyps, are going through menopause, are bleeding, or have polycystic ovarian syndrome [36,37]. It's not clear what exactly goes wrong in the body to cause uterine fibroids to form. According to research, the formation of a fibroid starts with a single uterine smooth muscle cell (myometrium). This is followed by changes in the usual signaling pathways of cell division [38]. Fibroids are thought to be estrogen-dependent tumors, and research has shown that leiomyomas have higher levels of certain estrogen and progesterone receptors than the normal myometrium around them [39]. The septate uterus is a birth defect caused by the irregular growth of the embryonic Müllerian, or paramesonephric, ducts. No one knows for sure what caused the strange event. Researchers have tried to find a genetic cause for Müllerian abnormalities, but they have not been able to find one. Müllerian abnormalities are thought to have more than one cause [40].

Conclusion

Based on the results of the study involving 239 cases, Saline Infusion Sonohysterography (SIS) emerged as a highly effective diagnostic tool in assessing uterine pathologies and their implications for fertility. The research identified a range of conditions like endometrial hyperplasia and fibroids, revealing strong associations with clinical manifestations such as miscarriage and infertility. Although there were no significant variations in fibroid distribution, the study underscored their substantial impact on fertility outcomes. Furthermore, the research emphasized the importance of considering age-related differences in diagnoses to evaluate

uterine health accurately and tailor individualized healthcare interventions. Ultimately, the findings underscore the critical role of SIS in precisely diagnosing uterine conditions, facilitating treatment decisions, and guiding future research initiatives aimed at enhancing reproductive health outcomes.

Compliance with Ethical Standards

Authors contribution: The author was contributed in the study designing, experimental, analysis, writing the manuscript and final approval.

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Study registration: N/A.

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Ethical Approval: Ethical approval was received from the ethical and research committee in Deartment of Surgery, Ninevah Medical College, University of Ninevah, Ninevah, Iraq

Informed consent: Informed consent was obtained from all caregivers of participated.

Data sharing: The datasets used and analyzed during the current study are available from the corresponding author on reasonable request.

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Table 1. Frequency and percentage of SIS diagnosis in women Adolescentsof uterine diseases

Parameters		SIS findings					Total	P.value
		E.hyperplasia	Fibroid	Normal	Polyp	Septum		
Complaining	Abortion	1 (5%)	4 (20%)	6 (30%)	6 (30%)	3 (15.0%)	20 (8.4%)	<0.001*
	Infertility	3 (7.7%)	7 (17.9%)	12 (30.8%)	16 (41.0%)	1 (2.6)	39 (16.3%)	
	V. infection	3 (4.5%)	9 (13.4%)	41 (61.2%)	14 (20.9%)	0 (0%)	67 (28.0%)	
	V.bleeding	26 (23.0%)	15 (13.3%)	52 (46.0%)	20 (17.7%)	0 (0%)	113 (47.3%)	
Total		33 (13.8%)	35 (14.6%)	111 (46.5%)	56 (23.4%)	4 (1.7%)	239 (100%)	

Table 2. Frequency and percentage of SIS diagnosis in women Adolescents of uterine diseases in age 19-30 years

Parameters		SIS findings					Total	P.value
		E.hyperplasia	Fibroid	Normal	Polyp	Septum		
Complaining	Abortion	0 (0%)	3 (25%)	3 (25%)	4 (33.3%)	2 (16.4%)	12 (8.6%)	0.001*
	Infertility	2 (6.9%)	6 (20.7%)	10 (34.5%)	10 (34.5%)	1 (3.4%)	29 (20.9%)	
	V. infection	0 (0%)	4 (8.7%)	30 (65.2%)	12 (26.1%)	0 (0%)	46 (33.1%)	
	V.bleeding	0 (0%)	5 (9.6%)	35 (67.3%)	12 (23.1%)	0 (0%)	52 (37.4%)	
Total		2 (1.4%)	18 (13.0%)	78 (56.1%)	38 (27.3%)	3 (2.2%)	139 (100%)	

Table 3. Frequency and percentage of SIS diagnosis in women Adolescents of uterine diseases in age 31-42 years

Parameters		SIS findings					Total	P.value
		E.hyperplasia	Fibroid	Normal	Polyp	Septum		
Complaining	Abortion	1 (12.5%)	1 (12.5%)	3 (37.5%)	2 (25%)	1 (12.5%)	8 (8%)	0.001*
	Infertility	1 (10%)	1 (10%)	2 (20%)	6 (60%)	0 (0%)	10 (10%)	
	V. infection	3 (14.3%)	5 (23.8%)	11 (52.9%)	2 (9.5%)	0 (0%)	21 (21%)	
	V.bleeding	26 (42.6%)	10 (16.4%)	17 (27.9%)	8 (13.1%)	0 (0%)	61 (61%)	
Total		31 (31%)	17 (17%)	33 (33%)	18 (18%)	1 (1%)	100 (100%)	

* Chi-square test

Table 4. Distribution of the number of uterine polyps (multiple versus single) and its association with clinical complications

Parameters		No. of polyps		Total	P.value
		Multiple	Single		
Complaining	Abortion	4 (66.7%)	2 (33.3%)	6 (10.7%)	0.11^{NS}
	Infertility	5 (31.25%)	11 (68.75%)	16 (28.6%)	
	V. infection	2 (14.3%)	12 (85.7%)	14 (25%)	
	V.bleeding	5 (25%)	15 (75%)	20 (35.7%)	
Total		16 (28.6%)	40 (71.4%)	56 (100%)	

Figure 1. Frequency of SIS diagnosis in women

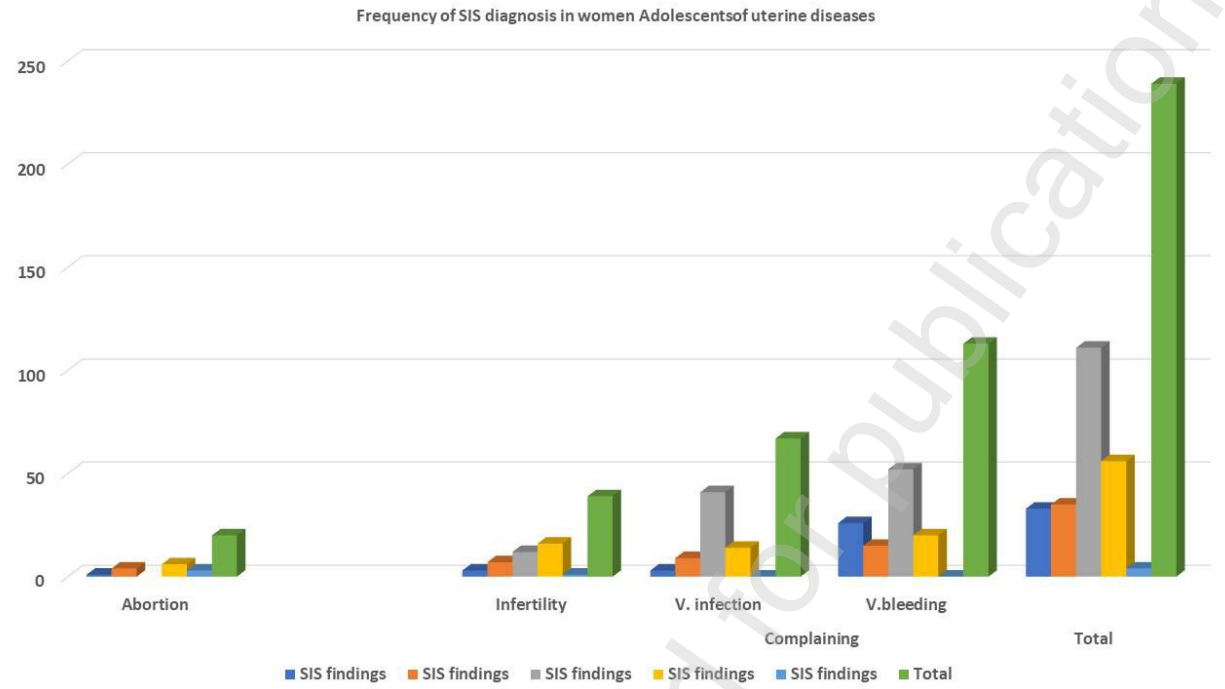

Figure 2. Frequency of SIS diagnosis in 19-30 years women

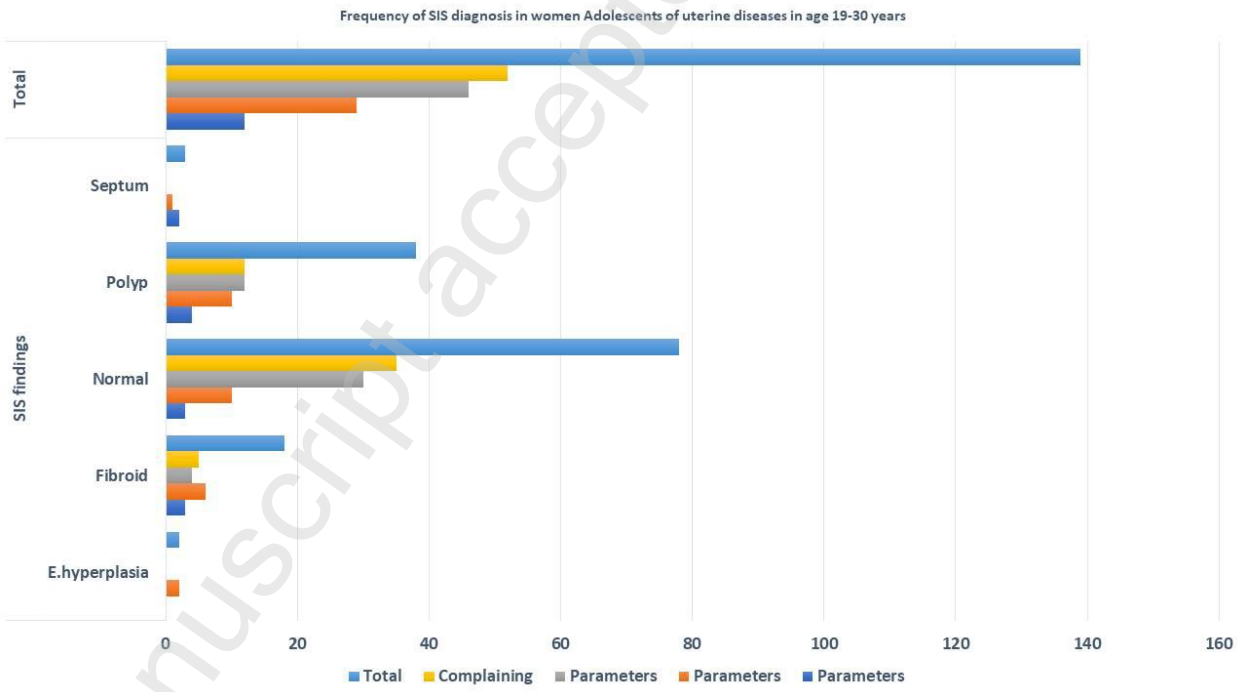

Figure 3. Frequency and percentage of SIS diagnosis in women Adolescents

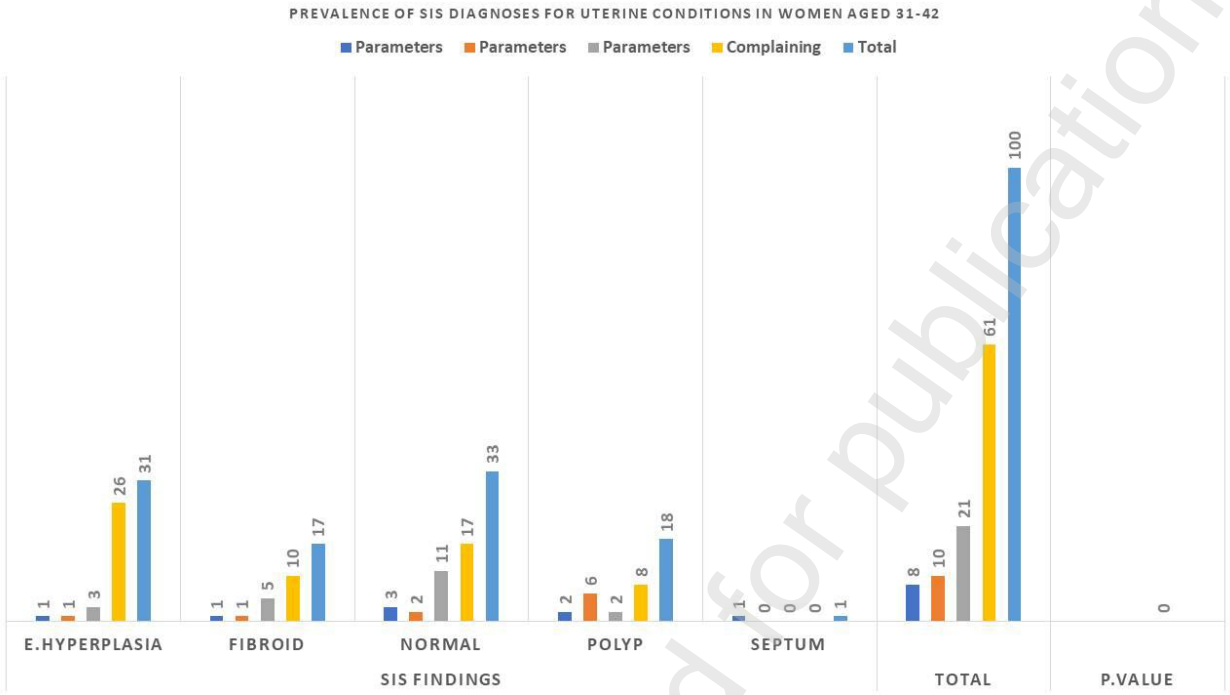

Figure 4. Analysis of Uterine Polyps Quantity (Multiple vs. Single) and Related Clinical Complications