Research Article ISSN 2639-9342

Gynecology & Reproductive Health

A Comparison of Visual Findings at Hysteroscopy with Endometrial Biopsy Histology among Women Being Investigated for Postmenopausal Bleeding

Johnbosco Mamah[1*], Azubuike Onyebuchi[1], Zubaida Abubakar-Aliyu[2], Nnaemeka Egbuonu[3], Obinna Oraekwe[4]

[1]*Obstetrics and Gynaecology department, Alex-Ekwueme Federal University Teaching Hospital, Abakaliki. Ebonyi State, Nigeria.*

[2]*Obstetrics and Gynaecology department, Homerton University Hospital, London.*

[3]*Anaesthesia department, Queens Hospital, Romford London.*

[4]*Obstetrics and Gynaecology department, Queen Elizabeth Hospital, Kings Lynn. United Kingdom.*

[*]Correspondence:
Dr. Johnbosco Mamah, Obstetrics and Gynaecology department, Alex-Ekwueme Federal University Teaching Hospital, Ebonyi State, Nigeria, E-mail: johnbosco.mamah.pg78545@unn.edu.ng

Received: 07 Oct 2022; **Accepted:** 18 Nov 2022; **Published:** 24 Nov 2022

Citation: Mamah J, Onyebuchi A, Abubakar-Aliyu Z, Egbuonu N, Oraekwe O. A Comparison of Visual Findings at Hysteroscopy with Endometrial Biopsy Histology among Women being Investigated for Postmenopausal Bleeding. Gynecol Reprod Health. 2022; 6(5): 1-4.

ABSTRACT

Between 90-95% of patients diagnosed with endometrial cancer present with postmenopausal bleeding. Hysteroscopy and endometrial biopsy are vital tools in the investigation of women with postmenopausal bleeding. Accurate interpretation of visual findings during hysteroscopy is an important requirement in the diagnosis and management of PMB. We undertook an audit of findings of hysteroscopies performed on women with postmenopausal bleeding and compared with histology report of endometrial biopsy taken during the hysteroscopy. Findings will be used to improve service delivery. A retrospective review was conducted between July 2019 to December 2019. Structured proforma was used for anonymised data collection and entered into an excel spreadsheet of the 2018 version. Descriptive statistical analysis was followed to determine frequencies and percentages. Accuracy of hysteroscopic findings was measured against endometrial biopsy histology report. A total of 133 patients referred for postmenopausal bleeding met the criteria for hysteroscopy and endometrial biopsy. The mean age of the participants was 60 years. The overall accuracy of hysteroscopic visual diagnosis of endometrial pathology was 75.0%. The sensitivity and specificity were 80.0% and 88.0%, while the positive predictive value (PPV) and negative predictive value (NPV) were 66.7%, and 93.8% respectively. Specificity and NPV were 100% and 93.8% for endometrial cancer, which was diagnosed in 7.5% of the patients. In conclusion, we found that compared with histologic diagnosis, three quarter of the women with histology confirmed endometrial pathology were correctly identified during hysteroscopy. Hysteroscopy had a high specificity and negative predictive value in excluding endometrial cancer. There is room for more training and skills enhancement.

Keywords

Endometrial cancer, Hysteroscopy, Postmenopausal bleeding.

Introduction

Postmenopausal bleeding (PMB) is a common presenting complaint among menopausal women [1,2]. Majority of the patients go to their general practitioner (GP) from where they are referred to the secondary care for investigation and management. The main aim of investigating postmenopausal bleeding is to identify women with endometrial cancer. Endometrial cancer is the most common gynaecological cancer in developed countries and about 90-95% of patients diagnosed with endometrial cancer attend with abnormal uterine bleeding [1-4]. Modalities for evaluating PMB differ between countries and even within the same country. According to the British Gynaecological cancer society, a stepwise approach is advocated with pelvic ultrasound scan done to screen the women and subsequently triaged to hysteroscopy and endometrial biopsy for confirmation of diagnosis [4-7].

Generally, transvaginal ultrasound (TVUS) is increasingly used as first line tool for endometrial assessment amongst women presenting with PMB. Its diagnostic accuracies approaching those of office endometrial biopsies, this has been quoted as up to 90% sensitivity of TVUS at detecting endometrial cancer [7-9]. Hysteroscopy is considered the gold standard tool for visual assessment and examination of focal endometrial lesions [2,5,8]. It can be performed in the outpatient setting or under general anaesthesia.

Hysteroscopy is increasingly becoming a first line tool for assessment of women with postmenopausal bleeding. Accurate reporting of hysteroscopy depends on the ability of the operator to correctly identify any pathology seen during hysteroscopy. This would require training and need to perform many hysteroscopies to build on existing knowledge and experience.

As a unit, we routinely undertake audits of hysteroscopy performed on women with suspected endometrial pathologies and comparing their findings with reported histology as the gold standard. This helps in identifying areas where learning or improvement is required. Hysteroscopies are performed by trained personnel who are considered competent in undertaking the procedure.

Methods

This was a 6-month retrospective study of all the women referred from primary care to the Homerton University Hospital one-stop clinic in Hackney London, for evaluation of postmenopausal bleeding. We studied all consecutive women referred to our outpatient one-stop hysteroscopy clinic through the 2-week wait pathway between July 1st 2019 and December 31st, 2019 for postmenopausal bleeding (PMB). In our unit, patients referred for PMB are evaluated in the 'one-stop hysteroscopy clinic which incorporates history taking, patient examination, and performance of a pelvic ultrasound scan to determine the endometrial thickness and identify co-existing lesions. Women with endometrial thickness of 5mm or more [7] or women having suspected endometrial lesion on the ultrasound scan are then triaged to undergo an outpatient hysteroscopy and endometrial biopsy at the same clinic visit. Outpatient hysteroscopy for consenting women is completed by a trained practitioner under local anaesthetic and oral pain relief. Occasionally Entonox is provided for additional pain relief. Women who did not tolerate outpatient hysteroscopy or declined outpatient hysteroscopy will have the procedure done under a general anaesthetic. Hysteroscopy involves a systematic assessment of the endometrial cavity and targeted biopsy if required. Identified endometrial pathologies are examined for contour, size, colour, visible vessel pattern, and endometrial glands. Hysteroscopy is said to be satisfactory if the entire uterine cavity and pathologies are well visualized. Endometrial biopsy specimen was sent for histologic examination.

Anonymised retrospective data of eligible women were collected using a structured proforma, data collected include patients age, ultrasound reports, hysteroscopy findings and histology report for each patient. All the data were entered into a secured excel spreadsheet stored on a passworded hospital computer system. Descriptive statistical analysis was done to determine frequencies and percentages. Results are presented in tables and charts. The primary outcome was to determine the level of concordance of visual findings at hysteroscopy with histology report as part of service audit and quality improvement strategy to ensure consistent, and effective service delivery. The diagnostic accuracy of outpatient hysteroscopy was evaluated and reported in terms of sensitivity, specificity, positive predictive value (PPV), and negative predictive value (NPV). Permission was obtained from the Audit and quality improvement unit of the hospital and the institution review board.

Results

During the study period, a total of 179 women with postmenopausal bleeding were referred to the one stop gynaecological clinic. A total of 133 patients were eligible for hysteroscopy and endometrial biopsy based on the set ultrasound criteria of thickened endometrium or suspected endometrial pathology identified during the pelvic scan. The age range of the patients was 47-78 years, modal age 55 years and a mean age of 60 years. Satisfactory outpatient hysteroscopy was completed in 84% of patients while the rest underwent hysteroscopy under a general anaesthetic (GA) due to inability to tolerate the procedure because of pain or preference for the procedure to be done under GA from the outset. Figure 1 shows the comparison of visual findings or reported endometrial pathologies seen during hysteroscopy versus findings reported after histological analysis of endometrial biopsies taken during hysteroscopy. Almost an equal number of patients (36.8% for hysteroscopy versus 35.0% confirmed on histology) were found to have endometrial polyp. Similar close concordance was seen in identifying fibroid (14.3% versus 11.4%) but the greatest discrepancy was among women that had endometrial cancer and endometrial hyperplasia with respectively 10-fold and 4-fold more women confirmed with these diseases on histology compared to hysteroscopy finding. The overall accuracy of hysteroscopic visual diagnosis of an endometrial pathology was 75.0%. The sensitivity for visual diagnosis of any pathology was 80.0%, specificity was 88.0%, PPV was 66.7%, and NPV was 93.8%. The individual accuracies for polyp and endometrial cancer detection are as indicated in the table.

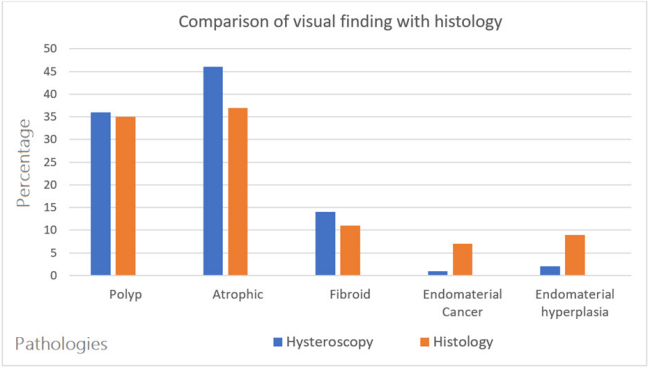

Figure legend: Bar chart image of the proportion of visual findings of different pathologies including polyps, fibroids, endometrial cancer and endometrial hyperplasia identified during hysteroscopy compared

Table 1: Accuracies of Hysteroscopy in Correctly Identifying an Endometrial Polyp or Endometrial Cancer.

	Sensitivity (%)	Specificity (%)	Positive predictive value, PPV (%)	Negative predictive value, NPV (%)
Polyp	91.4	71.9	64.0	93.9
Cancer	40.0	100.0	100.0	93.8
Overall	80.0	88.0	66.7	93.8

with the proportion of same pathologies as confirmed with histology of endometrial biopsies taken during the hysteroscopy procedures.

Discussion

When performed by trained practitioners, hysteroscopy is a simple and safe procedure, which can be completed in an office setting without a general anaesthetic requirement, although there are exceptions where the procedure needs to be completed in the theatre [4]. Majority of the patients in this study had their procedures completed in the one stop clinic. The reason might be due to prior administration of pain relief in the form of non-steroidal anti-inflammatory drug and opioid analgesia one hour prior to undertaking hysteroscopy. The age range of the patients in this study was 47-78 years with a mean age of 60 years. The incidence of endometrial cancer increases with age [2]. The average age of menopause in the United Kingdome is 52 years, which compares with the mean age of patients in this study [2,3]. More women are leaving a significant proportion of their lives in the menopause which means that such referrals are likely to increase.

The Figure shows the comparison of visual findings or reported endometrial pathologies seen during hysteroscopy versus findings reported after histological analysis of endometrial biopsies taken during hysteroscopy. Almost an equal proportion of patients (36.8% for hysteroscopy versus 35.0% confirmed on histology) were found to have endometrial polyp on hysteroscopy and as reported by the histology. This is likely because endometrial polyps have a distinctive reddish/pink/yellow appearance, they usually have a well-defined spherical or rounded shape and, in most cases, appear as solitary lesions [7]. Similar close concordance was seen in identifying fibroid (14.3% on hysteroscopy versus 11.4% on histology), fibroids also tend to show a common physical characteristic. There was an over reporting of atrophic endometrium on hysteroscopy where about 10% more women were reported to have atrophic endometrium than on histology. Sometimes a uniformly thickened endometrium might be seen as atrophic unless a histology is undertaken to examine the cellular characteristics, whatever is reported visually might be subjective. This subjectivity is less with increasing experience. The greatest discrepancy between hysteroscopy and histologic finding in this study was among women that had endometrial cancer. While only 0.7% of women were identified on hysteroscopy with suspected endometrial cancer, about 7.5% of the women were confirmed to have endometrial cancer on histology. This is a 10-fold difference, which means more training is required in hysteroscopy operators' ability to suspect endometrial cancer on hysteroscopy. It needs to be recognized that there are different levels of operators experience as a heterogenous group of trained personnel did these procedures. We also found a fourfold rise in the number of women confirmed with endometrial hyperplasia on histology compared with hysteroscopy. This is concerning as the missed diagnosis are more in premalignant and malignant endometrial pathologies. Part of the reason for this might be due to lower incidence of endometrial cancer and hyperplasia among women presenting with PMB. This means the operators may not have had good experience with the malignant pathologies compared to the more common benign pathologies that were accurately identified on hysteroscopy and confirmed on histology. Evidence shows that only about 5% of women with PMB are diagnosed with endometrial cancer [2-4]. Additional experience can be gained by reviewing stock images of uncommon endometrial pathologies and putting the lesson learned to real practice.

In terms of the performance of hysteroscopy when compared with the gold standard of tissue histology, the overall accuracy of hysteroscopy in identifying endometrial pathologies was a descent 75% while the sensitivity and specificity were respectively 80.0% and 88.0% while the positive predictive value (PPV) and the negative predictive values (NPV) were 66.7% and 93.8% respectively. Ours is comparable to values reported by Shikma et al. [8], Darwish et al. [9] and Huang et al. [10]. The strength of hysteroscopy in this study is in its high specificity and NPV which was 100% for identifying endometrial cancer. This is reassuring while recognising the need for improvement in the correct identification of the malignant and premalignant endometrial diseases during hysteroscopies.

Limitation

One major limitation of this study is the small sample size, which makes generalization of findings difficult. The study was essentially designed for service review and learning but might be useful to clinicians elsewhere. Furthermore, the procedures were performed by trained practitioners in the unit with different levels of expertise and experience. This has the potential to affect the overall outcome.

Conclusion

In concluding, we found that in three out of four patients referred for PMB, the pathologies identified on hysteroscopy were confirmed on histology. Hysteroscopy showed a high specificity and a high negative predictive value for women with endometrial cancer but there is need for increased training in identifying cancerous and premalignant lesions during hysteroscopy.

What is already known?

- Hysteroscopy and endometrial biopsy are important complementary tools for the investigation and diagnosis of suspected endometrial cancer
- The accuracy of the interpretation of visual findings during hysteroscopic is indispensable in making the right diagnosis and instituting treatment.

What this study adds?

- To show that Hysteroscopy compares well with endometrial biopsy and histology
- Malignant and premalignant lesions are more likely to missed on hysteroscopy emphasising the need for increased training.

Acknowledgement

We thank the staff and management of the Homerton University Hospital London for the support received while undertaking this review.

References

1. Bakour SH, Timmermans A, Mol BW, et al. Management of women with postmenopausal bleeding: evidence-based review. The Obstetrician and Gynaecologist. 2012; 14: 243-249.
2. Sean K. Endometrial cancer. In: Dewhurst's Textbook of Obstetrics and Gynaecology. 9th edition. Oxford. Willey Blackwell. 2018; 876-883.
3. British Society of Gynaecological Cancer (BGCS). Joint RCOG, BSGE and BGCS guidance for the management of abnormal uterine bleeding in the evolving Coronavirus (COVID-19) pandemic. BGCS. 2020; 3: 1-7.
4. www.cancerresearchuk.org/health-professional/cancer-statistics/statistics-by-cancer-type/uterine-cancer#heading-Zero
5. Bramara G, Sian EJ, Vyjayanthi S. Hysteroscopy in the diagnosis of postmenopausal bleeding. Menopause Int. 2007; 13: 132-134.
6. Nijkang PN, Anderson L, Markham R, et al. Endometrial polyps: pathogenesis, sequelae and treatment. SAGE open Med. 2019; 7: 1-12.
7. Society of radiologists in Ultrasound-sponsored consensus conference statement. Evaluation of the woman with postmenopausal bleeding. J Ultrasound Med. 2001; 20: 1025-1036.
8. Shikma B, Ben-David A, Rattan G, et al. Is outpatient hysteroscopy accurate for the diagnosis of endometrial pathology among perimenopausal and postmenopausal women? Menopuase. 2018; 25: 1-5.
9. Darwish AM, Sayed EH, Mohammad SA, et al. Reliability of out-patient hysteroscopy in one-stop clinic for abnormal uterine bleeding. Gynecol Surg. 2012; 9: 289-295.
10. Huang H, Huang Y, Wu K, et al. Office hysteroscopy as a valid tool for diagnosis of genital tract lesions in females with intact hymen. BioMed Research International. 2019.