NJOG 2010 Jul-Aug; 5 (1): 12-16

ORIGINAL ARTICLE

Primary Amenorrhea in Kashmiri Adolescent Females- A Hospital Based Study

Shubana Rasool[1], Aijaz Hakeem[2], Hakim Shafi [3], Shahida Mufti [1]
Dept. of Obs /Gyn[1], Radiology[2], Medicine[3]
SK Institute of Medical Sciences and SMHS hospital,
Srinagar, Kashmir, India

Abstract

Aims: the basic aim of our study was to evaluate various causes of primary amenorrhea in Kashmiri adolescent females.

Methods: This study was conducted in a tertiary care hospital on adolescent female with primary amenorrhea in the age group of 13-19 years. A detailed history, a thorough examination and secondary sexual characteristics were noted. All cases were subjected to investigations like hemoglobin, total leukocyte count, differential leukocyte count, erythrocyte sedimentation rate, coagulation profile, hormonal profile. Radiological investigations and karyotyping were done in selected cases. Statistical analysis was done by descriptive analysis.

Results: Eugonadism was the commonest type of primary amenorrhea comprising of 68(72.3%) cases followed by hypogonadotropic hypogonadism 23(24.47%) [Constitutional delay 15cases, thyroid dysfunction in 8] and hypergonadotropic hypogonadism was seen in 3 (3.19%) all were Turner syndrome.

Included in the first category comprised of 68 (72.3%) [28 (28.79%) imperforate hymen; 16 (40%) complete vaginal atresia; 13 (32.5%) vaginal septum; 5 (12.3%) complete absence of uterus and cervix, 4 (10%) cervical and vaginal atresia with well-formed uterine body and 2 (5%) uterine didelphys].

Conclusions: Though Mullerian abnormalities are most common cause of primary amenorrhea, thyroid dysfunction should be taken as possibility while evaluating primary amenorrhea in an iodine deficient belt like Kashmir.

Key words: Adolescent; primary amenorrhea; mullerian anomalies

Introduction

Gynecological disorders during childhood and adolescence have gained increasing attention not only in the western world but also in developing countries like ours. In the past, teen age girls would hardly consult a gynecologist. Now a day, more and more mothers take their daughters to specialist for treatment of genital disorders.[1] menstrual disorders are the commonest gynecological problem in adolescent girls. These range from amenorrhea (both primary and secondary) to menorrhagia.[2]. Obstructive anomalies of the female reproductive tract preclude the outflow of menstruation and may allow the collection of blood in the uterus and/or vagina and increase the likelihood of retrograde flow. These conditions may result in pelvic masses, endometriosis and/or pain.[3] The primary diagnostic technique for evaluating pelvic masses in adolescents is ultrasonography (USG). For cases, in which suspected diagnosis is appendicitis or another non gynecologic condition or if the results are inconclusive, computed tomography (CT) and magnetic resonance imaging (MRI) may be helpful.[4] Adolescents with gonadal dysgenesis or androgen insensitivity may have abnormal pubertal development and primary amenorrhea.

Correspondence
Dr Shubana Rasool, MD
Senior Resident, Dept. of Obs /Gyn,
SK Institute of Medical Sciences,
Srinagar, Kashmir, India 190011.
Phone: 419043177, 91 0194-2494265
E-mail: aijazhakeem@yahoo.com

The American College of Obstetricians and Gynecologists recommends that young women schedule their first visit to obstetrician/gynecologist between the ages of 13 and 15 years.[5]

Methods

This study was conducted in Lalla Ded Hospital, Government Medical College, Srinagar, India on adolescent females who attended Outpatient Department of this hospital with primary amenorrhea in the age group of 13 to 19 years over a period of one year.

After explaining the purpose of the study and getting their consent to participate, the patients were diagnosed on detailed clinical history, examination and appropriate investigation. After a detailed history, a thorough examination was conducted in presence of a guardian/parent /female attendant in a place where privacy and confidentiality of the patient was maintained. The examination commenced with patients general physical examination with focus on vitals (pulse rate in beats/minute, blood pressure in mmHg and respiratory rate in cycles /minute), pallor, height in centimeters, weight in kilograms. All patients were subjected to systemic examination with particular attention on cardiovascular system, respiratory system and abdominal examination.

Each patient's secondary sexual characteristics were noted like body confirmation, fat distribution in breasts and buttocks, shoulders whether narrow or broad, carrying angles, converging thighs, skin texture, abnormal hair growth, breast development (grading as per the Tanners scale of sexual maturation), axillary hair, pubic hair (grading as per Tanners scale of sexual maturation), external genitalia and gynecological examination regarding vulval inspection, per rectal examination and per vaginal examination where ever necessary was done only after the consent of guardian/parent.

All the adolescent females with primary amenorrhea were subjected to the routine investigations like hemoglobin, total leucocyte count, differential leukocyte count, erythrocyte sedimentation rate and coagulation profile.

Follicle stimulating hormone, luteinizing hormone, thyroid stimulating hormone and serum prolactin levels were done in all cases. Serum testosterone, estradiol and 17-OH-progesterone levels were done in selected cases. Karyotyping was also done in selected cases. Radiological investigation like transabdominal ultrasound was done in all cases, transperineal and transrectal sonography was done in cases with mullerian anomalies. Computed tomography (CT) was done on spiral CT scan (Wipro GE) in cases of mullerian abnormality. Magnetic resonance imaging (MRI) was done on Siemens helium cooled symphony 1.5 tesla MRI in patients with hyperprolactinemia and mullerian anomalies. Statistical analysis was done by descriptive statistical procedure.

Results

The commonest age of presentation in these cases was 15-16 years (48.93%), and the presenting complaint was primary amenorrhea in 68(72.3%) cases, primary amenorrhea with pain abdomen in 14(14.8 %) cases, primary amenorrhea with abdominal lump in 12(12.76%) cases.

Eugonadism was the commonest type of primary amenorrhea comprising of 68(72.3%) cases which included imperforate hymen 28(28.79%) (Fig 1); complete vaginal atresia with well-formed uterus and fallopian tubes 16(40%); vaginal septum 5(12.5%) (fig 2) , complete absence of uterus and cervix but well-formed vagina 13(32.5%), cervical and vaginal atresia (Fig4) with well-formed uterine body 4(10%), uterine didelphys (Fig.3) with upper vaginal atresia which was subsequently confirmed on magnetic resonance imaging(MRI) 2(5%). (Table 1)

Table 1. Causes of primary amenorrhea

Etiology	Hypo-Gonagotropic Hypogonadism	Hyper-Gonadotropic Hypogonadism	Eugonadism
Constitutional Delay	15		
Thyroid Dysfunction	8		
Turner Syndrome		3	
Mullerian abnormality			40
Imperforate Hymen			28
Total (N/%)	**23 (24.46%)**	**3 (3.19)**	**68 (72.34)**

Fig1. *Photograph showing bulging hymen in a case of hematocolpos (imperforate hymen)*

Fig 2. *Transperineal ultrasonographic image showing a vaginal septum in a 14 year old adolescent female with heamatocolpos.*

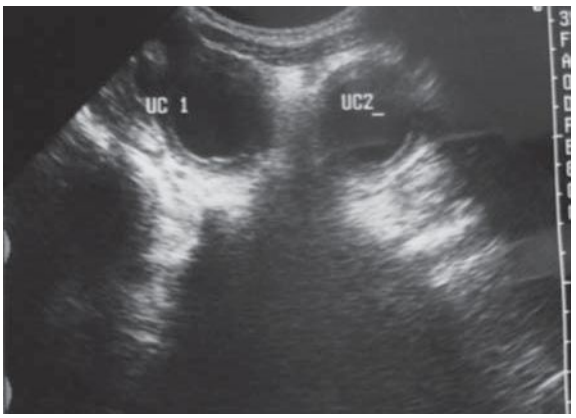

Fig 3. *Transabdominal ultrasound image in a case of uterus didelphus showing two separate uterine cavities.*

Among hypogonadotropic hypogonadism 23 (24.47%) [Constitutional delay 15(65.22%) and thyroid dysfunction 8 (34.79%)]

Hypergonadotropic hypogonadism were seen in 3 (3.19%) cases during this study and all were diagnosed as Turners syndrome which was confirmed by karyotyping. On systemic examination 2(66.67%) cases with Turner's syndrome had cardiovascular system (CVS) abnormality.

Discussion

This study entitled "primary amenorrhea in Kashmiri adolescent girls-a hospital based study" was conducted in the department of gynecology and obstetrics, Lalla Ded Hospital Government Medical College Srinagar on 94 cases over a period of one year, who presented with primary amenorrhea in the age group of 13 to 19 years.

The commonest age of presentation in these cases was 15-16 years (48.93%), and the presenting complaint was primary amenorrhea in 68(72.3%) cases, primary amenorrhea with pain abdomen in 14(14.8 %%) cases, primary amenorrhea with abdominal lump in 12(12.76%) cases.

There is several available classification of amenorrhea and Reindollar's classification[6] was used for our study. According to this classification primary amenorrhea is classified as hypogonadotropic hypogonadism, hypergonadotropic hypogondism and eugonadism.
In our study Eugonadism was the commonest type of primary amenorrhea comprising of 68 (72.3%) cases. Among these, imperforate hymen was diagnosed in 28(28.79%) cases (fig .1), complete vaginal atresia with well-formed uterus and fallopian tubes were found in 16 (40%) cases. Transverse vaginal septum was diagnosed in 5(12.5%) cases (FIG.2) and 13(32.5%) cases had complete absence of uterus & cervix but well-formed vagina,4(10%) cases with cervical and vaginal atresia (Fig 4)with well-formed uterine body , 2 (5%)cases were diagnosed as uterine didelphys (Fig 3)with upper vaginal atresia which was subsequently confirmed on magnetic resonance imaging(MRI)..MR imaging is useful in the work up of patients who present with primary amenorrhea both for accurate diagnosis of pathologic conditions and for surgical planning [7]

Rattanachaiyanont-M et-al (1997)[8] in their study on 110 adolescents with primary amenorrhea showed mullerian agenesis in 39.65% of cases. Mondal SK et al (2002) [9] showed that mullerian duct abnormalities were present in 37.5% cases of primary amenorrhea, gonadal agenesis in 18.05%, turner stigmata in 25%,. Rao K and Pillai NV (1991) [10] in their study showed that 50% cases of primary amenorrhea were of mullerian dysgenesis.

Fig 4. *Sagital T1W image of uterus in a case of vaginal and partial cervical atresia showing hyperintense blood in uterine cavity.*

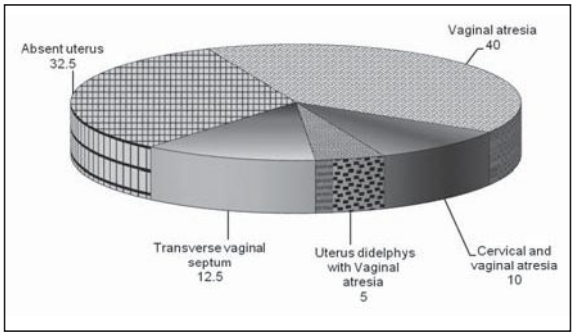

Fig 5. *Shows mullerian abnormality*

In Hypergonadotropic amenorrhea there is elevated levels of LH and FSH due to gonadal failure. The causes include abnormal x chromosome, sex chromosome mosaicism, environment and therapeutic ovarian toxins, enzyme deficiencies like congenital lipoid adrenal hyperplasia, 17 á-hydroxylase and 17, 20-desmolase deficiency, aromatase deficiencies. Turner's syndrome is the most common chromosomal abnormality causing gonadal failure. The associated stigmata of the Turner's syndrome include short stature, webbed neck, shield chest, cubitus vulgus .in our study Turners syndrome were the only abnormality in hypergonadotropic amenorrhea. 3 (3.19%) cases with Hypergonadotropic hypogonadism were seen during this study and all were diagnosed as Turners syndrome which was confirmed by karyotyping. On systemic examination 2(66.67%) cases with Turner's syndrome had cardiovascular system (CVS) abnormality. Kumar A and Mittal S (1998) [11] showed that out of 48 cases of primary amenorrhea, 54.2% had mullerian anomalies, 22.9% had hypogonadotropic hypogonadism, 16.65% had hypergonadotropic hypogonadism. Our study comprised lesser number of cases with hypergonadotropic hypogonsadism the reason being as most such cases report to endocrinologists rather than to gynecologists.

In Hypogonadotropic amenorrhea the pulsatile secretion of gonadotropins is suppressed below normal resulting in decreases in follicular development. These adolescents are in chronically low estrogenic levels. This type of amenorrhea is associated with, constitutional delay stress, eating disorders, excessive athletic training etc.

Among Hypogonadotropic hypogonadism (23 cases) 24.47% ,constitutional delay was the leading cause 15 (65.22%)cases ,they were diagnosed only after careful evaluation excludes other causes of delayed puberty and with normal sexual development, significant family history was present among 8 (53.33%) cases. 8 (34.79%) cases in hypogonadotropic hypogonadism were diagnosed to be having thyroid dysfunction. Grubb MR et al [12] had shown that between 25% and 40% of women with hypothyroidism are oligomenorrheic or amenorrheic. The adolescents in our region lie in an endemic belt and need to be evaluated for thyroid disorders if present with primary amenorrhea. [13]

Conclusion

Adolescent gynecological disorders are important part of gynecology and are neglected in Kashmir as it is in other parts of world. The adolescents are shy and hesitate for any gynecological evaluation.

Mullerian abnormality forms most common cause of primary amenorrhea however thyroid dysfunction was seen in 8(8.5%) cases of primary amenorrhea and should be kept in mind when evaluating primary amenorrhea in an iodine deficient belt like Kashmir.

References

1. N.N.Roy Chowdhury,Manab Sanyal. Gynaecological problems in child hood and adolescence. J.Indian M. A 1975; 65(6): 179-183.
2. Sebanti G, Dutta R, Sibani S. A profile of adolescent girls with gynecological problems. J. Obstet. Gynecol India 2005; 55(4): 353-355.
3. Breech LL, Laufer MR. Obstructive anomalies of the female reproductive tract. J Reprod Med. 1999; 44 (3): 233 - 240.
4. Schwartz LB, Seifer DB. Diagnostic imaging of adnexal masses: a review. J Reprod Med 1992 ; 37 : 63 -71.

5. So-Young Shin, You-Young Lee, Sook-Young Yang, Byung-Koo Yoon DukSoo Bae, DooSeok Choi. Characteristics of menstruation-related problems for adolescents and premarital women in Korea. European Journal of Obstetrics and Gynecology and Reproductive Biology2005; 121:236-242.
6. Reindollar RH, Novak M, Tho SP, McDonough PG: Adult onset amenorrhea a study of 262 patients. Am J Obstet Gynecol.1986; 155:531-543.
7. Caroline R,Hedvig H,Rosemarie F,Susan MA,Patrice MB,Meyer WR,Richard CS.Primary Amenorrhea:evaluation with MR Imaging. Radiology1997;203:383-90:
8. Rattanachaiyanont-M, Kunathikom S, Angsuwattana S,Techatraisak K,Mekmahan O,Karavagul C,Ko-Anantakul S: Primary ammenorhea: a retrospective study at Siriraj Hospital. J Med Assoc Thai. 1997;80(10):619-25.
9. Mondal SK,Guha D,Banerjee D,Sinha SK: Study of primary ammenorhea with special reference to cytogenetic evaluation. Indian J Pathol Microbiol 2002; 45(2):155-9.
10. Rao K, Pillai NV. Primary amenorrhea (analysis of 40 cases). J Indian Med Assoc. 1991 ;89 (2) : 42 – 43.
11. Kumar A, Mittal S. primary ammenorrhoea: analysis of 48 cases. J Indian Med Assoc .1998; 96 (4): 119 - 120.
12. Grubb MR, Chakeres D, Malarkey WB. Patients with primary hypothyroidism presenting as prolactinomas. Am J Med 1987; 83:765–9.
13. W.H.O. Report of a Seminar on goitre control, New Delhi, WHO, SEARO, 1967.