Obstetric Emergencies

Shoulder Dystocia and Postpartum Hemorrhage

Joshua D. Dahlke, MD[a,*], Asha Bhalwal, MD[b], Suneet P. Chauhan, MD[b]

KEYWORDS

• Obstetric emergencies • Postpartum hemorrhage • Shoulder dystocia • Risk factors • Management

KEY POINTS

- Although certain risks for shoulder dystocia and postpartum hemorrhage exist, many cases occur in the absence of these factors.
- Early identification, communication, and familiarity with management options for both conditions can significantly minimize the morbidity associated with these complications.
- Institutional protocols and algorithms have been developed to familiarize caregivers with prevention and management options for these conditions.

INTRODUCTION

Shoulder dystocia and postpartum hemorrhage represent two of the most common emergencies faced in obstetric clinical practice, both requiring prompt recognition and management in order to avoid significant morbidity or mortality. Although certain risks for shoulder dystocia and postpartum hemorrhage exist, many cases occur in the absence of these factors. Early identification, communication, and familiarity with management options for both conditions can significantly minimize the morbidity associated with these complications.

Institutional protocols and algorithms for the prevention and management of both shoulder dystocia and postpartum hemorrhage have become mainstays for clinicians. The goal of this review is to summarize the diagnosis, incidence, risk factors, and management of shoulder dystocia and postpartum hemorrhage.

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[a] Division of Maternal-Fetal Medicine, Department of Obstetrics and Gynecology, Nebraska Methodist Women's Hospital and Perinatal Center, 717 North 190th Plaza, Suite 2400, Omaha, NE 68022, USA; [b] Division of Maternal-Fetal Medicine, Department of Obstetrics, Gynecology, and Reproductive Sciences, UT Health-University of Texas Medical School at Houston, Houston, TX, USA

* Corresponding author.

E-mail address: joshuadahlke@gmail.com

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SHOULDER DYSTOCIA

Definition

According to the American College of Obstetricians and Gynecologists (ACOG), shoulder dystocia is defined as the inability for the clinicians to complete the delivery of the fetus with gentle downward traction after the emergence of the head. Although the definition is subjective in nature, relief of an impacted shoulder against symphysis pubis requires additional ancillary maneuvers to deliver the fetus.[1]

The objective definition of shoulder dystocia is a prolongation of head-to-body time interval of more than 60 seconds.[2] Despite the numerical nature of this definition in the literature, it is not acknowledge by the ACOG or by the Royal College of Obstetricians and Gynecologists (RCOG).[1,3,4]

Incidence

In a review article on the definition and incidence of shoulder dystocia among 28 publications with more than 16 million total births, the rate of shoulder dystocia was 0.4%.[5] Since 2000, among all births, the rate of shoulder dystocia approximates 1.4% if publications reliant on *International Classification of Diseases* (*ICD*) codes are excluded. During vaginal delivery, the reported likelihood of shoulder dystocia in 15 publications was 0.7% overall, though it was higher among reports from the United States (1.4%) than other countries (0.6%).[5]

Four studies stratified the rate of shoulder dystocia among diabetic patients (gestational or pregestational) and nondiabetic patients. Notably, the rate of shoulder dystocia was 1.9% for women with diabetes compared with 0.6% for those without, a relative difference of 216%. Despite this increased risk, the 4 publications note that only 4% of the reported shoulder dystocias occurred in those with gestational or pregestational diabetes.[5]

Further, 6 of the studies reviewed provided the rate of shoulder dystocia among women with and without operative (vacuum or forceps) vaginal deliveries. The rate of shoulder dystocia was 2.0% for those who had operative birth and 0.6% if they did not, a relative difference of 254%. In these 6 reports, 21% of the shoulder dystocias occurred following operative vaginal birth.

Risk Factors

In addition to the aforementioned gestational or pregestational diabetes and operative vaginal delivery, obtaining a history of prior shoulder dystocia may be the most important risk factor. Simply put, shoulder dystocia reoccurs. A history of prior shoulder dystocia, which is knowable at first prenatal visit, may have one of the highest likelihood of future occurrence of an impacted shoulder. Of 9 studies that provided the rate of shoulder dystocia, recurrence was noted in 12% of vaginal births. Not only is recurrent shoulder dystocia more common but it also seems to be more morbid for the neonate. Although the rate of neonatal brachial plexus palsy is 19 of 1000 in those with the first shoulder dystocia, it increases to an estimated 45 of 1000 with recurrent shoulder dystocia, a relative increase of 136%.[6] An important caveat to these estimates, however, is the fact that true incidence of recurrent shoulder dystocia remains unknown because of many clinicians and patients not attempting a trial of labor and delivering via cesarean in subsequent pregnancies when a complicated delivery or neonatal injury occurs.[1]

The ACOG's practice bulletin on shoulder dystocia recognizes 10 risk factors that can be categorized into antepartum or intrapartum[1] (**Table 1**). Antepartum risks include a history of prior shoulder dystocia, history of macrosomia (birth weight of