

Primary amenorrhea in females attending gynaecological outpatient of a tertiary care hospital at Peshawar

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Abstract

Objective: To determine the aetiological factors of amenorrhea.

Methods: The pilot cross-sectional study was conducted in Government Naserullah Khan Babar Memorial Hospital, Peshawar, Pakistan, from January 2015 to December 2017, and comprised amenorrhea cases. Cases were analysed according to their clinical profile, ultrasound findings and biochemical tests. Data was analysed using SPSS 20.

Results: There were 100 patients with a mean age of 22.17±5.52 years (range: 14-36 years). Anatomical defects were the most common cause in 60(60%) patients. Imperforate hymen and transverse vaginal septum were found in 7(7%), 7(7%) patients each, while mullerian abnormalities were found in 46(46%) patients. Hypergonadotropic hypogonadism and polycystic ovarian syndrome were found in 17(17%) patients each.

Conclusion: Anatomical defects were found to be the most common cause among amenorrhea patients.

Keywords: Primary amenorrhea, Mullerian anomalies, Hypogonadotropic hypogonadism, Hypergonadotropic hypogonadism, Primary ovarian failure, Hyperprolactinemia. (JPMA 70: 888; 2019). <https://doi.org/10.5455/JPMA.24317>

Introduction

Puberty is the time for a girl to change from a child to an adult. It implies the development of breasts, secondary sexual hair, and onset of menstruation. At the same time, there is a period of accelerated growth.¹ Amenorrhea refers to the absence of menstruation with or without the other pubertal changes.² It is physiological in case of pregnancy, lactation and menopause. Lack of spontaneous and regular menstrual periods for any other reason after the expected age of menarche is pathological.³ It is classified as primary when menstrual bleeding has never occurred in the absence of hormonal treatment.⁴ An evaluation of primary amenorrhea must be initiated when there is absence of menstruation at the age 15 years regardless of the presence of secondary sexual characteristics and normal growth. Evaluation is started at 13 years when there is no menses in the absence of growth or development of secondary sexual characters.³⁻⁷

Primary amenorrhea is uncommon and it has an incidence of 0.1%.⁶⁻⁸ Common causes of primary amenorrhea are hypergonadotropic hypogonadism and primary ovarian failure, hypogonadotropic hypogonadism, hyperprolactinaemia, outflow tract or mullerian anomalies, complete androgen insensitivity syndrome, hypothyroidism, enzyme deficiencies, strenuous exercises and malnutrition. Psychological problems can also lead to amenorrhea.⁹⁻¹²

Primary amenorrhea is a diagnostic challenge for a gynaecologist in developing countries like Pakistan. In a low-resource setting, it is even more difficult due to the lack of facilities to diagnose such cases properly. Moreover, provision of treatment is another challenge. The females of this condition, when diagnosed properly, can be offered appropriate treatment and referred to tertiary care hospitals. The current study was planned to determine the aetiological factors of amenorrhea.

Patients and Methods

The pilot cross-sectional study was conducted from January 2015 to December 2017 at the Department of Gynaecology and Obstetrics of the Government Naserullah Khan Babar Memorial Hospital, Kohat Road, Peshawar,

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Pakistan. After approval from the institutional ethics committee, cases were selected randomly from the Gynaecology outpatient department (OPD). Patients with primary amenorrhea were included, while those with secondary amenorrhea or who tested positive for pregnancy were excluded. After taking informed consent from the patients, detailed history was taken regarding name, age, marital status dietary habits and exercise, any recent change in weight, family history of delayed menarche or any congenital anomalies, previous treatments received, and any history of hormones ever taken. Psychological or emotional issues were also ruled out. History of involvement in some sports which required strenuous exercise was also noted. General physical examination was done to record appearance, height, nutritional status, secondary sexual characteristics (breast and areolar development, pubic and axillary hair) acne, hirsutism, visual fields and galactorrhea. Abdominal examination was conducted to exclude lower abdominal mass, hernia or any other abnormality. Pelvic examination was performed to see external genitalia (female or male), clitoromegaly, imperforate hymen, absence or blind-ending vagina, as well as presence or absence of uterus. Bimanual pelvic examination was not performed in unmarried girls. The initial investigations included complete blood count (CBC), serum luteinizing hormone (LH), serum follicle-stimulating hormone (FSH), serum prolactin, and thyroid-stimulating hormone (TSH). Normal values of these hormones were taken from Dewhurst Textbook of Obstetrics and Gynaecology.¹³ Pelvic ultrasonography (USG) and transvaginal ultrasound was performed in unmarried and married patients, respectively, for the presence of uterus, ovaries and any reproductive tract anomalies. Data was analysed using SPSS 20.

Results

There were 100 female patients with a mean age of 22.17 ± 5.52 years (range: 14-36 years). Mean height was 152.38 ± 5.43 cm (range: 135-167cm) and mean weight was 52.8 ± 7.42 kg (range: 32-70kg). All the subjects were unemployed and 50(50%) were married (Table 1). Of the total, 10(10%) patients presented with history of cyclical abdominal pain. None of the women had history of delayed menarche in their families and there was no family history of congenital anomalies. Of all total, 14(14%) women had breast development in tanner stage 1, 14(14%) in tanner stage 2, 4(4%) in tanner stage 4, and 68(68%) in

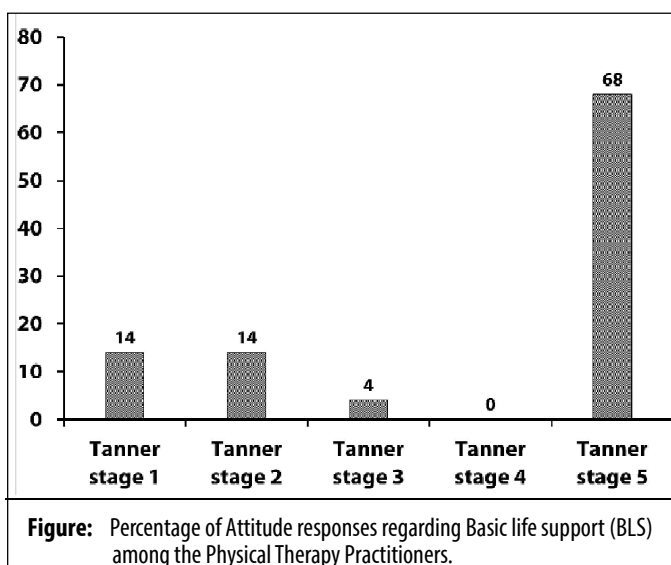


Figure: Percentage of Attitude responses regarding Basic life support (BLS) among the Physical Therapy Practitioners.

Table-1: General patient characteristics.

Variables	n (%)
Age (years)	
14 - 24	60 (60%)
25 - 36	40 (40%)
Height (centimetres)	
135 - 151	33 (33%)
152 - 167	67 (67%)
Weight (kilograms)	
32 - 51	43 (43%)
52 - 70	57 (57%)
Marital status	
Married	50 (50%)
Unmarried	50 (50%)
History of hormonal intake	
Present	63 (63%)
Absent	37 (37%)

Table-2: Frequency of ultrasound and biochemical findings.

Variable	n (%)
Ultrasound findings	
Uterus present	33 (33%)
Uterus absent	7 (7%)
Hypoplastic uterus	60 (60%)
Biochemical Findings	
Follicle Stimulating Hormone	
Raised	17 (17%)
Low	4 (4%)
Normal	79 (79%)
Prolactin	
Raised	17 (17%)
Normal	83 (83%)
Testosterone	
Raised	17 (17%)
Normal	83 (83%)

tanner stage 5 (Figure). Axillary and pubic hair were present in 93(93%) of the women.

USG findings showed ovaries were absent in 7(7%) patients, while streaked ovaries were found in 50(50%). Adnexal pathologies were observed in 20(20%) women, 9(9%) had haematocolpos along with haematometra, and 17(17%) had polycystic ovaries along with all associated clinical features, while 77(77%) had no adnexal pathologies.

FSH was raised in 17(17%), low in 4(4%) and normal in 79(79%) women. Serum prolactin and serum testosterone levels were raised in 17(17%) women each (Table 2).

Definitive diagnosis could be made in 76(76%) patients. Also, 7(7%) patients had streak ovaries and under-developed secondary sexual characteristics.

Discussion

Primary amenorrhea carries social stigma. Girls in our society, when diagnosed to have primary amenorrhea, are branded for life. They have to face a lot of psychological and social problems. Nobody wants to marry a girl who cannot have children. Whenever a girl presents with primary amenorrhea, she is accompanied by her family. Their main concern is to find out if everything is fine. It is the duty of a gynaecologist to manage such cases properly and to advise proper psychological support.¹⁴

Half of the subjects in the current study were married and they were older than the age of presentation of unmarried girls. Average age of presentation of married women was 27.7 years while that of unmarried girls was 18.2 years. History of hormonal intake was present only in married women because they were all taking hormones as part of fertility treatments. This was probably the cause of their late presentation. All of them had been going to different local doctors for their problem and were given all sorts of hormones.

Anatomical defects were found in 60 of the women. Out of these, 7 had imperforate hymen, 7 had transverse vaginal septum and there were mullerian agenesis in 46. Definitive diagnosis of five of the cases could be done and they had early onset polycystic ovaries. Our results matched those of a study done in India¹⁵ in which anatomical defects were the most common cause of primary amenorrhea. Genetic causes were 20% and endocrinal causes were 34% in that study¹⁵ which is different from our findings. Studies done in Turkey and Taiwan^{16,17} also support our

findings. However, a study¹⁸ showed completely different results, reporting Turner syndrome as the most common cause (45%) of primary amenorrhea.

Larger population sizes and detailed studies are required to know the causes and management of primary amenorrhea cases.¹⁹ Adolescent girls having primary amenorrhea are brought to hospitals by their parents with prime concern regarding their reproductive life. The problem may lie within the uterus, ovaries, pituitary, or hypothalamus. Chromosomal abnormalities also contribute to a major portion of primary amenorrhea cases, especially in cases of gonadal failure.^{20,21} This condition is a major clinical and psychological concern among girls. It affects physical, mental, social aspects of life of the affected person. These cases should be handled very sensitively with a multidisciplinary team involving gynaecologist, psychologist, genetic physician and a paediatrician. Treatment and management depends upon the cause of primary amenorrhea. Thus, finding the cause is of prime importance.

Limitations of the current study included the inability to do buccal smears or chromosomal analysis. These tests were not available in our hospital or even in the city. All patients were from poor socioeconomic group of society and were unable to afford these costly investigations. Even the biochemical investigations were done at local private laboratories as they were not available in government hospitals. Lack of chromosomal analysis of mullerian agenesis meant there could be no definitive diagnosis of Mayer-Rokitansky-Kuster-Hauser Syndrome (MRKHS). Government and policy-makers should take necessary steps towards providing investigation and treatment facilities for primary amenorrhea patients at government-run hospitals in Peshawar.

Conclusion

Adnexal pathologies and polycystic ovaries were found to be prevalent aetiological factors, while raised levels of female hormones were also associated. Chromosomal analysis should be available in government hospitals for poor patients as definitive diagnosis is not possible without it.

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Conflicts of interest: None.

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