# Attention to Mitchell-Riley Syndrome in Two Sisters with Prenatal Gallbladder Agenesis and Duodenal Atresia

*Gülbin Yazgan, Ayşenur Celayir, Nevzat Aykut Bayrak*, Ali Karaman**, Oya Demirci****

***University of Health Sciences, Turkey. Istanbul Zeynep Kamil Maternity and Children Diseases Health Training and Research Center, Department of Pediatric Surgery, Pediatric Gastroenterology*, Medical Genetics**, Department of Perinatology******

**Introduction**

Isolated gallbladder agenesis can have an uneventful course.In this study, two cases of prenatal gallbladder agenesis and duodenal atresia, born two years apart as sisters,are presented in order to draw attention to Mitchell-Riley Syndrome, characterized by duodenal atresia, gallbladder agenesis, exocrine pancreatic insufficiency, and neonatal diabetes, as well as its fatal course.

**Cases Presentation**

Findings consistent with Mitchell–Riley syndrome were observed in three children from a family with second-degree consanguinity. The first male child, now 6 years old, was diagnosed with type 1 diabetes in the neonatal period. In the second and third female infants, born two years apart, gallbladder agenesis and duodenal atresia were detected on prenatal ultrasound.

The first female was born by cesarean section at 37+3 weeks gestation, weighing 1230 g SGA with fetal biometry consistent with 27+4 weeks. The second female was born by cesarean section at 37+5 weeks gestation, weighing 1300 g SGA with fetal biometry consistent with 32+4 weeks. Both neonate developed hypoglycemic episodes during the first postnatal days, which were controlled with fluid therapy and insulin administration. Additionally, they exhibited anemia and thrombocytopenia requiring ongoing transfusions.

On the fifth postnatal day, the infants underwent surgery. Findings at laparotomy of both were similar: The liver appeared normal, the gallbladder was absent, and an annular pancreas was present. Dilatation and hypertrophy of the first part of the duodenum were observed (Figure 1), while the second part showed type 1 duodenal atresia (windsock) (Figure 2). Duodeno-duodenostomy was performed (Figure 3), and the integrity of the anastomosis was confirmed with lumenal fluid passage. The absence of the gallbladder at the porta hepatis was confirmed (Figure 4).

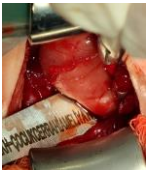

**Fig 1.** Duodenal dilatation

**Fig 2.** Duodenal atresia, type 1

**Fig 3.** Duodenoduodenostomy

**Fig 4.** Gallbladder agenesis

After transition to full-dose enteral feeding, hepatobiliary ultrasound demonstrated absence of the gallbladder, and no dilatation of the intrahepatic bile ducts was observed. Stool was colored, and pancreatic elastase level was 3 mcg/g, confirming exocrine pancreatic insufficiency.

The first infant developed opisthotonus on postoperative day 20, and the second on day 27; neurological examinations did not reveal a definitive etiology. Both patients were transferred to the pediatric intensive care unit and died at 4 months of age. Genetic testing in both infants and the father revealed a ~506.8 kb copy number gain (duplication) at Xq27.3. The duplicated region includes the SPANXN1 gene, and its clinical significance remains uncertain (variant of unknown significance, VUS).

**Conclusion**

In two sisters with prenatal gallbladder agenesis and duodenal atresia, including an older brother with type 1 diabetes mellitus, the postnatal course ‘exocrine pancreatic insufficiency, anemia requiring ongoing transfusions, thrombocytopenia, and hypoglycemic episodes’ was consistent with the clinical spectrum of Mitchell-Riley syndrome. The risk of recurrence of these rare syndromes is increased in consanguine pregnancies. Prenatal follow-up and genetic counseling are essential for early diagnosis.

In cases diagnosed with prenatal gallbladder agenesis, gallbladder agenesis should be confirmed with postnatal fasting and postprandial ultrasounds. Regardless of whether prenatal gallbladder agenesis is diagnosed, checking for the presence of a gallbladder should be a priority during operations for duodenal atresia.

**Conflict of Interest Statement**

The authors declare no conflict of interest related to this study.