Original Research

Pathophysiology of Abnormal Uterine Bleeding among North Indian Population

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Abstract
Background- Any bleeding that deviates from the regular menstrual cycle in terms of frequency, duration, or volume of blood flow is classified as abnormal uterine bleeding (AUB).
Methods: During the course of two years, 268 patients with a clinical diagnosis of AUB were enrolled in this study. Under light microscopy, a retrospective investigation of dilatation and curettage (D&C) tissue slides stained with haematoxylin and eosin (H&E) was conducted.
Result- This study covered 268 patients in total. The patients' average age was 42.0 ± 6.3 years. Women with low parity had the highest incidence of AUB (39.92%). Menorrhagia (40.29%) and metrorrhagia (18.28%) were the most prevalent clinical symptoms in AUB cases. It was discovered that proliferative phase endometrial (32.46%) was common in this investigation.
Conclusion: In every case of atypical uterine bleeding, a full clinical history, a detailed physical examination, and a histological analysis of the endometrium should be conducted as soon as possible.
Keywords- Abnormal Uterine Bleeding, Menorrhagia, Endometrium

Introduction
Bleeding from the secretory endometrium related to ovulatory cycles that last no longer than five days is considered normal menstruation. Abnormal uterine bleeding is the term used to describe any bleeding that does not meet these requirements.[1] The symptom known as abnormal uterine bleeding (AUB) is a departure from the typical menstrual cycle. AUB is characterised by variations in the menstrual flow's frequency, volume, and duration.[2] Unusual bleeding during pregnancy is a significant gynaecological issue, representing 33% of outpatient appointments, with 69% of these referrals coming from women in the perimenopausal and postmenopausal age groups.[3] Evaluation is required in women over 40 years old and menopausal patients in particular to rule out endometrial carcinoma and confirm the benign nature of the condition. This allows for the administration of conservative treatment or surgery and prevents the need for needless radical surgery.[4-6] AUB can be divided into three categories: iatrogenic, secondary, and main.[7] Primary AUB results from endometrial malfunction or problems with the hypothalamo-pituitary-ovarian axis. Endocrinopathies, vascular, haematological, and hepatic disorders are the causes of secondary AUB. Intrauterine contraceptive devices, medications, and the delivery of exogenous hormones can all cause iatrogenic AUB.[8] Endometrial sample is preferred over alternative diagnostic techniques because it offers a number of benefits when evaluating irregular uterine bleeding. Hormonal assay laboratories are not readily available in rural locations; therefore the test is quite costly. With the exception of atrophy and hyperplasia, ultrasonography is able to clearly represent the ovary's condition and the shape of the uterus, but it is unable to provide sufficient information about the endometrium.[8] The fact that endometrial biopsy is an intrusive technique is its sole drawback. The goal of the current study was to assess the pathophysiology of irregular uterine bleeding among North Indian Population at Rama Medical College, Hospital & Research Centre, Kanpur, UP, India.

Material and Methods

The current study was carried out at Rama Medical College Hospital and Research Centre in Pathology Department. Over the course of two years, 268 participants with a clinical diagnosis of AUB were included in this study. Under light microscopy, a retrospective investigation of D&C tissue slides stained with hematoxylin and eosin (H&E) was conducted. Cervix (position, condition, mobility, presence of ectopy or polyp, and hypertrophy), uterus (size, position, consistency, and mobility), and adenaxae were evaluated on gynaecological examination. The radiology department performed a pelvic ultrasound, with particular attention to the uterus (uterine size, endometrial thickness, existence of endometrial polyp, any endometrial growth, fibroids), and the ovarian status (presence of any cyst / mass, and its characteristics). These patients underwent diagnostic D&C, and an endometrial specimen was sent for histological analysis. The Ethics Committee gave its approval for this project.

Inclusion Criteria: Irregular P/V bleeding at any age, menorrhagea, polymenorrhoea, endometrial polyp, cervical polyp, postmenopausal discharge, inadequate medical treatment for abnormal uterine bleeding, menorrhagea at less than 40 years of age, and a family history of endometrial carcinoma are risk factors for endometrial carcinoma.

Exclusion Criteria: Pregnancy complications include molar pregnancy, ectopic pregnancy, threatening or incomplete miscarriage, acute pelvic ischemia, in situ intrauterine device, and hormonal treatment for irregular uterine bleeding.

Result

This study covered 268 patients in total. The patients ranged in age from 23 to 59 years old, with a mean age of 42.0 ± 6.3 years. The majority, or 64.17%, are classified as being in the "Reproductive Age" group, meaning that a sizeable percentage of people are currently in the age range where having children is common. A significant portion of the population, 21.26%, is categorised as "Perimenopausal Age," which represents those in the transitional stage of menopause. The "Postmenopausal Age" group, which includes 14.55% of the population, denotes people who have probably reached the end of their reproductive years. The percentage of people who are classed as "Normal Weight" is rather high; 102 people, or 38.05% of the total, fall into this category. This implies that a sizable section of the populace is within the range of healthy weights. Next, we have 44 people in the "Underweight" group (16.41%), which is a significant fraction of the population that is under the ideal weight range. On the other hand, there are 75 people in the "Overweight" group, which represents 27.98% of the population and indicates a significant prevalence of obesity. With 47 members, or 17.53%, the "Obese" group represents a sizable portion of the population that is obese. There are 39 people in the "Nulliparous" group, or 14.55% of the total. Individuals who have never given birth are included in this group. Moving on to "Low Parity," the data shows 107 people, or 39.92% of the population, suggesting a significant chunk with comparatively few childbirths. There are 98 people (36.56%) in the "Multiparous" group, indicating a moderate number of birth experiences. Finally, the group dubbed "Grand Multiparous" comprises 24 people, or 8.95% of the total population, and is characterised by a high number of births. This thorough analysis offers insightful information about the distribution of parity across the sampled population, presenting a nuanced picture of the wide range of individual birth experiences. The most common condition, "menorrhagia," which is defined as an increased volume of menstrual bleeding, is seen in 40.29% of cases. In 18.28% of the population, "metorrhagia"— which refers to irregular and prolonged menstrual bleeding—is then reported. Menstrual bleeding that is both heavy and persistent is known as "menometorrhagia," and it affects 3.73% of people. Furthermore, in 17.53% and 7.83% of the population, respectively, "polymenorrhoea" and "oligomenorrhoea" are identified as indicating differences in the frequency of menstrual periods. The term "postmenopausal bleeding" refers to bleeding that happens after menopause and is present in 12.31% of people. With 32.46% of cases being "Proliferative," this category is the most prevalent and denotes a phase in which the endometrial lining is growing and developing. The "secretory" kind, which denotes the period after ovulation in which the endometrium becomes ready for possible implantation, is seen in 14.55% of people. In 13.05% of cases, there are "atrophic" circumstances, which are symptomatic of a thinning of the endometrial lining. 18.28% of people have "simple endometrial" patterns, which point to a consistent and basic endometrial structure. At 14.17% and 7.46% of the population, respectively, the categories of "Complex hyperplasia" and "Complex hyperplasia with atypia" denote more intricate and perhaps aberrant growth patterns.

Table No.1: Age group Distribution

Age group	Number	Percentage
Reproductive Age group	172	64.17
Premenopausal Age group	57	21.26
Postmenopausal Age group	39	14.55

Table No.2: Distribution According to the weight of the patient

Weight	Number	Percentage
Normal Weight	102	38.05
Under weight	44	16.41
Over weight	75	27.98
Obese	47	17.53

Graph No.1: Distribution according to parity of Patients
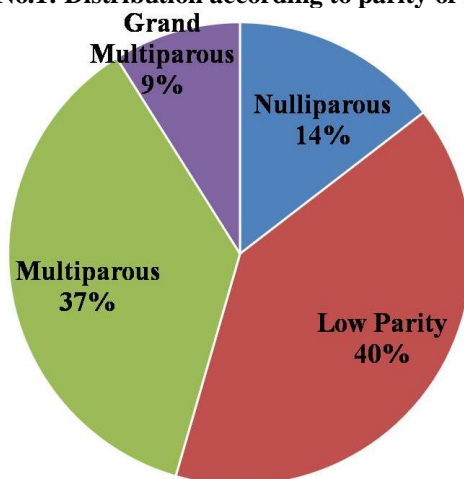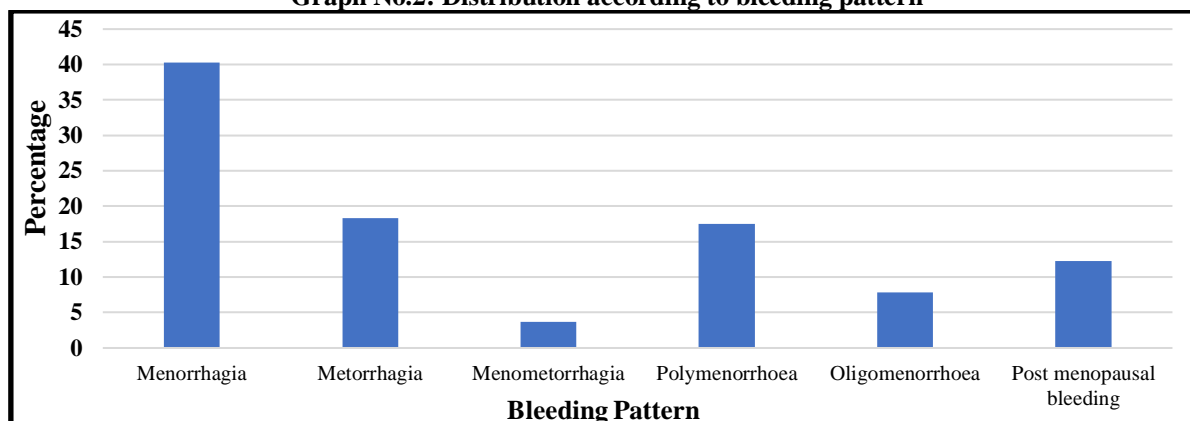

Graph No.2: Distribution according to bleeding pattern

Table No.3: Distribution of Various histopathologic pattern of endometrium

Type	Number	Percentage
Proliferative	87	32.46
Secretory	39	14.55
Atrophic	35	13.05
Simple endometrial	49	18.28
Complex hyperplasia	38	14.17
Complex hyperplasia with atypia	20	7.46

Discussion

Any bleeding from the uterus other than monthly flow is referred to as abnormal uterine bleeding. It has historically been categorised as either dysfunctional uterine haemorrhage or abnormal uterine bleeding caused by organic pathology. AUB typically rises in the fourth or fifth decade, coinciding with the physiologic menopausal transition phenomena.[9,10] Menstrual irregularities are a sign of anovarylatory cycles, which start as ovarian follicular activity declines in people nearing menopause.[11] Unless otherwise demonstrated, pregnancy-related problems are the primary cause of AUB in women of reproductive age.[12] With age comes an increased risk of structural uterine abnormalities such as hyperplasia, polyps, and especially endometrial malignancies.[13] In contrast to the findings of Bhattacharji' s studies[14], which found that multiparous women were prevalent (46%), the highest incidence of AUB in the current study was observed in low parity women (39.92%).

Similarly, Sadia K[15] (54%) and Shilpa[16] (58%) also found that multiparous women were prevalent. One of the most frequent causes of iron deficiency anaemia in women in the reproductive age range was menorrhagia. When the haemoglobin percentages of AUB patients are compared, a similar pattern of prevalence of various degrees of anaemia is seen. Iron deficiency anaemia triggers a compensatory mechanism that tries to lessen haemorrhage.[17] Menorrhagia (40.29%) and metrorrhagia (18.28%) were the most prevalent clinical symptoms in AUB cases. Kutuwal et al.[18], Pilli et al.[19], Patel et al.[20], Mehrotra et al.[21], and Muzaffar et al.[22] all reported similar findings. In contrast to Silander's study[23], which identified proliferative phase endometrial in 13% of cases, our study found proliferative phase endometrium in 32.46% of cases. Nevertheless, compared to the current study, Sheetal et al.[24] reported 42% of instances, and Fakhar S et al.[25] reported 54% of cases. In 14.55% of patients, secretary phase endometrium was discovered. The outcome agreed with Shazia et al.[25] (22%), and Silander T. et al.[23] (14%). In 18.28% of patients, simple endometrial was found. The outcomes matched the incidence reports of 21% and 22.66% from Dexus[26] and Jyotsana[27]. In their investigations, Behnamfar et al.[28] reported a 10.9% rate. Amera et al.[29] note that it is 15%, though. Sheth[30] and Anuradha Panda reported a rather high prevalence of 26% and 28.3%.[31]

Conclusion

While parity status does not help to narrow down the various causes of AUB, age does. Age-related problems associated with pregnancy move in the other direction, becoming less common as women age and structural lesions become a more common cause. In patients with abnormal uterine bleeding, the histopathological pattern of the endometrium varies widely, irrespective of age, parity, and ethnicity.

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