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Case Report

Twin sisters with primary amenorrhea

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Introduction

Amenorrhea has an estimated prevalence of 1.8-3% in the female population of reproductive age. About 30% of patients with primary amenorrhea have associated genetic abnormality. Primary amenorrhea associated with maturity onset diabetes of young (MODY) is a rare entity. This type of abnormality seen in both of the twin sisters is all the more rare.

Case report

An 18 year old unmarried girl attended our outpatient department with the complaint of cyclical abdominal pain of 3 years duration and not having attained menarche. She was first among the twin sisters. She was a known diabetic on insulin since the last 2 years. On examination her height was 155 cm and weight 55 kg. Systemic examinations were within normal limits. The secondary sexual characters were normal. Abdominal examination showed an intra-abdominal mass of 5 x 4 cms in the left lumbar region. The mass was freely mobile and non-tender. Examination of the genitalia showed a blind vagina. Rectal examination revealed a firm mass like a uterus felt more towards the left side. Ultrasonogram showed a uterus didelphys with hematometra on the left side. Examination under anesthesia was done. As the cervix was absent on rectal examination and a hematometra was found on ultrasonogram, laparotomy was undertaken. Uterus was didelphys with hematometra and hematosalpinx on the left side (Figure 1). There was a chocolate cyst of 3 x 3 cms on the left ovary. Right tube and ovary were normal. The cervix was absent on both the uteri. Uterus didelphys with cervical aplasia was diagnosed and removal of both halves of the uterus along with the left tube was done. Chocolate cyst on left ovary was enucleated.

One year later 2nd of the twin sister presented with similar complaints. She was also a known diabetic on treatment since 1 year. Her height was 149 cm and weight 55 kg. The systemic examination was within normal limits. Examination of genitalia showed a blind vagina. Rectal examination revealed a uterus. Ultrasonogram diagnosis was uterus didelphys with cervical aplasia. There was no anomaly of kidney or collecting systems.

Laparotomy was done. Uterus was didelphys with cervical aplasia. Tubes and ovaries were normal. Both halves of the uteri with tubes were removed (Figures 2 and 3).

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Figure 1. Laparotomy finding 1st of twin.

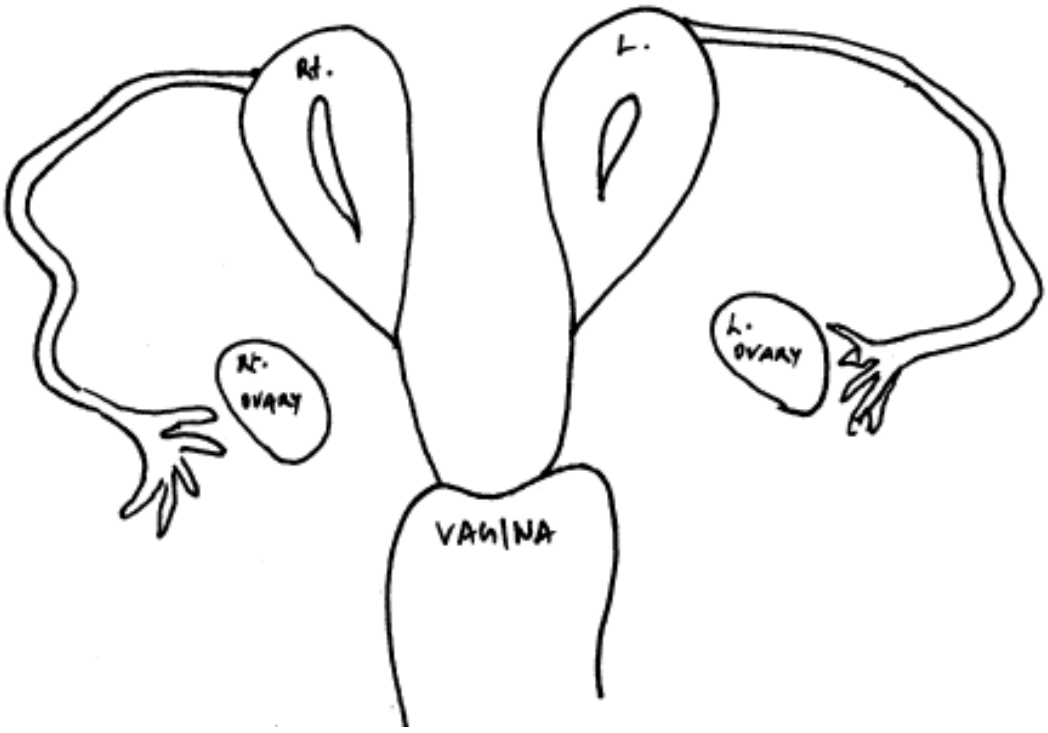

Figure 2. Laparotomy finding of 2nd of twin.

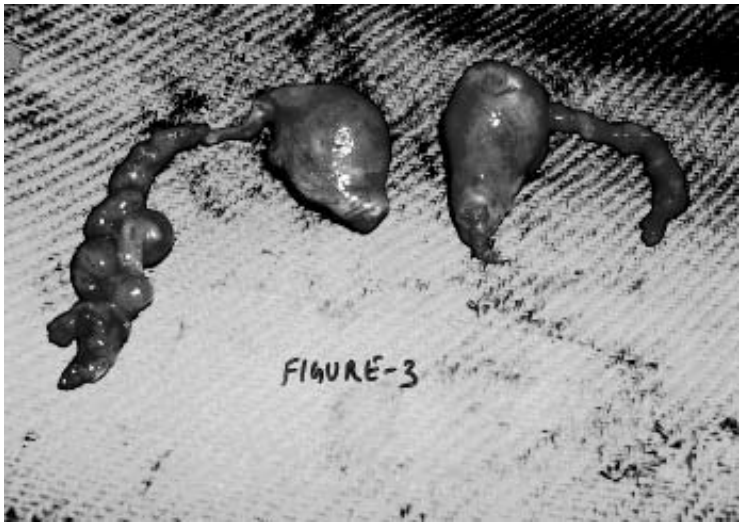

Figure 3. Laparotomy specimen of 2nd twin.

Discussion

Uterovaginal malformations affect 0.16% of females. Mullerian defects are found to be associated with an increased incidence of urinary abnormality like renal agenesis and duplicated renal collecting system. Ultrasonography, MRI and hysterosalpingography aid in correctly diagnosing unusual forms of mullerian anomaly. Combined laparoscopy and hysteroscopy may be an effective alternative in the diagnosis and management of mullerian anomalies.

The presence of diabetes and mullerian anomaly in both of the twin sisters is of significance. It has been found that there is an association between genital abnormality and MODY Type V[3,4]. MODY is a dominantly inherited form of non-ketotic diabetes mellitus[1]. Mutations in the highly homologous transcription factors hepatocyte nuclear factor (HNF) -1 alpha and -1 beta cause MODY[2]. So far, five types of MODY have been identified. They are labeled MODY I through MODY V. Each type of MODY represents a specific, usually inherited, genetic defect affecting insulin secretion[4]. The genetic defect leads to impaired function of insulin producing β cells of the pancreas, usually present before the age of 25.

MODY V is an uncommon variant of a dominantly inherited disease associated with mutation in the hepatocyte nuclear factor -1 b (HNF – 1 b) gene[3]. HNF -1 b patients have a different diabetic phenotype that HNF -1 a patients[2]. They may have renal abnormalities, including dysplastic kidneys and renal cysts. Some have genital tract abnormalities, pancreatic atrophy, and abnormal liver enzyme levels[1].

This novel syndrome of diabetes mellitus, renal dysfunction and genital malformation is associated with a deletion of the pseudo-POU domain of hepatocyte nuclear factor -1 b gene a region implicated in the specificity of DNA binding[5]. These twin sisters could be cases of MODY V with mullerian anomaly.

References

1. Timsit J, Bellanne-Chantelot C, Dubois-Laforgue D et al. Diagnosis and management of maturity - onset diabetes of the young. Treat Endocrinol, 2005;4:9-18.
2. Pearson ER, Badman MK, Lockwood CR et al. Contrasting diabetes phenotypes associated with hepatocyte nuclear factor-1alpha and-1beta mutations. Diabetes Care 2004 May;27:1102-7.
3. Bellanne-Chantelot C, Chauveau D, Gautier JF et al. Clinical spectrum associated with hepatocyte nuclear factor-1b mutations. Ann Intern Med 2004;140:510-7.
4. Bingham C, Ellard S, Cole TR et al. Solitary functioning kidney and diverse genital tract malformations associated with hepatocyte nuclear factor-1 beta mutations. Kidney Int. 2002;61:1243-51.
5. Lindner TH, Njolstad PR, Horikawa Y et al. A novel syndrome of diabetes mellitus, renal dysfunction and genital malformation associated with a partial deletion of the pseudo-POU domain of hepatocyte nuclear factor-1 beta. Hum Mol Genet 1999;8:2001-8.