

Puberty Menorrhagia: Evaluation of Etiological Factors

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Abstract:

Background: Puberty menorrhagia is a common gynaecological problem and can pose significant adverse effects on adolescent girl's health, when associated with serious complications such as anemia and hypoproteinemia. Early diagnosis of etiology and individualized treatment are the key factors in the management of puberty menorrhagia.

Objective: To determine the etiology of puberty menorrhagia.

Materials and Methods: This is a prospective observational study, included 44 patients who presented with menorrhagia in the pubertal age group to gynaecology OPD at SMS Medical College, Jaipur from October 2019 to March 2020. Patients thoroughly investigated to evaluate etiology of puberty menorrhagia.

Results: In 70.45% (n = 31) patients anovulatory dysfunction was the cause for puberty menorrhagia, 9.09% (n=4) patients had polycystic ovarian disease and thyroid disorders respectively. One patient had endometrial tuberculosis and one had fibroid uterus.

Conclusion: Immaturity of hypothalamic-pituitary-ovarian axis leading to anovulation is the most common cause of puberty menorrhagia. Puberty menorrhagia needs to be evaluated in early stage rather than at later stage, so that consequences can be prevented.

Key Word: Puberty Menorrhagia, Menarche, Etiology, Anovulation

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I. Introduction

Puberty is a period of life in which relevant physical and psychological changes occur that makes a girl being functionally capable of procreation. Breast growth, pubic hair growth, increase in height and menstruation are main physical features of puberty. Menarche is a hallmark event in the life of an adolescent girl. Mechanism of triggering puberty and menarche depends on various factors like genetics, nutrition, body weight and maturation of the hypothalamic-pituitary-ovarian axis. It may take as many as 5-8 years before menstrual cycle normality is established.¹ The average age of menarche in India is 12.5 years. Abnormal uterine bleeding accounts for approximately 50% of the visits of adolescent girls to gynaecologist. Prevalence of menorrhagia in adolescent girls with bleeding disorder may vary between 14-48%.

Puberty menorrhagia is defined as excessive bleeding in amount (>80 ml) or in duration (>7 days) between menarche and 19 years of age.² 80% cases of puberty menorrhagia are caused by anovulatory cycles.³ The common causes of puberty menorrhagia are anovulatory dysfunction, hypothyroidism, polycystic ovarian syndrome (PCOS), coagulation disorders, von willebrand disease (vWD), platelet function disorders and thyroid disorders.^{2,4,5}

In all cases of puberty menorrhagia it is important to exclude pregnancy especially incomplete abortion and ectopic pregnancy.⁶ This study was conducted to determine various etiological factors causing puberty menorrhagia.

II. Material And Methods

A total of 44 adolescent girls who attended outpatient department of Gynaecological Department in SMS Medical College, Jaipur from Oct 2019 to March 2020, presented with complaints of heavy menstrual bleeding, were included in the study. A detailed history regarding age of patient, previous menstrual history, medical disorders, bleeding disorders, drug intake was taken. Menstrual history was noted in detail i.e. age of menarche, regularity of cycles, duration of flow, passage of clots, number of pads used per day, dysmenorrhoea and last menstrual day. The family history regarding tuberculosis, thyroid disorders and bleeding diathesis noted. Detailed general physical examination were carried out along with abdominal examination to exclude any palpable mass arising from pelvis or organomegaly. Local examination of genitalia was done. All baseline

investigation including complete blood count, bleeding and clotting time, prothrombin time (PT), activated thromboplastin time (APTT), random blood sugar were done including pelvic ultrasound for uterine and ovarian morphology. In selected cases thyroid function tests, hormonal assay including LH, FSH & Prolactin were done.

III. Result

Table no 1 shows that age range of the patients was between 11 to 19 years. Most common age group in our study was between 14-16 years (47.73%), 29.54% were between 17-19 years and 22.73% were between 11-13 years.

Table no 1 : Age distribution

Age (in years)	Number of Patients	Percentage (%)
11 - 13	10	22.73
14 - 16	21	47.73
17 - 19	13	29.54
Total	44	100.00

Table no 2 shows that the age of menarche was between 10-11 years in 4.55% (n=2) of patients and 11-12 yrs in 25% (n=11) patients. Majority of patients 47.73% (n=21) attained menarche during age of 12-13 years.

Table no 2 : Age at menarche

Age of patients (in years)	Number of Patients	Percentage (%)
<10	1	2.27
10 - 11	2	4.55
11 - 12	11	25.00
12 - 13	21	47.73
>13	9	20.45
Total	44	100.00

Table no 3 shows that most common cause for puberty menorrhagia was anovulatory dysfunction in 70.45% (n=31) patients. Polycystic ovarian disease was found in 9.09% (n=4) patients, while hypothyroidism and bleeding disorders were responsible of puberty menorrhagia in 9.09% (n=4) and 6.81% (n=3) patients respectively.

Table no 3 : Etiology of puberty menorrhagia

Etiology	Number of Patients	Percentage (%)
Anovulatory dysfunctional uterine bleeding	31	70.45
Polycystic ovarian disease	4	9.09
Thyroid disorders	4	9.09
Bleeding disorders	3	6.81
Tuberculosis	1	2.20
Fibroid	1	2.20

IV. Discussion

Gynaecological problems of adolescents are so unique and specific for the age group and associated with psychological factors which are very important in the growth and psychological remodeling of a girl who is in the transition between childhood and womanhood. The average age of menarche is 12.5 years in India.⁷ In this study 47.73% of patients had menarche between 12 and 13 years and 20.45% had after 13 years. Roychowdhury J et al⁸ found that 40% patients had menarche between 12 and 13 years and 35.5% after 13 years. Paria B et al⁹ reported mean age of menarche 12.24 ± 0.7261 years in girls of rural and urban schools of West Bengal. These findings are similar to our study.

In this study maximum number of patients with puberty menorrhagia belonged to mild and late adolescent age group. 47.73% patients belonged to age group 14-16 years and 29.54% to 17-19 years respectively. this is similar to study conducted by Gautam A et al¹⁰ and Khosla AH et al¹¹ where 55% belonged to mid and late adolescence. In adolescents 95% of cases of anovulation are due to immaturity of hypothalamo-pituitary-ovarian axis.⁸ In these cycles, levels of FSH and LH are sufficient to induce follicular development and estrogen secretion but are inadequate to induce follicular maturation and ovulation. Unopposed estrogen action causes endometrial growth resulting in irregular shedding and partial breakdown. In this study 70.45% of patients with puberty menorrhagia were due to anovulation. Roychowdhury et al⁸ reported 61.5%, Chaudhary S

et al¹² reported 71% of cases of puberty menorrhagia as being due to anovulation. Polycystic ovarian syndrome (PCOS) causes hypoandrogenism and chronic anovulation without any disorder of adrenal or pituitary. Most of the patients with PCOS demonstrates primarily oligomenorrhoea although 5% may present with polymenorrhoea.¹³ The present study shows that 9.09% of puberty menorrhagia was due to PCOS. Rao S et al observed 2.8%¹⁴ patients having PCOD while Saima Gillani et al¹⁵ found 8.6% of patients with puberty menorrhagia with PCOD. In this study 9.09% patients had thyroid disorders. The reported incidence of menorrhagia in patients with hypothyroidism varies. Rao S et al¹⁴ reported 5.7% while Mukherjee J et al¹⁶ observed 7.15% incidence of hypothyroidism in patients with puberty menorrhagia in their study.

Claessen and Cowell⁴ in their study observed bleeding disorder in 19% of patients. Kishan Prasad HL et al² reported that 35% of cases with puberty menorrhagia were suffering from haemostatic disorders. In this study 6.81% patients had bleeding disorders. In present study one patient had fibroid uterus diagnosed on ultrasonography. Only one patient was found to have genital tuberculosis which was diagnose by menstrual blood PCR study for tubercular antigen. Anovulatory dysfunctional uterine bleeding due to immaturity of hypothalamic pituitary ovarian axis leading to anovulatory cycles was the most common cause of puberty menorrhagia. Management of patients was individualized. In all cases of puberty menorrhagia pregnancy should be excluded.

V. Conclusion

Commonest reason to attend gynaecological OPD for consultation among adolescent girls is menstrual problems. Puberty menorrhagia should be evaluated thoroughly as resulting anaemia and other underlying causes may result in increased morbidity and can affect quality of life of an adolescent girl. Evaluation of puberty menorrhagia should be taken as a multidisciplinary approach. Once a proper diagnosis is made reassurance, counseling, correction of anemia and treatment of causative factors play an important role in the management of puberty menorrhagia. Adolescent health problem should be addressed with a greater focus on creating awareness.

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