Student's Journal of Health Research Africa
e-ISSN: 2709-9997, p-ISSN: 3006-1059
Vol. 5 No. 9 (2024): September 2024 Issue
https://doi.org/10.51168/sjhrafrica.v5i9.1306
Original Article

HYSTEROSCOPY AS DIAGNOSTIC PROCEDURE IN ABNORMAL UTERINE BLEEDING AND ITS CORRELATION WITH HISTOPATHOLOGY: A PROSPECTIVE COHORT STUDY.

Jaya Kumari[1], Kavya Abhilashi[1], Sangeeta Pankaj[2], Poonam[2]
[1]Assistant Professor, IGIMS,Patna
[2]Professor, IGIMS, Patna

ABSTRACT

Background

The study aimed to correlate hysteroscopic findings with histopathological findings in women presenting with abnormal uterine bleeding and to study the accuracy of hysteroscopy in the evaluation of abnormal uterine bleeding

Methods

A prospective study was conducted in the Department of Gynecology at IGIMS, Patna from November 2021 to October 2023. A total of 58 patients who came with a history of abnormal uterine bleeding during this period were selected for the study. The hysteroscopic examination was done in all these patients post-menstrually, whenever possible, except in those cases where menstrual cycles were grossly irregular or patients came with continuous bleeding per vaginum. Endometrial biopsies were taken in the same sitting and sent for histopathological examination. Then correlation between findings on hysteroscopy and histopathological examination was done.

Results

Hysteroscopy revealed that 48.27% of patients had normal findings, while 51.73% had abnormalities. The most common abnormal hysteroscopic finding was hyperplasia (20.69%), followed by endometrial polyp (10.35%), myoma/myomatous polyp (6.86%), and endometrial carcinoma (5.18%). The histopathological examination showed 53.57% of patients had normal findings, with proliferative endometrium being the most common normal finding. Among abnormal histopathological findings, hyperplasia (16.07%) and endometrial polyp (8.93%) were prevalent. The accuracy of hysteroscopy in diagnosing normal endometrium, atrophic endometrium, and endometrial carcinoma was high, with a sensitivity of 100%.

Conclusions

Hysteroscopy allows direct visualization and biopsy of abnormal uterine bleeding. It can accurately diagnose normal and abnormal situations, although it may not detect hyperplasia as well as histology. The study emphasizes combining diagnostic methods to improve accuracy.

Recommendations

Whenever possible, hysteroscopy should be used to diagnose abnormal uterine bleeding. It permits direct visualization of the uterine interior. Diagnostic accuracy is improved with hysteroscopic biopsies. Hysteroscopic-histopathological correlations need further study to improve diagnostic methods.

Keywords: *Abnormal uterine bleeding, Endometrial biopsy, Hysteroscopy, Histopathological examination*
Submitted: *2024-07-27* ***Accepted:*** *2024-08-12*

Corresponding Author
Dr Sangeeta pankaj
Email: ***drsangeetapankaj@gmail.com***
Professor, IGIMS,Patna.

INTRODUCTION

Any abnormal bleeding that deviates from normal menstruation is called Abnormal uterine bleeding (AUB).1,2 It may vary in terms of frequency of bleeding, duration, and the pattern of bleeding during menstrual cycle or menopause.1 It is the most common gynecological problem among women of reproductive age group for medical visits.3-6 And about 33.33% of outpatient visits to the gynecology department are for AUB, and it accounts for more than 60-70% of all gynecologic consults in the premenopausal and postmenopausal women who suffer

Student's Journal of Health Research Africa
e-ISSN: 2709-9997, p-ISSN: 3006-1059
Vol. 5 No. 9 (2024): September 2024 Issue
https://doi.org/10.51168/sjhrafrica.v5i9.1306
Original Article

from various forms of this disorder at different ages in their life.7-9

In addition to this, it is supposed to be one of the common causes of anemia in women, especially in the developing world.4-9 The health of women is negatively impacted by abnormal menstruation. It may restrict women's everyday activities and keep them from leaving the house. It generally has an impact on the physical, psychological, and social well-being of mothers.3-7

Abnormal Uterine Bleeding has several aetiological reasons, FIGO has classified it into 9 main categories, which are arranged according to the acronym PALM-COEIN: polyp; adenomyosis; leiomyoma; malignancy and hyperplasia; coagulopathy; ovulatory dysfunction; endometrial; iatrogenic; and not yet classified. While the COEIN group is associated with things that are not characterized by imaging or histology (non-structural), the PALM group's components are typically discrete (structural) entities that can be quantified visually using imaging techniques and/or histopathology.4

The traditional methods of evaluation include good history taking, clinical examination, and histopathological examination of the endometrial sample obtained by dilatation and curettage. Despite all this, the etiology remains undiagnosed in many cases until a major surgical intervention is done. This necessitates improved diagnostic methods for its evaluation which will permit greater precision in its diagnosis. The diagnostic procedure must be safe and should also withstand critical and factual evaluation of its accuracy. The current practice of investigating abnormal uterine bleeding has been challenged for its accuracy, complications, and cost-effectiveness. Out of the various diagnostic techniques, for many years, dilatation and curettage have been the gold standard for evaluating patients with abnormal uterine bleeding. Although the diagnosis may be obtained in this manner in most patients, yet in about 10% of patients evaluated by the blind curettage; may miss focal pathology.5-8 Polyps and submucous fibroids are frequently undetected by curettage alone. 9-10 The fallacies of curettage suggest the need for better methods of evaluation of abnormal uterine bleeding. Other diagnostic techniques used in AUB are hysteroscopy, transvaginal sonography (TVS), laparoscopy, etc.11-13 The image resolution is high for TVS and hence allows for observation of any abnormality in the uterus, accessories, and pelvic cavity more clearly. 7 Thus, the traditional dilatation and curettage should now be replaced by hysteroscopy followed by curettage. Hysteroscopy can clarify the proper morphology of the endocervix and uterine cavity and can detect any malformations, polyps, fibroids, or malignant space-occupying lesions in the uterine cavity.5 The present study was undertaken to determine the role of diagnostic hysteroscopy in evaluating cases with abnormal uterine bleeding and to study its correlation with histopathology. The aims and objectives of this study are to correlate hysteroscopic findings with histopathologic findings in women with abnormal uterine bleeding and to study the accuracy of hysteroscopy in the evaluation of abnormal uterine bleeding.

METHODS

Study design

A prospective cohort study

Study setting

The study was conducted in the Department of Gynecology of Indira Gandhi Institute of Medical Science, Patna from November 2021 to October 2023.

Study size

The study was conducted on 58 women who came with abnormal uterine bleeding.

Inclusion criteria

Reproductive age group, Perimenopausal women, Postmenopausal women with complaints of abnormal uterine bleeding

Exclusion criteria

1. Cases of unhealthy cervix 2. Coagulation disorders 3. Pregnancy/cases of abortion/ectopic pregnancy 4. Uterine and cervical infections and pelvic inflammatory diseases, STDs, and vaginitis 5. lower genital tract malignancies and 6. medical condition contraindicated to any invasive procedure

Bias

Potential sources of bias in this study include selection bias, observer bias, and information bias. To address these, a

Student's Journal of Health Research Africa
e-ISSN: 2709-9997, p-ISSN: 3006-1059
Vol. 5 No. 9 (2024): September 2024 Issue
https://doi.org/10.51168/sjhrafrica.v5i9.1306
Original Article

broad inclusion criterion was used, standardized protocols for hysteroscopy and histopathology were followed, and procedures were conducted by blinded, experienced clinicians to ensure accurate and unbiased results.

Procedure

Cases were selected according to the criteria mentioned above. Also, detailed history taking and clinical examination were done. And followed by routine investigations [Hb, BT, CT, TLC, DLC, chest X-ray, ultrasound (abdomen and pelvis), urine pregnancy test, where necessary]. Informed consent of every patient was taken. Patients were advised to have a light dinner before 10 pm on the night before hysteroscopy. In this study, hysteroscopy was performed under I/V sedation. The distending medium used in this study was normal saline. The device which was used in this study is a diagnostic hysteroscopy. All the patients in this study underwent hysteroscopic examination followed by endometrial biopsy which was sent for histopathological examination. The results of diagnostic hysteroscopy and histopathology were studied and analyzed. Data were recorded on a predesigned proforma. Further management of the patient was decided according to age, parity, severity of disease, hysteroscopic and histopathological report.

Statistical analysis

The data obtained from the study was arranged in a tabulated manner in an Excel sheet, and the data was then subjected to statistical analysis. Statistical analysis is accomplished using SPSS version 23.0. A $p< 0.05$ change is considered to be statistically significant.

Ethical considerations

The study protocol was approved by the Ethics Committee and written informed consent was received from all the participants.

RESULTS

This study was conducted on 58 patients who had abnormal uterine bleeding. Hysteroscopy was performed along with endometrial curettage and tissue obtained was sent for histopathological examination.

Age group of the patients ranged from 22-70 years and the most common age group was 31-40 years (45%). This group comprised of 45% of the patients and mean age was 38.3. 88% of patients were parous and rest 12% was nulliparous. Most of the patients (34%) presented within six months of the onset of symptoms. Menorrhagia was the commonest presenting symptom in this study. 60.34% patients presented with this symptom. The next common presentation was 17.24% with Post-Menopausal Bleeding (PMB) and polymenorrhoea and polymenorrhagia. (13.79%). 5.17% patients came with metrorrhagia, 1.73% oligomenorrhoea and 1.73% with missed Cu T thread. Table 2 represents the incidence of various bleeding patterns in the present study.

Table 1: Demographic profile

Demographic Data	Number of Cases (n=58)	Percentage (%)
Age Group (years)		
- 22-30	8	13.79
- 31-40	26	44.83
- 41-50	16	27.59
- 51-60	6	10.34
- 61-70	2	3.45
Parity		
- Parous	51	87.93
- Nulliparous	7	12.07
Time Since Symptom Onset		
- Less than 6 months	20	34.48
- More than 6 months	38	65.52

Student's Journal of Health Research Africa
e-ISSN: 2709-9997, p-ISSN: 3006-1059
Vol. 5 No. 9 (2024): September 2024 Issue
https://doi.org/10.51168/sjhrafrica.v5i9.1306
Original Article

Table 2: Distribution of patients according to types of abnormal uterine bleeding (n=58).

Type	No. of cases	Percentage
Menorrhagia	35	60.34
Postmenopausal bleeding	10	17.24
Polymenorrhoea	5	8.62
Polymenorrhagia	3	5.17
Metrorrhagia	3	5.17
Missed Cu T thread	1	1.73
Oligomenorrhoea	1	1.73

Table 3: Distribution of the patients according to the hysteroscopic findings.

Finding		No. of cases	Percentage
Normal 28	Proliferative	17	29.31
	Secretary	11	18.97
Abnormal 30	Hyperplasia	10	17.24
	Endometrial polyp	6	10.35
	Myoma/myomatous polyp	4	6.89
	Synechiae	3	5.17
	Misplaced IUCD	4	6.90
	Atrophic endometrium	1	1.72
	Endometrial carcinoma	2	3.45

Table 4: Distribution of the patients according to the histopathological findings (n=56).

Finding		No. of cases	Percentage
Normal	Proliferative	20	35.71
	Secretory	10	17.86
Abnormal	Hyperplasia	9	16.07
	Endometrial polyp	5	8.93
	Myoma/myomatous polyp	4	7.14
	Endometrial carcinoma	3	5.36
	Hormonal	2	3.57
	Atrophic	2	3.57
	Tubercular endometritis	1	1.79

On hysteroscopy 48.28% were found to be normal. And rest 51.78% cases were abnormal. While 53.57% patients were reported as normal histopathologically and rest of them had abnormal finding. Hyperplasia was the most common finding which was seen in 17.24% patients. The other findings included endometrial polyp 10.35%, myoma or myomatous polyp 6.89%, atrophic endometrium 1.72%, synaechiae 5.17%, endometrial carcinoma 3.45%, misplaced IUCD 6.90% as shown in (Table 3).

Histopathology reports of the tissue sent for biopsy came out to be normal (proliferative or secretory) in 53.57% patients. Hyperplasia was reported in 16.07% and another3.57% were reported as hormonal pattern. This was due to some treatment in the form of hormones prescribed to the patients for the abnormal uterine bleeding. The rest consisted of endometrial polyp in 8.93%, atrophic in 5%, myoma in 3%, endometrial carcinoma in 2% and tubercular endometritis in 1%. Biopsy was not sent in missed Cu T and synechiae cases. The histopathology results are tabulated in Table 4.

The hysteroscopic findings were then correlated with histopathological findings. 28 cases were found to be normal on hysteroscopy. These cases were also normal on histopathology. Out of 12 cases of hyperplasia, only 9 were

Student's Journal of Health Research Africa
e-ISSN: 2709-9997, p-ISSN: 3006-1059
Vol. 5 No. 9 (2024): September 2024 Issue
https://doi.org/10.51168/sjhrafrica.v5i9.1306
Original Article

confirmed on histopathology 2 were reported as hormonal patterns due to some treatment taken by the patient and 1 were normal on histopathology. 5 cases of endometrial polyp were found on hysteroscopy. These were confirmed to be the same on histopathology. All the cases of atrophic endometrium were confirmed on histopathological examination. Synechiae was seen in 1 patient. Table 5 shows a comparison between hysteroscopic and histopathological findings

Table 5: Comparison between the hysteroscopic findings and the histopathological findings.

Finding		Number	Histopathological finding							
			Normal	Hyperplasia	Endometrial polyp	Hormonal	Myoma polyp	Atrophic	Endometrial cancer	Tubercular endometritis
Normal	Proliferative	17	20	0	0	0	0	0	0	0
	Secretary	11	11	0	0	0	0	0	0	0
Abnormal	Hyperplasia	12	1	9	0	2	0	0	0	0
	Endometrial polyp	6	0	0	5	0	0	0	0	0
	Myoma	4	0	0	0	0	4	0	0	0
	Synechiae	1	0	0	0	0	0	0	0	0
	Missed IUCD	4	0	0	0	0	0	0	0	1
	Atrophic	1	0	0	0	0	0	2	0	0
	Endometrial cancer	2	0	0	0	0	0	0	3	0

DISCUSSION

This study included 58 patients presenting with abnormal uterine bleeding, with a demographic profile showing that the majority (44.83%) were in the 31-40 age group, and 87.93% were parous. Most patients (65.52%) had experienced symptoms for more than six months. Menorrhagia was the most common clinical presentation, observed in 60.34% of cases, followed by postmenopausal bleeding in 17.24%.

Hysteroscopy revealed normal findings in 48.28% of patients, while 51.78% had abnormalities, with hyperplasia (17.24%) being the most common abnormality. Histopathological examination confirmed that 53.57% of the cases were normal, while hyperplasia was noted in 16.07% of cases. There was a significant correlation between hysteroscopic and histopathological findings, particularly in the diagnosis of endometrial polyps, myoma, and atrophic endometrium. However, some discrepancies were noted, such as cases of hyperplasia being identified as hormonal patterns on histopathology due to prior treatment.

The study's findings support the value of hysteroscopy as a diagnostic tool, particularly in identifying intrauterine pathologies, with histopathology serving as a confirmatory diagnostic method. The correlation between hysteroscopic and histopathological findings underscores the importance of combining both techniques for accurate diagnosis and management of abnormal uterine bleeding.

Misdiagnoses related to endometrial hyperplasia, endometritis, endometrial polyps, uterine fibroids, pure hysteroscopy, and pure vaginal ultrasonography were observed in some of these patients, and these findings aligned with research findings. The diagnostic sensitivity, specificity, negative likelihood ratio, and positive likelihood ratio of the K-means improved clustering color image segmentation algorithm under the treatment of vaginal ultrasound combined hysteroscopy in patients with abnormal uterine bleeding were all greatly improved, according to comparison results from 14 different methods of assessing diagnostic accuracy. Every group showed substantial differences ($P<0.005$).

The purpose of this study was to examine the accuracy of hysteroscopy in evaluating abnormal uterine bleeding, as well as to link the hysteroscopic results with the histopathological report. 48.28% of the cases in the current

Student's Journal of Health Research Africa
e-ISSN: 2709-9997, p-ISSN: 3006-1059
Vol. 5 No. 9 (2024): September 2024 Issue
https://doi.org/10.51168/sjhrafrica.v5i9.1306
Original Article

study had normal hysteroscopy results, and each of these instances had a histological analysis to corroborate the results. Hysteroscopy is therefore very valuable in the diagnosis of a normal endometrium.

Proliferative endometrium

In hysteroscope 17 patients, the endometrium was pink, smooth, and thin, appearing to be of proliferative type. The same was confirmed by histopathology in 17 patients. Histology of the endometrial curetting revealed proliferative endometrium with tall columnar cells and pseudo stratification. Findings were different in 1 case. Therefore, the diagnostic accuracy of hysteroscopy for proliferative endometrium was 93.3%.

Secretory endometrium

Hysteroscopy proved the uterine cavity to be normal with orange, undulating, and thick endometrium appearing to be secretory in 11 cases. The diagnostic accuracy of hysteroscopy for secretory endometrium was 94.4%.

Endometrial hyperplasia

In these patients, endometrium appeared to be thickened, edematous, and undulating. There were 10 patients with these hysteroscopic findings. This finding was consistent with the histology of the endometrium in 8 cases and different in 2 cases which were found to be the effect of hormonal therapy.

Accuracy of hysteroscopy

Out of the endometrial lesions, the accuracy of hysteroscopy was 100% in diagnosing normal endometrium, atrophic endometrium, and endometrial carcinoma. However, the accuracy of hysteroscopy for diagnosing the hyperplastic endometrium was 80%. Hysteroscopy was more accurate in identifying intrauterine pathologies like endometrial polyps, myoma, and misplaced IUCD than histopathology.

Generalizability

The generalizability of this study is somewhat limited due to its specific patient population from a single medical institution and the relatively small sample size of 58 patients. However, the findings may apply to similar clinical settings where abnormal uterine bleeding is evaluated using hysteroscopy and histopathology, particularly in populations with comparable demographic and clinical characteristics. Broader applicability would require validation in more diverse and larger populations.

CONCLUSION

Hysteroscopy is a valuable, simple, low-risk technique that allows an adequate exploration of the uterine cavity under visual control. It ensures speed and safety with the diagnosis and treatment. The results are immediately available. In patients with abnormal uterine bleeding, hysteroscopy provides the possibility of immediate diagnosis and prompt and effective treatment. It allows for finding out the source of bleeding and performing a directed biopsy of the suspected area. It affords a more accurate diagnosis than dilatation & curettage for intrauterine pathologies. But for hyperplasia, carcinoma endometrium, and tubercular endometritis, histopathology gives confirmative tissue diagnosis in all cases. Therefore, it can be concluded that hysteroscopy offers an invaluable advantage of direct visualization of any abnormality within the uterine cavity. It does not substitute other diagnostic procedures; rather, it complements them. Hysteroscopy is a safe, simple, quick, and economic technique, well accepted by the patient, with great potential in gynecology. Hysteroscopy has a high sensitivity i.e. it can supplement and enhance the accuracy of tissue diagnosis. So, hysteroscopically directed biopsy would be an ideal procedure in abnormal uterine bleeding wherever facilities are available.

LIMITATIONS

The limitations of this study include a small sample population who were included in this study. Furthermore, the lack of a comparison group also poses a limitation for this study's findings.

RECOMMENDATION

Hysteroscopy should be the first-line diagnostic tool for evaluating abnormal uterine bleeding, particularly where available, as it allows direct visualization of the uterine cavity. Hysteroscopically directed biopsies are recommended to improve diagnostic accuracy. Further research is needed to refine diagnostic protocols by exploring the correlation between hysteroscopic and histopathological findings.

ACKNOWLEDGMENT

We are thankful to the patients; without them, the study could not have been done. We are thankful to the supporting staff of our hospital who were involved in the patient care of the study group.

LIST OF ABBREVIATIONS

AUB: Abnormal Uterine Bleeding
IGIMS: Indira Gandhi Institute of Medical Sciences
PMB: Post-Menopausal Bleeding
FIGO: International Federation of Gynecology and Obstetrics
PALM-COEIN: Polyp, Adenomyosis, Leiomyoma, Malignancy, and Hyperplasia; Coagulopathy, Ovulatory Dysfunction, Endometrial, Iatrogenic, Not Yet Classified
TVS: Transvaginal Sonography
I/V: Intravenous
Hb: Hemoglobin
BT: Bleeding Time
CT: Clotting Time
TLC: Total Leukocyte Count
DLC: Differential Leukocyte Count
SPSS: Statistical Package for the Social Sciences
IUCD: Intrauterine Contraceptive Device

SOURCE OF FUNDING

No funding received.

CONFLICT OF INTEREST

The authors have no competing interests to declare.

REFERENCES

1. N. Wouk and M. Helton, "Abnormal uterine bleeding in premenopausal women," *American Family Physician*, vol. 99, no. 7, pp. 435–443, 2019. View at: Google Scholar
2. M. L. Marnach and S. K. Laughlin-Tommaso, "Evaluation and management of abnormal uterine bleeding," *Mayo Clinic Proceedings*, vol. 94, no. 2, pp. 326–335, 2019. View at: Publisher Site | Google Scholar
3. Ding C, Wang J, Cao Y, et al. Heavy menstrual bleeding among women aged 18-50 years living in Beijing, China: prevalence, risk factors, and impact on daily life. *BMC Womens Health* 2019; 19: 27. [PMC free article] [PubMed] [Google Scholar]
4. Khafaga A, Goldstein SR. Abnormal uterine bleeding. *Obstet Gynecol Clin North Am* 2019; 46(4): 595–605. [PubMed] [Google Scholar]
5. C. Yaşa and F. Güngör Uğurlucan, "Approach to abnormal uterine bleeding in adolescents," *Journal of clinical research in pediatric endocrinology*, vol. 12, no. Suppl 1, pp. 1–6, 2020. View at: Publisher Site | Google Scholar
6. A. E. Jacobson-Kelly and B. T. Samuelson Bannow, "Evidence-Based Minireview: abnormal uterine bleeding in users of rivaroxaban and apixaban," *Hematology*, vol. 2020, no. 1, pp. 538–541, 2020. View at: Publisher Site | Google Scholar
7. T. Abbas and A. Husain, "Emergency department management of abnormal uterine bleeding in the nonpregnant patient," *Emergency Medicine Practice*, vol. 23, no. 8, pp. 1–20, 2021.View at: Google Scholar
8. M. Hu, Y. Zhong, S. Xie, H. Lv, and Z. Lv, "Fuzzy system based medical image processing for brain disease prediction," *Frontiers in Neuroscience*, vol. 15, Article ID 714318, 2021. View at: Publisher Site | Google Scholar
9. Y. Li, J. Zhao, Z. Lv, and J. Li, "Medical image fusion method by deep learning," *International Journal of Cognitive Computing in Engineering*, vol. 2, pp. 21–29, 2021. View at: Publisher Site | Google Scholar
10. Z. Yu, S. U. Amin, M. Alhussein, and L. Zhihan, "Research on disease prediction based on improved DeepFM and IoMT," *IEEE Access*, vol. 9, no. 99, p. 1, 2021. View at: Publisher Site | Google Scholar
11. C.-Y. Peng, U. Raihany, S.-W. Kuo, and Y.-Z. Chen, "Sound detection monitoring tool in CNC milling sounds by K-means clustering algorithm," *Sensors*, vol. 21, no. 13, p. 4288, 2021. View at: Publisher Site | Google Scholar
12. M. Jewson, P. Purohit, and M. A. Lumsden, "Progesterone and abnormal uterine bleeding/menstrual disorders," *Best Practice & Research Clinical Obstetrics & Gynaecology*, vol. 69, pp. 62–73, 2020. View at: Publisher Site | Google Scholar
13. I. Ramalho, H. Leite, and F. Águas, "Abnormal uterine bleeding in adolescents: a multidisciplinary approach," *Acta Medica Portuguesa*, vol. 34, no. 4, pp. 291–297, 2021. View at: Publisher Site | Google Scholar
14. M. Sauvan, A.-G. Pourcelot, S. Fournet, H. Fernandez, and P. Capmas, "Office hysteroscopy for postmenopausal women: feasibility and correlation with transvaginal ultrasound," *Journal of Gynecology Obstetrics and Human Reproduction*, vol. 47, no. 10, pp. 505–510, 2018. View at: Publisher Site | Google Scholar

Student's Journal of Health Research Africa
e-ISSN: 2709-9997, p-ISSN: 3006-1059
Vol. 5 No. 9 (2024): September 2024 Issue
https://doi.org/10.51168/sjhrafrica.v5i9.1306
Original Article

PUBLISHER DETAILS

SJC PUBLISHERS COMPANY LIMITED

SJC Publishers Company Limited
TODAY AND TOMORROW

Catergory: Non Government & Non profit Organisation
Contact: +256 775 434 261 (WhatsApp)
Email: info@sjpublisher.org or studentsjournal2020@gmail.com
Website: https://sjpublisher.org
Location: Scholar's Summit Nakigalala, P. O. Box 701432,Entebbe Uganda, East Africa