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ORIGINAL ARTICLE

Combined procedure of cesarean delivery and preperitoneal mesh repair for inguinal hernia: An initial experience

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Summary *Background:* Combined surgery for cesarean delivery and preperitoneal mesh repair for inguinal hernia has not been previously reported.
Objectives: Our aim was to describe the method and to present the results of this simultaneous surgery through a single incision.
Methods: From 2012 to 2014, 15 patients underwent cesarean delivery combined with preperitoneal mesh repair for inguinal hernia. All patient characteristics and perioperative findings were recorded.
Results: Among 15 patients, 13 had unilateral inguinal hernias and two had bilateral hernias. The mean times spent for unilateral and bilateral hernias were 35.8 minutes (range, 30–45 minutes) and 67.5 minutes (range, 65–70 minutes), respectively. Direct and indirect hernias were present in one and 15 patients, respectively. One patient had mixed hernia. No significant complication was observed perioperatively. Hospital stay ranged from 1 day to 3 days (mean, 1.87 days), and all patients were discharged without any problem. No recurrence was found during the follow-up periods.
Conclusion: Single anesthesia, single incisional scar, and single hospitalization are the major advantages of this simultaneous approach of cesarean delivery and preperitoneal mesh repair for inguinal hernia. Our analysis suggests that this combined procedure can be performed safely in selected cases.

Conflict of interest: The authors declare that there is no conflict of interest.

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1. Introduction

Surgery for abdominal wall hernias, particularly inguinal herniorrhaphy, is among the most common general surgical procedures.[1] The lifetime risk of having an inguinal hernia has been estimated to be 27% for men and 3% for women.[2] During pregnancy, inguinal or umbilical hernias have a reported incidence of approximately 1:2000, and are usually treated after delivery on an elective basis.[3] By contrast, inguinal hernia repair at the time of cesarean delivery (CD) has not been well described except a few single case reports or small case series.[4–6] Preperitoneal inguinal hernia repair with mesh use is a well-known and frequently performed surgical technique. To the best of our knowledge, there is only a single study about preperitoneal mesh repair for inguinal hernia during CD in the current literature.[3] The aim of this prospective study is to evaluate the short- and long-term outcomes of this combined surgery.

2. Methods

2.1. Patients

Between 2012 and 2014, 15 consecutive pregnant women with groin hernia underwent hernioplasty by using preperitoneal mesh repair technique at the time of CD. All participants were planned CD patients, and had no serious obstetric pathology. Painful inguinal swelling was present in all cases, and the diagnosis of inguinal hernia was also confirmed by ultrasonography preoperatively. The surgical procedure was explained in detail to the patients, and then a written informed consent form was obtained from all patients. Any serious complication during CD was accepted as a contraindication to subsequent mesh repair of inguinal hernia. The operations and postoperative follow-ups of the patients were performed by a single obstetrician and general surgeon. Demographic and clinical data of the patients were recorded. Intraoperative and postoperative findings were also noted in detail. All the patients were operated on under epidural anesthesia. Perioperative antibiotic prophylaxis with 1 g cephalosporin was given to all patients intravenously.

2.2. Definition of the combined procedure

After disinfection of the surgical area with povidone iodine, the operation was started with an approximately 10 cm classic Pfannenstiel incision. Exposure of the uterus was provided with routine steps, and a standard CD was performed by the obstetrics team. After the uterine wound was closed carefully, the operative wound was washed with saline. Then, the preperitoneal space was entered between rectus muscle and peritoneum with blunt dissection by the general surgery team. Firstly, the dissection started into the retropubic region, also called the Retzius and Bogros spaces. Then, the retroinguinal region was dissected through the posterior of epigastric vessels. Subsequently, the dissection was extended to the iliopsoas muscle laterally. Finally, the dissection of the surgical area was successfully completed, and the direct or indirect hernia sac reduction was performed (Figure 1). A 15 cm $\times$ 11 cm polypropylene mesh was spread out to a keyhole as shown in Figure 2A. Although the round ligament is an embryological remnant and is usually cut during the mesh placement, lack of this ligament has been reported to be associated with uterine retroversion that can cause chronic pelvic pain. For this reason, the round ligament was engaged from the keyhole, and the lateral keyhole interval was sutured and closed (Figure 2B). Later, the mesh was fixed with a nonabsorbable 2-0 polypropylene stitch to three points, the posterior rectus sheath, the pectineal ligament and the spina iliaca anterior superior, to prevent dislocation. The same procedure was performed for the other side in patients with bilateral hernias. Finally, the wound was closed without using a drain (Figure 3).

2.3. Statistical analysis

SPSS 21.0 software (SPSS Inc., Chicago, IL, USA) was used for data analyses. Descriptive analysis was carried out for demographic and clinical features. The results are presented as mean $\pm$ standard deviation/percentages for continuous variables, and number/percentage for categorical variables.

3. Results

Fifteen female patients (mean age, 32.2 ± 2.98 years; range, 28–37 years) underwent preperitoneal mesh repair for inguinal hernia combined with CD. Previous CD was the leading indication for CD ($n = 14$, 93.3%); however, only one patient (6.7%) underwent CD due to cephalopelvic disproportion. None of the cases had concomitant medical problem. In 12 patients, inguinal hernia was detected during pregnancy. By contrast, three patients had a diagnosis of groin hernia before their pregnancies. Thirteen (86.7%) patients had unilateral hernias, and two (13.3%) had bilateral hernias. None of these was recurrent hernia. Of the unilateral hernias, eight were on the right and five were on the left. Most of the hernias ($n = 15$) were in

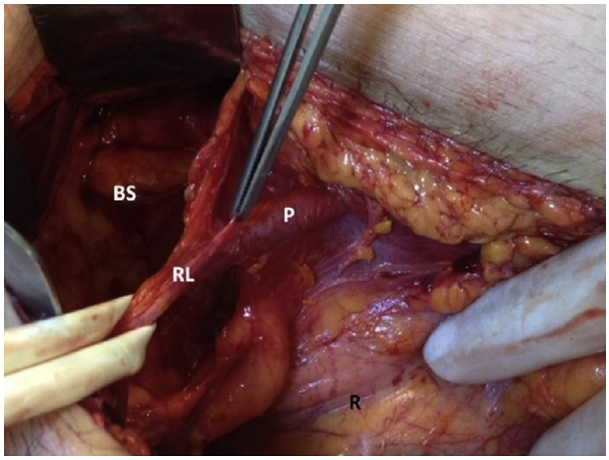

Figure 1 View of retzius (R), round ligament (RL), peritoneum (P), and bogros space (BS) after blunt dissection and hernial sac reduction.

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