Journal of Pediatric Surgery (2007) **42**, 2136–2139

Journal of Pediatric Surgery

www.elsevier.com/locate/jpedsurg

Operative technique

Transumbilical management for neonatal ovarian cysts

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Received 6 June 2007; accepted 3 August 2007

Index words:
Transumbilical management;
Ovarian cyst

Abstract

Background/Purpose: Since Tan and Bianchi (Br J Surg. 1986;73:399) reported umbilical incision as an access for pyloromyotomy in infantile hypertrophic pyloric stenosis, many pediatric surgeons have used this approach for a number of other procedures. Because of the long pedicle with good mobility and the frequent intraabdominal position of the neonatal ovarian cyst, we attempted to manage it via the transumbilical route.

Methods: All patients were treated under intubation general anesthesia. Semicircular infraumbilical incision was made, and the abdomen was entered through a transverse fascial incision. The partially collapsed cyst after aspiration was exteriorized through the incision for cystectomy, partial deroofing, or adnexectomy.

Results: From May 2000 to December 2006, 6 female newborns with ovarian cysts were treated via the transumbilical route. There were no complications from surgery. The operation time and duration of hospital stay were short. The cosmetic appearance after the procedure was good.

Conclusions: The initial result suggests that transumbilical management for neonatal ovarian cysts may be a good alternative procedure when laparoscopic equipment is unavailable or experienced technique is lacking.

In 1986, Tan and Bianchi reported that the umbilical incision could be used for pyloromyotomy in infantile hypertrophic pyloric stenosis. Since then, many pediatric surgeons have used this approach for a number of other procedures. The umbilical incision is large enough to allow adequate exposure and offers a good postsurgical cosmetic appearance. Considering that the neonatal ovarian cyst has a long pedicle with good mobility and frequent intraabdominal position, we attempted to ascertain the feasibility of transumbilical management of the neonatal ovarian cysts.

1. Materials and methods

From May 2000 to December 2006, 6 female newborns with ovarian cysts were treated via the transumbilical route. All patients were detected by prenatal ultrasound scan and referred to our institution after birth. Postnatal ultrasound was performed in all cases, and one case with initial diagnosis of teratoma received an additional computed

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doi:10.1016/j.jpedsurg.2007.08.009

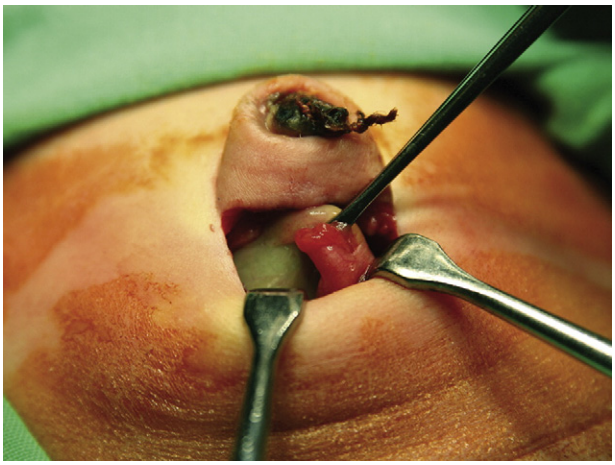

Fig. 1 Ovarian cyst was seen clearly under transumbilical incision.

tomographic scan. Indications for surgery are large symptomatic simple cyst and complex cyst diagnosed by ultrasound and, if necessary, computed tomographic scan.

All patients were treated under intubation general anesthesia. A semicircular infraumbilical incision was made, and the peritoneal cavity was accessed through a transverse fascial incision. The upper margin of the ovarian cyst usually exceeded the umbilicus and was seen clearly under the incision (Fig. 1). If the cyst is not visible, palpation of the cyst and squeezing of the abdominal wall can allow guidance and fixation of the cyst beneath the incision. The wall of the cyst was grasped by forceps or was sucked by a suction tube using the technique described by Ferro et al [1]. Under direct vision, the content was aspirated by a large needle. The partially collapsed cyst was then delivered through the incision (Fig. 2). Cystectomy, partial deroofing, or adnexectomy was performed outside the abdominal wall; and the contralateral ovary can be exteriorized for inspection via the same route if necessary.

2. Results

All infants were full term (Table 1). The cysts were simple in 3 cases, whereas the other 3 cases were complex. Average size was 8.1 cm (range, 6.7-9.5 cm) for the simple cysts and 5.6 cm (range, 4.5-6.7 cm) for the complex cysts. Cases 1 and 3 developed respiratory distress owing to the mass effect of large cystic size after birth, and case 1 even needed emergent intubation. The average age at operation was 8.5 days (range, 2-20 days). The mean operating time was 27.6 minutes (range, 21-43 minutes). There were no complications from surgery, and all patients were discharged 24 hours after operation. The scars were hardly detectable about 2 weeks later.

3. Discussion

After the introduction of ultrasound for the routine monitoring of pregnancy, the incidence of ovarian cysts progressively increased. Thus, the natural course of ovarian cysts has become clearer. Cysts smaller than 4 to 5cm in diameter tend to regress or resolve spontaneously in 3 to 4 months [2,3]; and the incidence of torsion is low, although it has occurred in cysts as small as 2 cm [4]. According to the previous reports [2,5,6], cysts with a diameter larger than 5 cm and a volume of more than 40 cm^3 are more likely to cause clinical symptoms. The most common complication is torsion. Many studies described that torsion occurred in 40% to 47% of these patients [2,7,8]. Very large cysts can lead to respiratory distress, abdominal distension, pulmonary hypoplasia, polyhydramnios [9], intestinal perforation [10], and even hepatic failure [11].

There is still controversy regarding the optimal management of the ovarian cyst. Traditionally, the surgical indications for ovarian cysts are large simple cysts and complex cysts. Warner et al [12] describe that the character and the size of the cyst could not be used to predict clinical outcome, but many reports [2,8,13] suggest that the cyst size is an effective prognostic predictor. Lower incidence of torsion by in utero or postnatal aspiration also supports the opinion [3,7,14]. Although ovarian cyst decompression has been reported with good results, cyst torsion or recurrence cannot be absolutely avoided. Periodic ultrasonic monitoring is necessary, and spillage of cystic fluid during aspiration may occur. Enríquez et al [15] compared the result of conservative vs surgical treatment of complex neonatal ovarian cysts and recommended conservative management with clinical and sonographic monitoring for complex neonatal ovarian cyst. However, twisted, infarcted cyst may cause inflammatory adhesion to the bowel loops [16,17] and lead to intestinal obstruction and/or rupture with peritonitis [10]. Another point is that ultrasound cannot precisely differentiate a hemorrhagic

Fig. 2 The partially decompressed ovarian cyst was exteriorized.