A Rare Case of Co-Existing Gonadal Dysgenesis with Mayer-Rokitansky-Kuster-Hauser Syndrome in a 46, XX Female

D SENADHEERA[1], S RAGURAMAN[2], A FERNANDO[1] and **BPGN** DE SILVA[3]

[1]Colombo South Teaching Hospital, Kalubowila, Sri Lanka, [2]DeZoysa Maternity Hospital, Colombo, Sri Lanka and [3]Sri Jayawardenapura General Hospital, Nure, Sri Lanka

Introduction: Mayer-Rokitansky-Kuster-Hauser (MRKH) syndrome is associated with congenital aplasia of the uterus and upper vagina in a 46,XX individual due to Mullerian duct abnormality. Usual presentation is primary amenorrhoea, in a both phenotypically and karyotypically normal female with normal secondary sexual characteristics, since ovaries are fully developed and functional. It affects 1 in 4500 women and may overlap with various other syndromes. 46,XX gonadal dysgenesis is a rare disorder characterized by absent or underdeveloped ovaries, primary amenorrhea, irnpuberism and hypergonadotropic hypogonadism and affects 1 in 10,000 women. Both sporadic and familial cases were reported in medical literature. An association between these two conditions is extremely rare and thought to be coincidental, even though there may be a possibility of a genetic cause. We report a rare case of co-existing 46,XX gonadal dysgenesis and Mullerian agenesis in a Sri Lankan women.

Case report: A 21-year-old patient was referred to the clinic with primary amenorrhea, poor breast development and absence of secondary sexual characteristics. There was no family history of consanguinity or primary amenorrhea. She had a lean and tall body hahitus with normal intelligence. Her height was 168 cm weighing 57 kg. On examination there were no dysmorphic features, webbing of the neck, or skeletal abnormalities. Blood pressure was 100/70 mmHg in both arms. She had poorly developed breasts, scanty axillary and pubic hair (tanner stage 2). External genitalia appeared normal with a vaginal length of 5 cm and hypo-plastic cervix. Her renal function tests and liver function tests were normal. Endocrine evaluation showed elevated follicle-stimulating hormone (FSH-120 IU/L) and luteinizing hormone (LH-32 IU/L) with low oestradiol (<6 pern1) and testosterone (<0.1 ng/ml) levels. Her TSH, prolactin and adrenal hormone levels were normal. Ultrasound evaluation of abdomen and pelvis revealed absent uterus and ovaries with no demonstrable renal tract or associated anomalies. Cytogenetic evaluation of peripheral blood revealed 46,XX karyotype with no numerical or structural chromosomal anomalies. Laparoscopy showed absent uterus, a cervical bud, bilateral rudimentary fallopian tubes and streaky ovaries. Histopathology of ovarian tissues confirmed ovarian dysgenesis.

Discussion: The ovaries are derived from mesodermal epithelium and primordial germ cells. Gonadal dysgenesis may arise from an early defect in germ cell migration, primordial follicle formation or ovarian differentiation. The Mullerian system develops lateral to the gonads and forms tubes, uterus and upper vagina. Absence of anti-Mullerian hormone prerequisites its development. Mutations of the gene encoding for anti-Mullerian hormone receptor and the lack of estrogen receptors during embryonic development have been hypothesized to cause MRKH syndrome. Genital tract anomalies may range from upper vaginal atresia to complete Mullerian agenesis and may be associated with urinary tract and/or skeletal abnormalities. The association of gonadal dysgenesis and MRKH syndrome is extremely rare and appears to be coincidental. Co-existence of these two rare conditions comprise a huge prognostic and therapeutic challenge in terms of fertility. Hormone substitution therapy was started in our patient for the development of secondary sexual characteristics and to prevent long term complications including osteoporosis. Counselling regarding unresolved problem of infertility was done and is on follow-up.

