CORRESPONDENCE

Abdominal Surgery in Pregnancy—an Interdisciplinary Challenge

by PD Dr. med. Ingolf Juhasz-Böss, Prof. Dr. med. Erich Solomayer,
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No Statistics Without Clinical Evaluation

The authors conclude that laparoscopy in experienced hands is safe even during pregnancy, with the recognized advantages of minimally invasive surgery, yet it carries a higher miscarriage rate than laparotomy, with a comparable preterm birth rate.

Before surgery, patients should be thoroughly informed about the operation they are about to undergo and the advantages and disadvantages of the available surgical approaches.

These conclusions are based on two meta-analyses (1, 2), including 599 and 637 pregnant patients, respectively, who underwent laparoscopic appendectomy. These meta-analyses are disproportionally dominated by a study which analyzed data from a patient registry in California (3). This retrospective study compared 454 patients undergoing laparoscopic surgery with 2679 patients undergoing open surgery for appendicitis between 1995 and 2002. According to the registry data for this period of time, a laparotomy was performed in 77% of all patients with suspected appendicitis, even in nonpregnant women. This is reflective of the operative techniques used at that time and cannot be applied to the year 2014, where only in exceptional cases an open appendectomy is performed.

In addition, the documentation quality of this database remains obscure. The outcome “fetal loss” was defined by McGory (3) as “spontaneous abortion” or “intrauterine death” or the procedure code for “dilation and curettage”. However, the term “intrauterine death” also includes any conceptus after the 24th week of pregnancy and thus cannot be used as a synonym for miscarriage, as done by the authors. The outcome “early delivery” was defined by McGory as the procedure codes “Caesarean section” or “hysterectomy”. Are there no spontaneous preterm births in California? In this context, the authors even describe a preterm birth rate in the first trimester of 4.7%.

Meta-analyses are as good as the individual studies on which they are based. Conclusions drawn solely from such statistical data and without clinical evaluation are misleading the reader and cannot serve as a basis for the advice we give to our patients.

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Addition

This article is primarily concerned with the question of optimal surgical approach (laparoscopy versus laparotomy) and well worth reading. I like to add three points which are important for the clinical management:

Both the miscarriage rate and the preterm birth rate are not only influenced by the surgical approach, but also by the underlying condition. For instance, frequently a peritoneal inflammatory response (e.g. appendicitis) triggers uterine contractions (1). The literature review leaves it open whether the studies included in their analysis took the effect into account that the extent of inflammation had on the complication rate.

The authors highlight the risk of injury to the uterus associated with the insertion of the Veres needle or trocar during laparoscopic procedures performed in pregnancy. By performing an “open” laparoscopy, this risk can be eliminated. Here, the approach (for example supra-umbilical) should be decided based on fundal height and, consequently, gestational age.

According to the article, fetal and uterine status should be followed after the 16th week of pregnancy with “pre- and post-operative monitoring and documentation”. There is no recommendation for intraoperative monitoring (2) which is still a matter of controversy. From my personal experience, I know two cases of intrauterine fetal death associated with thrombectomy and the surgical removal of an abdominal tumor, respectively (both occurred between the 28th and 30th week of pregnancy). Chances are that both cases could have been avoided if intraoperative fetal monitoring had been carried out, with the team on standby to intervene immediately, if required. Intermittent or continuous cardiotocography- or ultrasound-based fetal monitoring can be performed with the transducer or ultrasound probe wrapped in sterile drapes (3). Prerequisites include adequate preoperative information of the patient and an infrastructure ensuring

the availability of the necessary professional expertise and interdisciplinary cooperation (level I–II perinatal center).

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In Reply:

To present the currently available literature on surgical interventions in pregnancy was one of the aims of our review. Prof. Berger criticizes the data quality of some studies. This criticism is to some extent justified as there are no randomized controlled studies available comparing different surgical approaches (laparotomy versus laparoscopy) in pregnancy. The study results presented in detail in our article are based on two meta-analyses and numerous other research studies, most of them case control studies. Prof. Berger has rightly criticizes that—not unexpectedly—some of these studies had methodological shortcomings. Nevertheless, in the age of evidence-based medicine it is crucial to inform the patient based on the available study data.

Prof. Crombach has once again pointed out the risks associated with trocar placement during laparoscopy. As mentioned in the article, we would like to re-emphasize that trocar placement should be adapted to the size of the uterus, even if that requires to deviate from the standard procedure typically performed in a hospital. To what extent such “open” laparoscopy can minimize the risk of injury to the uterus in pregnancy—as noted by Prof. Crombach—cannot conclusively be derived from the available data and is subject to controversy (1). Therefore, the authors are of the opinion

that surgeons should insert the trocar into the abdomen in the way they regard as safest for them.

Prof. Crombach has mentioned two cases of (apparently intraoperative) intrauterine fetal death and believes that our article is lacking a recommendation to carry out intraoperative fetal monitoring.

In his correspondence item, he described two methods available for intraoperative fetal monitoring (e.g. sterile ultrasound or cardiotocography [CTG] checks). The authors cannot give a general recommendation for intraoperative fetal monitoring. One reason is that settings without intrauterine fetal monitoring form the basis of most experiences/study results. As mentioned in our paper, the fetus is also under anesthesia intraoperatively/in the uterus. This results in changes, for example, in the fetal heart rate (and consequently in CTGs or ultrasounds). The possibility of an increase in the preterm birth rate as the result of a lack of experience in the interpretation of these monitoring techniques in the anesthetized fetus, cannot be ruled out. In addition, the available literature on intraoperative monitoring shows that intraoperative monitoring does not improve mortality (2, 3). Furthermore, the US guideline only recommends pre- and postoperative monitoring (1).

Nevertheless, pregnant women should undergo surgery in perinatal centers with proper interdisciplinary experiences, as emphasized by Prof. Crombach.

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Conflict of interest statement

The author declares that no conflict of interest exists.