

HOSPITAL PHYSICIAN®

OBSTETRICS AND GYNECOLOGY BOARD REVIEW MANUAL

STATEMENT OF EDITORIAL PURPOSE

The *Hospital Physician Obstetrics and Gynecology Board Review Manual* is a peer-reviewed study guide for residents and practicing physicians preparing for board examinations in obstetrics and gynecology. Each quarterly manual reviews a topic essential to the current practice of obstetrics and gynecology.

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Operative Vaginal Delivery

Carie D'Agata, MD

INTRODUCTION

In the past, operative vaginal delivery was used to shorten the second stage of labor, as early biomedical literature demonstrated maternal and fetal benefit when the second stage was less than 2 hours. Currently, diligent fetal monitoring during the second stage allows identification of fetuses unable to tolerate labor. In addition, the maternal risks of a prolonged second stage, including hemorrhage and lacerations, appear to be mainly related to operative delivery. These factors have led the American College of Obstetricians and Gynecologists (ACOG) to now emphasize that the length of the second stage of labor is not an absolute indication for operative delivery.¹

The rate of operative vaginal deliveries in the United States has steadily declined in recent years, from a peak of 9.5% in 1994² to 5.9% in 2002.³ Furthermore, the use of forceps has decreased while use of vacuum-assisted delivery has increased. For example, in 1997, when the total number of operative vaginal deliveries was 9%, 6% were by vacuum extraction and 3% by forceps.⁴ Most recently, both forms of operative vaginal delivery are giving way to cesarean section, the rate of which climbed to 26.1% in 2002 in the United States.³

The following discussion addresses the appropriate situations in which operative vaginal delivery should be considered. Two case patients are presented to illustrate appropriate use of vacuum devices and forceps for operative vaginal delivery. Factors that influence the choice of instrument include the clinician's level of training, maternal analgesia, and the risks and benefits of each instrument.

INDICATIONS AND PREREQUISITES FOR OPERATIVE DELIVERY

CASE PRESENTATION

A 28-year-old woman who is gravida 1, para 0, at 41 weeks gestation presents in active labor. After artificial rupture of membranes, epidural placement, and oxytocin augmentation, the patient progresses to com-

plete cervical dilation. She pushes for 3 hours and is too tired to push any longer. Her cervix has remained completely dilated and completely effaced; she has been at station +2 cm for the entire second stage of labor.

The patient appears to have an adequate pelvis by examination. The estimated fetal weight is 3500 g by Leopold's maneuvers. The position is right occiput anterior, with no asynclitism. The patient has had ineffective analgesia from her epidural despite a recent bolus to see if it would help her push more effectively.

- **Is a trial of operative delivery indicated in this patient?**
- **What preoperative conditions must be met before proceeding with operative delivery?**

INDICATIONS AND CONTRAINDICATIONS FOR OPERATIVE DELIVERY

ACOG recommends that a trial of operative vaginal delivery is warranted only if the chance of success is high, because the risks are greater with cesarean section after a failed attempt at operative delivery when compared with cesarean section without attempting operative delivery.¹ ACOG has specified several indications and contraindications for operative delivery based on the assumption that the fetal head is engaged and the cervix is fully dilated (**Table 1**).¹ However, no indication for operative delivery is absolute.

ACOG does not list macrosomia as a contraindication for operative delivery but does recommend caution when macrosomia is suspected.¹ This recommendation is based on studies demonstrating that shoulder dystocia and significant neonatal injury are higher in macrosomic infants delivered by vacuum or forceps.⁵ Unfortunately, most methods to detect macrosomia are inaccurate. Cases of increased fetal bleeding with vacuum extraction after recent fetal scalp sampling have been reported.⁶ This is a rare event, and a history of fetal scalp sampling or electrode placement is not a contraindication for vacuum extraction. Many authorities consider vacuum extraction contraindicated in pregnancies before 34 weeks gestation secondary to the risk of intraventricular hemorrhage.¹

PREOPERATIVE PREREQUISITES

Before operative vaginal delivery can proceed, certain