Primary Amenorrhea in Kashmiri Adolescent Females- A Hospital Based Study

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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, 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: Eunogadism was the commonest type of primary amenorrhea comprising of 68 (72.3%) cases followed by hypogonadotrophic hypogonadism 23 (24.47%) [Constitutional delay 15 cases, 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.

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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.\textsuperscript{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 leucocyte 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**

<table>
<thead>
<tr>
<th>Etiology</th>
<th>Hypo-Gonadotrop Hypogonadism</th>
<th>Hyper-Gonadotrop Hypogonadism</th>
<th>Eugonadism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constitutional Delay</td>
<td>15</td>
<td></td>
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</tr>
<tr>
<td>Thyroid Dysfunction</td>
<td>8</td>
<td></td>
<td></td>
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<tr>
<td>Turner Syndrome</td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Mullerian abnormality</td>
<td></td>
<td></td>
<td>40</td>
</tr>
<tr>
<td>Imperforate Hymen</td>
<td></td>
<td></td>
<td>28</td>
</tr>
<tr>
<td><strong>Total (N/%)</strong></td>
<td><strong>23 (24.46%)</strong></td>
<td><strong>3 (3.19%)</strong></td>
<td><strong>68 (72.34%)</strong></td>
</tr>
</tbody>
</table>
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 was used for our study. According to this classification primary amenorrhea is classified as hypogonadotropic hypogonadism, hypergonadotropic hypogonadism and eugonadism. In our study Eunogadism 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

Rattanaachaiyamont-M et-al (1997) in their study on 110 adolescents with primary amenorrhea showed mullerian agenesis in 39.65% of cases. Mondal SK et al (2002) 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) in their study showed that 50% cases of primary amenorrhea were of mullerian dysgenesis.
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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 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.

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


