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Transvaginal sonography(tvs) & saline infusion sonohysterography (sis) in the evaluation of abnormal uterine bleeding (aub) & its correlation with histopathological examination report

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Abstract

Menstrual dysfunction is a cause of discomfort and inconvenience disrupting the life style of millions of women. It is a commonly encountered problem in gynaecological practice, accounting for 15% of outpatients and almost 25% of gynaecological surgeries. Therefore, early detection of the cause for such dysfunction is important for further management. The present

study was aimed at to determine the accuracy of transvaginal ultrasonography and saline infusion sonohysterography in the evaluation of abnormal uterine bleeding and to correlate their diagnostic accuracy after hysterectomy with histopathological examination report. It was a prospective study conducted on 50 patients with complaints of abnormal uterine bleeding who attended the department of Obstetrics and Gynecology, Mamata general hospital, Khammam and underwent Transvaginal ultrasonography, followed by saline infusion sonohysterography and the findings were interpreted. Results showed that saline infusion sonohysterography is a simple highly sensitive and specific technique to detect intrauterine pathology in the evaluation of abnormal uterine bleeding when Transvaginal sonography findings are inconclusive. Saline infusion sonohysterography outlines the uterine cavity, detects myoma, polyp or endometrial abnormality, missed on transvaginal ultrasound alone.

Keywords: Abnormal uterine bleeding, transvaginal sonography, saline infusion, sonography

Introduction

Menstrual dysfunction is a cause of discomfort and inconvenience disrupting the life style of millions of women. It is a commonly encountered problem in gynaecological practice, accounting for 15% of outpatients and almost 25% of gynaecological surgeries [1]. Menorrhagia affects 10 to 30 % of reproductive-aged women and up to 50% of premenopausal women [2]. The causes of AUB can be classified into organic pelvic pathology, endocrinal, blood dyscrasias, dysfunctional uterine bleeding and as a result of systemic diseases. Since its introduction in 1958 medical ultrasonography has had tempestuous technical growth [3]. Ultrasonography in gynaecology has an important role in the evaluation of female pelvic organs. USG compliments bimanual examination. The diagnostic benefits of ultrasound are impressive and unequivocal. Transvaginal sonography with improved resolution is chosen by many, instead of endometrial biopsy as a first line tool to assess abnormal bleeding. A Transvaginal USG is done in most cases, because it minimizes patient discomfort due to a full bladder and shorter distance between the transducer and target organs. One further refinement of this approach to gynaecological diagnosis is the use of saline [4]. Though hysteroscopy has been considered as gold standard for evaluating the uterine cavity abnormalities, it is expensive, associated with complications like

perforation, embolism and cannot assess the myometrial and adnexal pathology. TVS though it overcomes the above problems, its use is limited in distinguishing between polyp and diffuse lesions and may miss small intracavitary lesions.

Saline infusion Sonography (SIS) is a simple, minimally invasive, and cost effective sonographic procedure, SIS can be used to accurately evaluate the endometrium and endometrial cavity. The infusion of saline serves as a contrast medium and distends the endometrial canal allowing exquisite display of the inner lining of endometrium during real time imaging. This procedure is known by many names including sonohysterography, ultrasonohysterography and saline infusion sonography. Today saline infusion sonography has evolved as a useful, safe and minimally invasive examination for women who have abnormal uterine bleeding, infertility and congenital uterine anomalies.

Material and methods

50 patients who attended the department of obstetrics and gynaecology during the period of August 2012 to May 2014 fulfilling the inclusion and exclusion criteria were taken in the study. All patients were in reproductive and perimenopausal age group with complaints of abnormal uterine bleeding, in the form of menorrhagia, metrorrhagia, menometrorrhagia, polymenorrhoea and polymenorrhagia, a detailed history was taken with special emphasis on menstrual history. Specific history was taken to rule out the systemic disorders responsible for abnormal uterine bleeding. Clinical examination was carried out including breast and pelvic examination. Laboratory investigations were conducted. After taking an informed consent, these patients underwent Transvaginal Sonography and Saline Infusion Sonohysterography.

The patient was asked to empty the bladder before the procedure and then placed in dorsal position with legs flexed. A baseline transvaginal ultrasound was performed first using endovaginal probe of 7.5MHz (covered by a condom) the appearance of the endometrium, myometrium, and adnexae was noted. The cervix was swabbed with the povidine iodine solution.

No.8 Foley's catheter was placed in the cervix and the balloon inflated with 1.5 to 2 ml of distilled water such that it lies just above the internal os and blocks the distension fluid from flowing out of the endometrial cavity. Speculum was removed and the vaginal probe (covered by a condom) was reinserted.

Gentle infusion of sterile saline was completed during real time sonography. Saline separated the echogenicities from the endometrium which appeared as hypoechoic area within the endometrial cavity. Uterine cavity was visualized in longitudinal plane from corner to corner and in coronal plane from fundus to endocervix. The endometrial cavity was examined for the presence of polyps or submucosal myoma. Any projection inside the uterine cavity was observed with special attention to its shape and echogenicity, evidence of abnormal endometrial thickening was also noted. The balloon was deflated and the catheter gently removed.

Inclusion criteria:

All the women in reproductive and perimenopausal age group with abnormal uterine bleeding in the form of metrorrhagia, menorrhagia, menometrorrhagia, polymenorrhoea, polymenorrhagia.

Exclusion criteria:

Menstruating women, Patients suspected to have endometrial carcinoma, Patients with Pelvic Inflammatory disease, Patients with possibility of pregnancy, Puberty menorrhagia, Patients with severe cervical stenosis due to previous history of surgeries on the cervix, Unmarried women, Abnormal cervical pap smear and Uterus >12 weeks size.

Observations and results

Abnormal uterine bleeding is one of the most frequently encountered condition in gynaecological practice. In this study 50 patients with AUB who were being subjected to hysterectomy and who were fulfilling the inclusion and exclusion criteria and being subjected to

hysterectomy were analyzed.

All patients in the study group belong to reproductive and perimenopausal age group with maximum number of patients being from 35-40 & 41-45 years. It was noted that multipara who conceived 3 or more times, there was greater incidence of abnormal uterine bleeding. Among the 50 cases, only one patient was nulliparous.

Table-1. Distribution of Results According To Diagnosis Made On Trans Vaginal Sonography

Findings	TVS	Percentage
Anterior intramural fibroid	8	16%
Posterior intramural fibroid	9	18%
Multiple intramural fibroid	11	22%
Sub mucosal fibroid	2	4%
Endometrial polyp	-	-
Normal study	20	40%
Total	50	100%

Table 1 reveals that in maximum number of cases i.e. 40% cases there was no pelvic pathology detected and the diagnosis of DUB was made. In 22% of cases there were multiple intramural fibroids, 16% of anterior & 18% posterior intramural fibroids, 4% sub mucosal fibroids.

Table-2. Distribution of Results According To Diagnosis Made On saline infusion sonohysterography

Findings	SIS	Percentage
Anterior intramural fibroid	6	12%
Posterior intramural fibroid	8	16%
Multiple intramural fibroid	11	22%
Sub mucosal fibroid	5	10%
Endometrial polyp	2	4%
Normal study	18	36%
Total	50	100%

Table 2 reveals that in maximum number of cases i.e. 36% cases there was no pelvic pathology detected and the diagnosis of DUB was made. 22% with multiple intramural fibroids, 16% with posterior intramural fibroids and 12% with anterior intramural fibroids. 10% of submucous fibroid and 4% with polyps were diagnosed by saline infusion sonohysterography. Two endometrial polyps that were missed in TVS were detected by SIS. In 3 cases where TVS diagnosed as intramural fibroids were detected as submucosal fibroids by SIS.

DISCUSSION

The management of abnormal uterine bleeding in women over the age of 40 years requires prompt diagnosis. Invasive and costly diagnostic procedures, such as diagnostic hysteroscopy and dilatation and curettage, are common steps in evaluating abnormal uterine bleeding. Pelvic ultrasonography has enhanced our ability to evaluate the pathologic endometrial, myometrial, or pelvic cavity conditions that may contribute to abnormal uterine

bleeding. TVS is effective in identifying or excluding intrauterine and endometrial abnormalities.

Hysteroscopy may allow visualization of intrauterine cavity lesions. TVS is more precise in revealing and measuring submucous, intramural, and subserous uterine myomas. However, it frequently fails to differentiate between endometrial hyperplasia, polyps and submucous myomas [5].

The introduction of sterile fluid into the uterine cavity during TVS i.e. saline hysterosonography has recently been reported as a diagnostic tool to ascertain intrauterine abnormalities. Diagnostic hysteroscopy has become an acceptable tool to visualize the uterine cavity and perform biopsy on the suspected abnormalities. However this examination is an invasive procedure and requires a more complicated set up at higher expense than sonography. Recently published reports have suggested that sonohysterography [6] could be used instead of this costly procedure. The present study was carried out on 50 patients with complaints of abnormal uterine bleeding for at least of 3 months duration in reproductive and perimenopausal age group women in the department of obstetrics and gynaecology Mamata Medical College, Khammam. Transvaginal ultrasound and saline infusion sonohysterography was performed in all the patients.

The mean age of the patients in this study was 30-51 years i.e. largely in the reproductive and perimenopausal age group, wherein, it is important to determine the exact etiology of AUB for accurate management. All other studies also had women of reproductive, perimenopausal and postmenopausal age group. The number of patients in different study group varied from 39-130 patients. In the present study evaluation of 50 cases was done. The duration of symptoms ranged from less than 6 months to upto 2 years and maximum number patients had complaints within 4-6 months with standard deviation of 7.23.

The transvaginal ultrasound revealed that the majority i.e 24% had normal finding which

was suggestive of dysfunctional uterine bleeding. Other findings like anterior, posterior, and multiple intramural fibroids were also detected. With the use of saline hysterosonography the

TVS findings were confirmed, but it also detected endometrial polyps in 2 patients which were missed on TVS. SIS also detected another 3 submucosal myomas which were seen as intramural fibroids on TVS. The findings of SIS were confirmed by histopathological examination report of the specimen sent to pathology department after hysterectomy except for a small endometrial polyp that was missed on SIS.

The sensitivity of the TVS was 90.6%, specificity was 100%, the positive predictive value was 100% and the negative predictive value was 85.7%. with an accuracy rate of 80%. The sensitivity of the SIS was 96.8%, specificity was 100%, the positive predictive value was 100% and the negative predictive value was 94.7%. with an accuracy rate of 80%. The association between SIS AND TVS are statistically significant [Mc Nemar test =0.21]

Conclusion

TVS is a simple, minimally invasive, low cost technique and it should be the first diagnostic method of choice in evaluating AUB. The appropriate clinical place for SIS is a second line diagnostic procedure in the evaluation of AUB if TVS is inconclusive. It is highly sensitive and specific especially for diagnosing submucous myoma, endometrial polyps. No complications, either related to insertion of catheter or any infection is associated. It is an alternative to hysteroscopy with the additional advantage of evaluating myometrial and adnexal pathology besides being less invasive and cost effective.

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Authors Column



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