

Anesthetic Experiences in New Borns  
with Giant Ovarian Cysts: Case ReportsHatice Toprak<sup>1\*</sup>, Eyup Aydogan<sup>1</sup>, Ibrahim Akkoyun<sup>2</sup> and Sadik Ozmen<sup>3</sup><sup>1</sup>Department of Anesthesiology, Konya Training and Research Hospital, Turkey<sup>2</sup>Department of Pediatric Surgery, Konya Training and Research Hospital, Turkey<sup>3</sup>Department of Anesthesiology Antalya Training and Research Hospital, Turkey

## Article Information

Received date: Apr 09, 2016

Accepted date: May 18, 2016

Published date: May 19, 2016

## \*Corresponding author

Toprak H, Department of Anesthesiology,  
Konya Training and Research Hospital,  
Turkey, Tel: +905357827688; Email:  
dr.hd@mynet.com

Distributed under Creative Commons  
CC-BY 4.0

**Keywords** Newborn; Ovarian Cyst;  
Laparoscopic Surgery

## Abstract

The detection rate of neonatal ovarian cysts increased since routine antenatal ultrasound has been implemented. These cysts are generally asymptomatic during prenatal and antenatal period, they often regress spontaneously, and it was reported that big ones which have diameter larger than 4-5 cm have the risk of ovarian necrosis due to torsion, urinary tract compression, vena cava compression and cyst rupture.

Treatment with laparoscopic surgery have advantages such as better cosmetic outcomes, less fluid and heat loss, fast recovery and less postoperative pain.

Newborns have some specific features of anesthetic management because of their specific physiological features. We aimed to present of anesthetic experiences in newborns with giant ovarian cysts who were treated with laparoscopic surgery.

## Introduction

The detection rate of neonatal ovarian cysts increased since routine antenatal ultrasound has been implemented. Antenatal diagnosis of ovarian cysts first described in 1975 by Valenti [1]. Ovarian cysts are most common intra abdominal cystic formations in newborns [2]. These cysts are generally asymptomatic during prenatal and antenatal period, they often regress spontaneously, and it was reported that big ones which have diameter larger than 4-5 cm have the risk of ovarian necrosis due to torsion, urinary tract compression, vena cava compression, cyst rupture [3-5]. To avoid these complications surgical treatment is necessary.

We aimed to present of anesthetic experiences in newborns with giant ovarian cysts that were treated with laparoscopic surgery.

## Case 1

6 cm diameter left ovarian cyst was detected in antenatal 36 weeks fetus and the baby was born in 40<sup>th</sup> week of gestation via spontan vaginal delivery. Patient's weight was 4200 gm and height was 52 cm. An intra abdominal palpable mass which was nearly 6 cm diameter was observed by physical examination. It was confirmed with USG (ultrasonograph) that mass was a left ovarian cyst. So laparoscopic surgery was planned. 2 days old newborn was scheduled for operation. No premedication was applied. Patient was monitored with non-invasive arterial blood pressure, peripheral pulse oxymeter, electrocardiograph, end-tidal CO<sub>2</sub> and body temperature monitorisation during Perioperative period. The operating room temperature was kept in 24 °C, newborn was covered with dressings to keep warm and warming device was used to keep body temperature during surgery. Jackson Rees circuit was used for anesthetics. Anesthetic induction was provided with sevoflurane concentration from % 7 to % 2, venous access was provided, fentanyl 0, 5 µg/kg and atracurium 0, 5 mg/kg was administered, hydration was provided by constant rate infusion (40 cc/h) of isolyte P (due to pediatrics proposal). The patient was entubated with 3, 5 mm cuffless tube, nasogastric tube was placed. Anesthesia was maintained with % 50 Oxygen+% 50 medical air and % 2 sevoflurane by positive pressure respiration. The patient was ventilated manually and to reduce CO<sub>2</sub> accumulation Jackson Rees circuit was preferred. End-tidal CO<sub>2</sub> was kept 30-40 mmHg and body temperature was kept in 36-37 °C during surgery. Intra abdominal CO<sub>2</sub> pressure was kept below 6 mmHg. Serohaemorrhagic content was aspirated from cyst and cyst was excised from left ovary. Intra abdominal CO<sub>2</sub> was deflated. Hemodynamic signs were stabil. Neostigmin (0, 15 mg) and atropine (0, 05 mg) administered for antagonize neuromuscular blocker agent. The baby was extubated at the end of the surgery. Operation time was 75 minutes. 60 mg parasetamol suppository was applied for analgesia. No complication was observed postoperatively such as apnea, hypothermia, tachycardia or bradycardia. Patient was breastfed at postoperative 3<sup>rd</sup> hour and discharged from hospital at postoperative 2<sup>nd</sup> day.

## Case 2

10 cm diameter left ovarian cyst was detected in antenatal 32 weeks fetus and the baby was born in 39<sup>th</sup> week of gestation via spontan vaginal delivery. Patient's weight was 3280 gm and height was 49 cm. An intra abdominal palpabl mass which was nearly 10 cm diameter was observed by physical examination. It was confirmed with USG (ultrasonograph) that there were two masses, one was a left ovary (10 cm) and second in right ovary (3 cm). So laparoscopic surgery was planned.

1 days old newborn was scheduled for operation. No premedication was applied. The baby was monitored with non-invasive arterial blood pressure, peripheral pulse oxymeter, electrocardiograph, end-tidal CO<sub>2</sub> and body temperature monitorisation during Perioperative period. The operating room temperature was kept in 24 °C, newborn was covered with dressings to keep warm and warming device was used to keep body temperature during surgery. Jackson Rees circuit was used for anesthetics. Anesthetic induction was provided with sevoflurane concentration from % 7 to % 2, venous access was provided, fentanyl 0, 5 µg/kg and atracurium 0, 5 mg/kg was administered, hydration was provided by constant rate infusion (30 cc/h) of izomix 1/3 (due to pediatrics proposal). The patient was entubated with 3, 5 mm cuffless tube, nasogastric tube was placed. Anesthesia was maintained with % 50 Oxygen+% 50 medical air and % 2 sevoflurane by positive pressure respiration. Peak respiratory pressure was kept below 20 cm H<sub>2</sub>O. The patient was ventilated manually and to reduce CO<sub>2</sub> accumulation Jackson Rees circuit was preferred. End-tidal CO<sub>2</sub> was kept 30-40 mmHg and body temperature was kept in 36-37 °C during surgery. Intra abdominal CO<sub>2</sub> pressure was kept below 6 mmHg. Serohaemorrhagic content was aspirated from both cysts and cysts were excised from ovaries. Intra abdominal CO<sub>2</sub> was deflated. Hemodynamic signs were stabil. Neostigmin (0, 15 mg) and atropine (0, 05 mg) administered for antagonize neuromuscular blocker agent. The baby was extubated at the end of the surgery. Operation time was 100 minutes. 60 mg paracetamol suppository was applied for analgesia. No complication was observed postoperatively such as apnea, hypothermia, tachycardia or bradycardia. Patient was breastfed at postoperative 7<sup>th</sup> hour and discharged from hospital at postoperative 4<sup>th</sup> day.

## Discussion

Newborns have anatomical differences according to adults. Upper airway obstruction risk is higher because of proportionally larger head, shorter neck, anterior and cephalad larynx. These differences must be considered in anesthetic practise. To avoid vocal cord irritation cuffless endotracheal tube was preferred. Newborn lung are more prone to atelectasis because of weaker intercostal muscles, weaker diaphragms, sensitive respiratory muscles to anesthetics [6].

Mechanical stimulus on face, nose, upper airways and chemical stimuli can activate laryngeal reflexes which may lead to apnea,

bradycardia, laryngospasm even death. Pulmonary vascular structures are more sensitive to anesthetics in newborns [7]. Because of these reasons anesthetic agent were preferred in low doses as much as possible. Hypothermia and metabolic asidosis were avoided with body temperature monitoring and warming device if needed. Blood glucose level monitored.

Laparoscopic surgery increases intra abdominal pressure, so venous return decreases. It is suggested that keep intra abdominal pressure lower than 6 mmHg, so we kept. Nitrous oxide was avoided in laparoscopic surgery because it may lead intestinal dilatation [7].

Newborns need lower Minimal Alvelary Concentration (MAC) [8]. We did not use sedatif agents. We preferred volatile anesthetic (sevoflurane) for induction, low dose fentanyl and neuromuscular blocker agents were administered. Gastric decompression was provided via nasogastric tube.

Laparoscopic cyst excision in newborns may lead severe cardiovascular, respiratory problems. These problems may be related to newborns anatomic and physiological features, cyst diameter or poor clinical state. Blood loss and operation time are also important parameters.

## Conclusion

In conclusion, laparoscopic cyst excision can be performed safely and easily with proper anesthetic approach and care.

## References

1. Valenti C, Kassner EG, Yermakov V, Cromb E. Antenatal diagnosis of fetal ovarian cyst. *Am J Obstet Gynecol.* 1975.
2. Nussbaum AR, Sanders RC, Hartman DS, Dudgeon DL, Parmley TH. Neonatal ovarian cyst: sonographic pathologic correlation. *Radiolog.* 1988; 168: 817-821.
3. Brandt ML, Luks FI, Filiatraut D, Garell L, Desjardins JG, Youssef S. Surgical indications in antenatally diagnosed ovarian cysts. *J Pediatr Surg.* 1991; 26: 276-281.
4. Bagolan P, Giorlandino C, Nahom A, Bilancioni E, Trucchi A, Gatti C, et al. The management of fetal ovarian cysts. *J Pediatr Surg.* 2002; 37: 25-30
5. Nussbaum AR, Sanders RC, Benator RM, Haller JA Jr, Dudgeon DL. Spontaneous resolution of neonatal ovarian cysts. *AJR Am J Roentgenol.* 1987; 148: 175-176.
6. Motoyama EK. Respiratory physiology. Motoyama EK, Davis PJ. *Smith's Anaesthesia for Infants and Children.* 7<sup>th</sup> Edition. Philadelphia, Mosby Elsevier. 1996: 3-67.
7. Rayman R, Girotti M, Armstrong K, Inman KJ, Lee R, Girvan D. Assessing the safety of paediatric laparoscopic surgery. *Surg Laparosc Endosc.* 1995; 5: 437-443.
8. Carry PY, Gallet D, Francois Y, Perdrix JP, Sahaq A, Gilly F, et al. Respiratory mechanics during laparoscopic cholecystectomy: the effects of the abdominal wall lift. *Anesth Analg.* 1998; 87: 1393-1397.