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NEONATAL ABDOMINAL CYSTIC MASSES: SPONTANEOUS REGRESSION DEMONSTRATED WITH ULTRASOUND

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Abdominal cyst was diagnosed in 14 babies by ultrasound examination (9 multicystic dysplastic kidneys, 4 ovarian cysts, 1 bowel duplication). The cysts were followed in 6 patients by ultrasound and marked reduction of multicystic dysplastic kidneys was observed in 2 patients, and 1 ovarian cyst fully disappeared. Their experience in agreement with the literature data suggest that conservative management with sonographic reevaluation is an acceptable alternative to surgical therapy in uncomplicated cases.

INTRODUCTION

With the increased use of sonography prenatal and postnatal detection of neonatal cystic masses has extended, and asymptomatic cystic masses are being discovered. In one part of the cases the serious complications can be prevented by an early surgery, on the other hand, the mass may spontaneously disappear and conventional treatment is satisfactory.

Neonatal abdominal cystic masses are: ovarian cyst, mesenteric and duplication cysts, cystic teratoma. In the cases of renal cystic masses one has to distinguish multicystic kidney, hydronephrosis, polycystic kidney disease. The basic condition of the sonographic follow-up is the correct diagnosis.

PATIENTS AND METHODS

14 patients with abdominal cystic masses were admitted to the I. Department of Pediatrics between November 1987 and August 1989. At the time of the first investigation the patients' age ranged from 6 days to 3 months. There were 8 females and 6 males. Sonography was performed with a 5 MHz real-time mechanical sector scanner (Combison 310, Kretz). The diagnosis was multicystic kidney in 9 cases, ovarian cyst in 4 cases, enteric duplication in 1 case. The sonographic findings of the multicystic kidney include great number of cysts varying in size and shape, absence of connection between cysts, absence of renal parenchyma.

The sonographic finding was echo-free in one case of ovarian cyst, 3 cysts contained internal echos, by a fluid-debris level, internal septation.

The sonographic appearance of the duplication cyst was echo-free, mobile, surrounded by an echogenic wall.

RESULTS

In 7 neonates, the multicystic kidney was discovered in utero (Table I). All of the patients presented a unilateral flank mass, 4 patients had undergone surgical exploration because of renal insufficiency/or intestinal obstruction caused by the very large tumor mass. 1 patient had undergone surgery at age of 1 year, because the extremely great size of the cysts did not change during the follow-up period. Clinical, ultrasound and surgical findings in 4 cases of multicystic kidneys without surgery are summarized in Table I. The cases are illustrated in Figs. 1-2. In two patients by the age of 1 year and by the age of 18 months, respectively instead of the earlier several large cysts only one small cyst in each could be observed.

Clinical, ultrasound and follow-up findings in 4 cases of ovarian cysts are summarized in Table II.

In two cases the cysts were detected during postnatal sonography. Both had asymptomatic, palpable masses, the sonographic appearance supposed torsion. They underwent surgery which proved twisted ovarian cysts. 1 patient was examined by ultrasound at the age of three months, because of the

TABLE I

Clinical, US and follow-up findings in 9 cases of multicystic kidneys

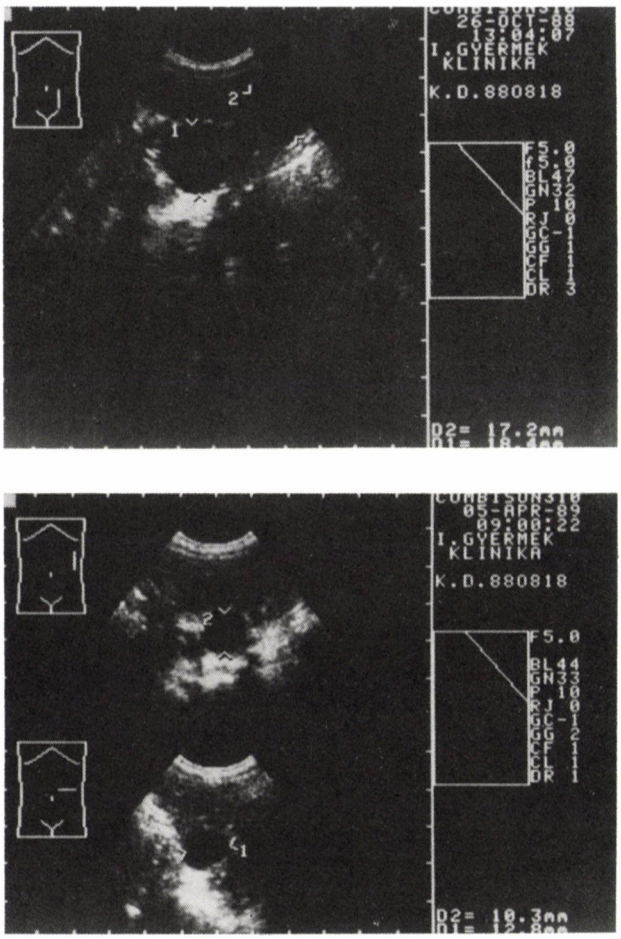
Case	Age at discovery/ Sex	Clinical presentation	US Findings Initial	US Findings Subsequent	Follow-up Findings
1.	prenatal, male	palpable mass	multiple large cysts, right side	same	surgery at age 1 year
2.	prenatal, male	palpable mass	multiple large and small cysts, left side	at age 1 year: small cysts	at age 2 years: one small cyst
3.	newborn, female	palpable mass	multiple cysts, right side	-	surgery
4.	prenatal, male	palpable mass	multiple cysts, left side	at age 5 months: small cysts	at age 18 months: one small cyst
5.	prenatal, female	palpable mass	multiple cysts, right side		surgery at age 3 weeks/intestinal obstruction/
6.	newborn, male	palpable mass	multiple cysts, left side	at age 7 months: no change	
7.	prenatal, male	palpable mass, renal insuff.	4 cm cyst, left side	-	surgery
8.	prenatal, female	palpable mass	multiple cysts left side	at age 2 months: no change	
9.	newborn, male	palpable mass	5 cm cyst right side	-	surgery

TABLE II

Clinical, US and surgical findings in 4 cases of ovarian cysts

Case	Age at discovery	Clinical presentation	Diameter in cm	US findings	Follow-up findings
1.	intrauterin	asymptomatic	3	echo-free	at age 6 months -3 cm at age 1 year -6 mm
2.	1 week	asymptomatic palpable mass	6	fluid-debris level, septa	surgery - twisted cyst
3.	3 months	side-finding	3	echo-free internal echos, septa	ureter obstruction, hydronephrosis surgery-twisted cyst
4.	1 week	asymptomatic palpable mass	4	fluid-debris level, septa	surgery-twisted cyst

possibility of right side diaphragmatic hernia (patient 3. Table II). She had relaxation of diaphragm, and in addition a



Figs. 1-2. 1./ left parasagittal section of the abdomen: large cysts, no renal parenchyma
2./ at the age of 1 year: left sagittal sonogram shows one 10 mm cyst

left side hydronephrosis connected to a cystic mass with internal echos was seen under the left kidney (Fig 3.). The investigation was reapeated on the next day, the hydronephrosis was moderated and the cyst was located in the right pelvis. The

child was operated on, a twisted ovarian cyst was removed, which previously by the compression of the ureter caused the left side hydronephrosis.

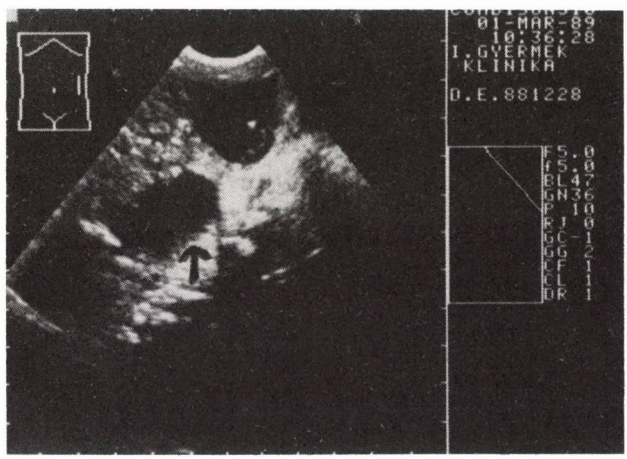


Fig. 3. left parasagittal section of the abdomen: hydronephrosis /↑/, under the kidney echo-free ovarian cyst, with internal echogen ring

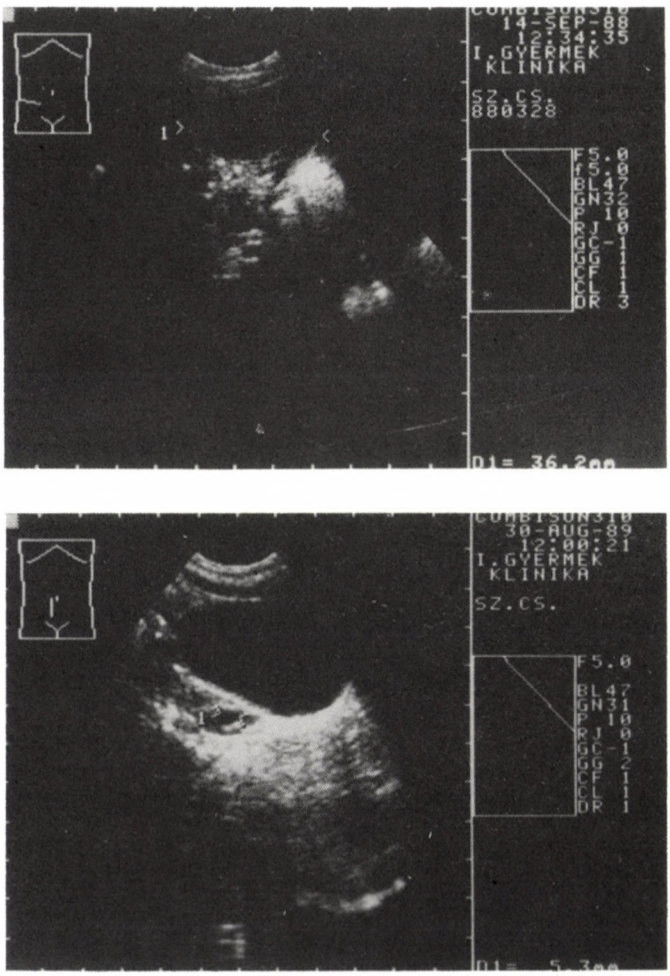
In 1 infant the ovarian cyst (3 cm in diameter) was discovered in utero. She was asymptomatic, followed by ultrasound examinations, the cyst disapeared within 1 year of discovery (Figs 4, 5.). The infant diagnosed to have intestinal duplication has undergone surgery.

DISCUSSION

Multicystic dysplastic kidney is usually discovered on the first day of life. In some cases the condition may however, be undetected until adulthood, when it is diagnosed incidentally. Usually it is unilateral; when bilateral, the outcome is lethal.

Two types of multicystic kidneys have been identified: a dysplastic type with non-communicating cysts, and a

hydronephrotic-obstructive type, with possibly communicating cysts /2, 4, 6, 11/. Previously the therapy was nephrectomy. In most cases the diagnosis can be established by ultrasound, followed by nuclear scintigraphy. One has to differentiate it from hydronephrosis, Wilms tumor, mesoblastic nephroma, polycystic kidney. Once the diagnosis has been set up, the subsequent treatment ranges from nephrectomy to conservative observation. According to the literature, nephrectomy should be reserved for those patients, whose multicystic dysplastic



Figs. 4-5. 1./ newborn girl, ovarian cyst in diameter 3 cm
2./ at age 1 year: 6 mm cyst

kidney causes complaints (pain, pressure, infection). In asymptomatic cases a conservative therapy is recommended /10, 12/. Vinocur et al. reported about 30 patients, 19 cases were followed up without surgery, in two patients the mass disappeared /12/. They did not notice infection and hypertension either. Pedicelli et al. reported on 9 patients, followed up by ultrasound, in 6 patients the cysts disappeared /10/. They speculate that some cases of renal agenesis may represent a complete resorption of multicystic kidney.

In some adults malignant transformation of multicystic kidney is occurring. Considering the frequency of multicystic kidney and the extreme rarity of its malignant transformation, surgery is not proposed unless other reasons (mechanical obstruction, infection) indicate it, rather an observation time of at least 1 year is suggested. Our cases also support this observation, in two of our nine cases the cysts have become smaller or fully disappeared, and in 3 the cysts were early removed because of renal insufficiency/or intestinal obstruction.

The most common abdominal cysts in newborn girls are the ovarian cysts. Earlier it was considered to be a rare disease, only 71 cases have been reported in the literature until 1976 /8/. Ovarian cysts were discovered only if they were palpable, caused symptoms because of torsion or rupture, or were associated with intestinal obstruction.

With the increased use of sonography, asymptomatic cystic ovarian masses are being discovered more often. One part of them are not clinically significant, and may involute, their conservative treatment after birth is satisfactory /1, 3, 5, 8, 9/. The differential diagnosis includes mesenteric and duplication cysts, cystic teratoma, dilated bowel loops. The size of a neonatal ovarian cyst varies considerably from some millimeters to more centimeters: it could be asymptomatic, but a large cyst can be associated with torsion, vomiting, intestinal obstruction, pain, fever. One of our cases caused hydronephrosis by the compression of the ureter. Most of them can be mobile and situated on the contralateral side. In some cases, mobility of the cyst was evident for us during real-time

sonography /9/. The sonographic appearance of an ovarian cyst varies, primary depending on whether the cyst is uncomplicated or complicated by torsion or hemorrhage. An uncomplicated cyst is echo-free, its wall is thin. A complicated cyst contains a fluid-debris level, retracting clot or septa and often has an echogen wall. From the time that to spontaneously regress, small, uncomplicated cysts have been reported, sonographic distinction between twisted and non-twisted cysts may be of value in therapeutic management /8/.

One of the potential risks in conservative management is that the cystic lesion is not an ovarian cyst. Malignancy is extremely rare in infancy, and usually does not take the form of fluid-filled mass. Mesenteric and duplication cysts may be sonographically indistinguishable, however, because this masses are benign, conservative management is not hazardous. Another risk is the possibility for an uncomplicated cyst to undergo torsion during the period of observation. In this case, however, the sonographic caracter of the masses will change, and thus detection of the complication will be possible /8, 9/.

According to the literature data, as well as, to our experience the conservative management with the sonographic reevaluation is an acceptable alternative to surgical therapy in uncomplicated cysts measuring less than 5 cm in diameter. The spontaneous regression of these cysts can be expected by all probability. For larger cysts no conventional treatment, rather surgery is suggested /8/.

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