

Congenital Duodenal Atresia

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ABSTRACT

We would like to present findings from six patients with duodenal atresia.

Key words: Duodenal atresia, newborn, double bubble sign

INTRODUCTION

Congenital duodenal atresia could generally be diagnosed in the neonatal period with double-bubble X-ray findings in babies with feeding difficulties and vomiting.

Six babies with feeding difficulties were diagnosed with duodenal atresia in the last two years by typical X-ray findings in our center (Figure 1); one of them also had Down syndrome. This diagnosis was made prenatally in four babies, though it was suspicious in two, because of the absence of fetal double-bubble sign and minimal polyhydramnios during pregnancy (Figure 2).

Three of these six babies were born prematurely (33-36 weeks of gestation). Four of them were boys and two were girls. The diagnosis of duodenal atresia was made in all six babies before they attained an age of 10 days. A typical double-bubble appearance was reported in them, which was verified during surgery. In all of them, the diagnosis was also verified by radiopack studies (Figures 3).

In two term babies, distal intestinal air was also shown in examinations performed later; one of them had duodenal atresia in the other small opening of duodenal web. All surgical findings from the six babies are given in Table 1 and Figure 4. The types of duodenal atresia are shown in Figure 5.

Four of the babies were the product of the first pregnancy and two were that of the second pregnancies; one of them was born as a twin baby. Since prematurity was documented in three of the babies, the correlation between duodenal atresia and prematurity should be taken into consideration as was reported previously.

None of the mothers had any signs or symptoms that could be related to their babies congenital disorders, except polyhydramnioses in four mothers.

Five of the six babies did not have any problem in growth and development and feeding. The sixth baby was operated then she developed sepsis, now she was cleared from sepsis, getting well. She is in ICU.

DISCUSSION

Several varieties of intrinsic and extrinsic congenital lesions can cause complete or partial obstruction of the duodenum (1). The double-bubble sign without distal air is diagnostic of a complete obstruction (2). In patient 1,

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FIGURE 1: Double-bubble sign (patient 1).

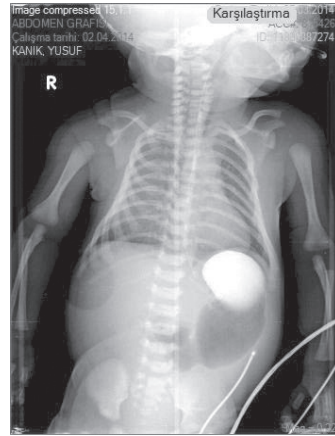


FIGURE 3: Double-bubble sign (contrast study).

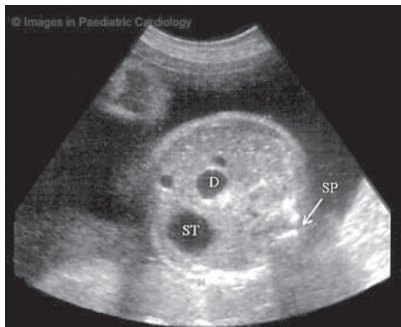


FIGURE 2: Duodenal atresia at 28 weeks of gestational age. The transverse scan of the abdomen (ST: stomach; D: dilated duodenal bulb; SP: fetal spine) (Prenatal diagnosis of congenital anomalies, Todros T, et. al - Images Paediatr Cardiol, 2001).

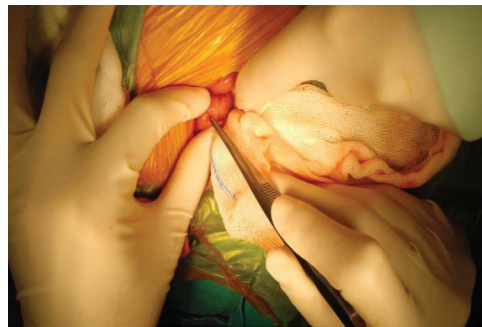


FIGURE 4: Duodenal web relief seen outside.

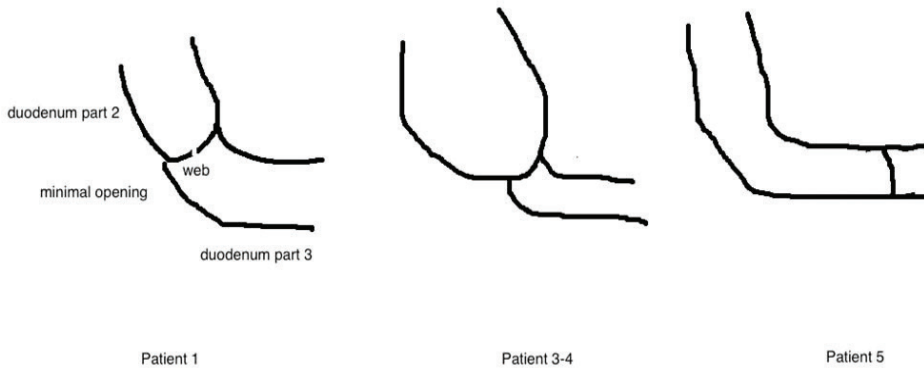


FIGURE 5: Diaphragmatic presentation of the lesions.

there was a web with minimal opening but there was no air distally. He was operated on the second day of life. Therefore, air might not have transmitted distally. He was a preterm baby at 33 weeks of gestation. The two parts of the duodenum did not have any difference in width.

In patient 4, there was no any distal air on the first day. We operated him on the seventh day of life. There was a web with minimal opening. The difference in width between the two parts of the duodenum was prominent. He was the term baby.

TABLE 1: Patients' findings.

	Patient 1	Patient 2	Patient 3	Patient 4	Patient 5	Patient 6
Gender	Male	Male	Male	Male	Female	Female
Gestational Age wk	33	Term	33	Term	Term	34
Weight (g)	2030	4070	2200	2300	3200	1590
Prenatally double-bubble sign	Seen	No	Suspicious	Seen	Suspicious	No
X-ray findings	DB sign	DB sign	DB sign	First DB sign then with distal air	DB sign with distal air	DB sign
Age at operation	2 days	8 days	5 days	7 days	10 days	9 days
Postoperative feeding	4th day	5th day	5th day	10th day	5th day	5th day
Postoperative discharge date	13th day	12th day	17th day	23rd day	11th day	-
Pathology	Duodenal web minimal opening	Torsion	Duodenal atresia	Duodenal atresia	Duodenal web	Malrotation+ duodenal atresia+internal hernia
Operation	Diamond anastomosis	Retorsion duodenotomy	Diamond anastomosis	Diamond anastomosis	Diamond anastomosis	Ladd+diamond anastomosis+internal herni reduction

If some intestinal air is seen distally, obstruction may be overlooked at the duodenal level due to the presence of a duodenal web. During surgery, no difference in width between the two parts of duodenum may hide the web. Mild relief can be seen at the web line (Figure 4). If a baby presents with vomiting, an incomplete duodenal obstruction would be suspected and a contrast study would be necessary.

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