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Histopathological Pattern of Endometrium: Hospital Based Study in Teaching Hospital, Batticaloa, Srilanka

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Abstract

Introduction: Abnormal uterine bleeding, either due to organic or be dysfunctional cause, is a common gynaecological problems. **Methods:** A retrospective, cross sectional, hospital-based study was done for a period of five and a half years included 1884 samples which were taken by endosampling as well as by curetting for the evaluation of several gynaecological symptoms. **Results:** The age distribution ranges from 16 to 83 years. 12.8% of (242/1884) samples were inadequate for a comprehensive diagnosis. The functional cause was the predominant in 1263 samples and organic causes were found in 379 sample. The menorrhagia is the commonest one and it is followed by post-menopausal bleeding and polymenorrhoea. Endometrial polyp was the predominant organic (46.9%) cause followed by (26.1%) simple endometrial hyperplasia without atypia. Most of the simple hyperplasia without atypia (49/99) and complex hyperplasia (10/28) also occurred in the same age group. Total 29 (1.5%) cases of carcinoma of endometrium were found and it was common (13/29) in 50 - 59 years of age. It was noted that (5/29) carcinoma occurred in less than 39 years of age. **Conclusion:** This study shows that most of the patients fall in the age group of 40 - 49 years. As the organic causes mostly found in this age group, endometrial cavity evaluation should be done more than 40 years of age. Further endometrial hyperplasia and carcinoma of the endometrium also occurs in less than 40 years of age. Therefore, clinical risk factors should be assessed and need of endometrial cavity should be individualised for better outcome.

Keywords

Abnormal Uterine Bleeding, Histopathological Pattern of the Endometrium

1. Introduction

The uterine endometrium undergoes hormones driven cyclical changes of proliferation, differentiation, breakdown and regeneration [1]. Any alteration in its regularity, frequency of menses, duration of flow, and amount of blood loss, is called abnormal uterine bleeding (AUB); symptom and not a disease [2]. It affects not only her social and sexual life but also imposes economic burden to the women, her family and to the health system.

AUB may be due to organic or dysfunctional in nature [2]. Below the age of 20 years the disturbance is most likely to be a functional one. On the other hand, in active reproductive life an organic cause for bleeding is more likely, pregnancy-related conditions being the most common. Again, functional disorders are common after the age of 40 years but the possibility of a benign or malignant growth must be excluded. After the menopause, a local organic cause often presents, possibly malignancy presents in 10 % of the cases [2].

Dysfunctional Uterine Bleeding (DUB), caused by an ovulation or anovulation [3], is responsible for 80% of menorrhagia [4], and diagnosed after exclusion of all organic causes. It is mandatory in the evaluation of AUB in women older than 40 to 45 years of age, in younger women who are obese, and in those with a history of prolonged anovulation [5].

Diagnostic hysteroscopic biopsy is the gold standard for endometrial cavity evaluation to exclude endometrial hyperplasia or carcinoma. It can be done in outpatient clinic set up. But in dilation and curettage (D & C), in 60% of cases, less than half of the uterine cavity is curetted, with the added risk of general anesthesia, infection and perforation [6] [7]. This has led to the advent of new and simple methods for endometrial sampling. Various devices are available such as Pipelle and vabra [8] [9]. The endometrial sampling can be used as an outpatient basis. It is cost effective and simple compared with D&C [10]. However, there are still concerns regarding the adequacy of the sample obtained, non-sampling of focal intrauterine lesions [9].

2. Materials and Methods

This study was aimed to evaluate abnormal Uterine Bleeding in various age groups, clinical presentations and assess the histopathological pattern of the endometrium taken for endometrial evaluation it was a retrospective, cross-sectional study carried out in Teaching Hospital, Batticaloa for a period of five and a half years from January 2012 to June 2017. It included 1884 patients gynaecological specimens presented to histopathology laboratory to study the endometrial histo-pathology. The specimens were taken by endosampling as well as by dilatation and curetting for the evaluation of several symptoms and signs such as abnormal uterine bleeding, abdominal pain, lump, per vaginal whitish discharge.

Exclusion criteria; Biopsy samples from the genital tract other than endometrium and pregnancy were excluded from the study. The histopathological findings were classified as functional and organic causes. Functional causes included

physiological cyclical changes as proliferative and secretory phases, atrophic and weakly proliferative endometrium, disordered proliferative endometrium, non-specific degenerative changes. Organic causes included endometrial polyp, chronic endometritis, hyperplasia and carcinomas.

This research was approved by Ethics review committee of the faculty of Health Care Science, Eastern University, Sri Lanka. (EUSL/FHCS/ERC/2017/21)

Data were processed using SPSS version 21. Descriptive statistics methods were used to analyze the results as whole numbers, percentages, tables, and charts.

3. Results

A total of 1884 gynaecological patients' specimens were taken in this study. About 242 (12.8%) specimens were inadequate for a comprehensive diagnosis. Remaining 1642 specimens were adequate for reporting.

Table 1 shows that age of the patients of this study ranges from 16 to 83 years. Most (41.3%) of age group is between 40 - 49 years. The study shows that functional cause was the predominant in 1263 samples (67%) and organic causes were found in 379 samples (20.12%).

Table 2 shows the Clinical presentation of different age groups. Most patients (87.5%) who underwent this histopathological study were admitted due to abnormal bleeding pattern. Of that abnormal bleeding pattern, menorrhagia was the commonest (45.1%) one and it is followed by post-menopausal bleeding (11.7%) and polymenorrhoea (11.5%). Apart from abnormal uterine bleeding pattern, patients presented with per vaginal whitish discharge (5.1%), abdominal pain (6.2%) and lump (1.2%). Menorrhagia was the most common (51.4%) cause among the age group between 40 - 49 years.

Majority of the functional causes were due to proliferative phase (48.5%) of endometrium followed by secretory phase (37.2%) of endometrium; Table 3. When the organic causes are considered (Table 4) it shows that endometrial polyp was the predominant organic (46.9%) causes followed by simple endome.

Table 1. Distribution of age in years.

Age group	Frequency	%
16 - 29	145	7.7
30 - 39	379	20.1
40 - 49	778	41.3
50 - 59	514	27.3
60 - 69	55	2.9
70 - 79	12	0.6
≥80	1	0.1
Total	1884	100.0

Table 2. Clinical presentation of different age group.

Clinical presentation	Age Category (In years)							Total	(%)
	16 - 29	30 - 39	40 - 49	50 - 59	60 - 69	70 - 79	≥80		
Menorrhagia	56	164	437	187	6	0	0	850	45.1
Metrorrhagia	28	50	38	9	1	0	0	126	6.7
Menometrorrhagia	4	22	52	21	0	0	0	99	5.3
Polymenorrhagia	31	68	75	43	0	0	0	217	11.5
Post-menopausal bleeding	0	0	24	159	32	6	0	221	11.7
Continuous bleeding	5	8	50	44	0	0	0	107	5.7
Oligomenorrhea	7	12	10	0	0	0	0	29	1.5
Whitish discharge	6	23	35	18	11	3	1	97	5.1
Lump	1	2	10	6	1	2	0	22	1.2
Abdominal pain	7	30	47	27	4	1	0	116	6.2
Total	145	379	778	514	55	12	1	1884	100.0
Percentage (%)	7.7	20.1	41.3	27.3	2.9	0.6	0.1	100.0	

Table 3. Distribution of the functional causes.

Functional causes	Frequency	%
Proliferative phase	613	48.5
Secretory phase	470	37.2
Atrophic endometrium	94	7.4
Disordered proliferative	43	3.4
Non-specific degenerative changes	43	3.4
Total	1263	100.0

Table 4. Distribution of organic causes.

Organic causes	Frequency	%
Simple endometrial hyperplasia without atypia	99	26.1
Complex hyperplasia	28	7.4
Endometrial polyp	178	46.9
Endometritis (Acute or Chronic)	45	11.9
Carcinoma	29	7.7
Total	379	100.0

Trial hyperplasia without atypia (26.1%). Most of the endometrial polyps (72/178) occurred in the age group of 40 - 49 of years. Most of the simple hyperplasia without atypia (49/99) and complex hyperplasia (10/28) also occurred in the same age group.

This study showed that total 29 (1.5%) cases of carcinoma of endometrium were found. Carcinoma was common (13/29) in 50 - 59 years of age (**Table 5**). It

Table 5. Histopathological pattern versus age distribution.

	Age Category							Total	(%)
	16 - 29	30 - 39	40 - 49	50 - 59	60 - 69	70 - 79	≥80		
Proliferative phase	56	137	243	172	5	0	0	613	32.5
Secretory phase	45	121	227	76	0	1	0	470	24.9
Atrophic endometrium	4	12	37	34	7	0	0	94	5.0
Disordered proliferative endometrium	1	4	20	16	2	0	0	43	2.3
Non-specific degenerative changes	4	3	17	18	0	1	0	43	2.3
Simple endometrial hyperplasia without atypia	7	17	49	23	3	0	0	99	5.3
Complex hyperplasia	4	3	10	8	1	2	0	28	1.5
Endometrial polyp	5	42	72	50	8	1	0	178	9.4
Endometritis (Acute or Chronic)	3	7	15	13	3	3	1	45	2.4
Carcinoma	2	3	4	13	5	2	0	29	1.6
Inadequate tissue	14	30	84	91	21	2	0	242	12.8
Total	145	379	778	514	55	12	1	1884	100
Percentage (%)	7.7	20.1	41.3	27.3	2.9	0.6	0.1		

was unexpectedly noted that (5/29) carcinoma occurred in less than 39 years of age. In the meantime, 2.4% of the total analyzed sample had either acute or chronic endometritis during the same study period.

4. Discussion

This study shows menorrhagia is the commonest (45.1%) abnormal bleeding pattern followed by post-menopausal bleeding (11.7%) and polymenorrhoea. (11.5%). In a study by Bhosle (2010) maximum incidence of menorrhagia was found in 53.3% of cases [11]. Mahapatra *et al.* [12] reported that menorrhagia in 48.6% of cases and polymenorrhoea accounts for 10% of cases.

This study shows 67% patients had functional causes. Majority of the functional causes were due to proliferative phase (48.5%) of endometrium followed by secretary phase (37.2%) of endometrium. A study by Mahapatara *et al.* shows that proliferative endometrium and secretary endometrium were seen in 45.7% and 30% of the cases. The higher incidence of the secretory phase (37.2%) in this study can be attributed to ingestion of hormonal treatment, progesterone, taken for menstrual irregularities before undergoing endometrial biopsy procedure.

This study shows that 12.8% of (242/1884) samples were inadequate for a comprehensive diagnosis while the study by Kaul *et al.* 8% had insufficient sample [13].

This study shows that 379 patients (20.12% of the total patients) had organic

causes. 46.9% of the organic causes were due to endometrial polyp while the simple endometrial hyperplasia without atypia constitutes 26.1%. According to Bhosle, 17.8% of the organic causes were due to simple hyperplasia without atypia [14]. Bharti study found that 78.26% had simple hyperplasia without atypia and 13.04% had complex hyperplasia without atypia. According to Kuala al 8% had polyp, 18% had hyperplasias and 10% had carcinomas [13].

This study showed that carcinoma of endometrium was also found in 29 patients (7.7% of the organic causes). Carcinoma was common (13/29) in 50 - 59 years of age. In study by Kaul, 3% of endometrial cancer cases were observed [13]. It was unexpectedly noted in this study that (5/29) carcinoma occurred in less than 39 years of age.

Khan R, *et al.* [15] has shown endometrial hyperplasia is the commonest histopathological diagnosis in 20.5% cases, all were simple glandular hyperplasia. In a similar study, 18.3% cases were diagnosed as having hyperplasia of different types and two thirds of it fell in the perimenopausal ag group [16]. A similar trend of 24.7% endometrial hyperplasia cases has been observed by Muzzafar M *et al.* [17]. A variable incidence, from 6.66% to 15%, of endometrial hyperplasia can be seen in different studies [18] [19] [20].

The variation on the incidence of carcinoma or its premalignant conditions could be attributed to difference in socioeconomic status and occurrence of risk factors like obesity, diabetes, life style and early diagnosis. Identification of endometrial hyperplasia is important as it is thought to be a precursor of endometrial carcinoma. The incidence of endometrial hyperplasia peaks around perimenopausal and postmenopausal women [21].

5. Conclusions

This study showed that most of the patients fall in the age group of 40 - 49 years. The organic causes were mostly found in this age group. Therefore, endometrial cavity evaluation should be done at more than 40 years of age. Further endometrial simple and complex hyperplasia, which is the precursor of malignancy and carcinoma of the endometrium, also occurs in less than 40 years of age. Therefore, clinical risk factors should be assessed and need of endometrial cavity should be individualised. It will increase the detection rate of endometrial malignancy for better outcome. It is to be noted that 242 (12.8%) specimens were inadequate for a comprehensive diagnosis. Several of these specimens were obtained in dilation and curettage under general anesthesia. Thus, those patients were subjected for unnecessary and risky process. Therefore, clear indication must be established before embarking dilation and curettage.

The finding of this study has been already validated in several similar previous studies. However, this is the first published study from this region of Sri Lanka. It again reconfirms the preexisting knowledge.

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Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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