



Does the use of multiple maneuvers in the management of shoulder dystocia increase the risk of neonatal injury?

YES. In this retrospective investigation, the risk of neonatal injury increased with the number of maneuvers employed to resolve shoulder dystocia. Use of five or more maneuvers was associated with a risk of neonatal injury exceeding 20%.

Hoffman MK, Bailit JL, Branch DW, et al, for the Consortium on Safe Labor. A comparison of obstetric maneuvers for the acute management of shoulder dystocia. Obstet Gynecol. 2011;117(6):1272-1278.

► **EXPERT COMMENTARY**

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Shoulder dystocia occurs in 0.6% to 1.4% of vaginal births and is highly unpredictable. It can cause maternal lacerations, increase the risk of postpartum hemorrhage, and lead to major neonatal injuries such as fractures of the clavicle or humerus, palsies of the brachial plexus, hypoxic-ischemic encephalopathy (HIE), and, even, death. It is also a leading cause of monetary awards in obstetric-related malpractice litigation.

Hoffman and colleagues analyzed 2,018 cases of shoulder dystocia, 101 of which (5.2%) incurred neonatal injury. A total of 3,751 maneuvers were performed, with an average number of maneuvers per case of 1.86. The total number of maneuvers performed in any given case of shoulder dystocia correlated significantly with the rate of neonatal injury.

When five or more maneuvers were used, the rate of neonatal injury exceeded 20%. The authors did not specify whether the neonatal injuries reflected in this figure included bone fracture as well as peripheral nerve injury, or

only the latter. They also failed to specify how many brachial plexus injuries resolved spontaneously.

As for which maneuvers were most effective, delivery of the posterior arm and shoulder had a higher rate of success (84%), compared with the McRoberts maneuver, suprapubic pressure, and other maneuvers (24.3% to 72.0% success rate). However, the authors continue to recommend that the McRoberts maneuver and suprapubic pressure be the first maneuvers utilized when shoulder dystocia occurs.

Large study size was a strength

This study, emanating from 12 centers that make up the Consortium on Safe Labor, is probably the largest to date to examine issues related to shoulder dystocia. The sheer magnitude of this study lends great credence to the findings. Another significant strength: Trained obstetric abstractors reviewed the entire medical record of both the mother and newborn.

That said, as with most studies related to shoulder dystocia, there is the possibility of ascertainment bias. Moreover, the study was not randomized. Nor was there uniformity among cases in terms of the maneuvers used or the order in which they were performed, both of which were based largely on provider preference, theoretical models, and expert opinion.

FAST TRACK

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This analysis encompassed the following maneuvers to manage shoulder dystocia:

- McRoberts maneuver
- suprapubic pressure
- Rubin maneuver
- delivery of the posterior arm
- Woods corkscrew maneuver
- Gaskin maneuver (delivery in the maternal knee-chest position)
- Zavanelli maneuver
- fundal pressure.

ACOG recommends the McRoberts maneuver as an initial intervention, followed by suprapubic pressure, when shoulder dystocia occurs.¹

The rate of injury was low

At 5.2%, the rate of clinically relevant injury resulting from shoulder dystocia in this study was low. As the authors note, the reported rate of injury in shoulder dystocia cases in general ranges from 4% to as high as 40%.

In this study, if one excludes the 41 cases of bone fracture (either clavicular or humeral) that occurred, which will heal without long-term sequelae, the rate of injury (i.e., neonatal peripheral nerve injury) was just 3%—60 cases of Erb's palsy and four cases of Klumpke's palsy among 2,018 cases of shoulder dystocia.

In general, the rate of HIE related to intractable shoulder dystocia is also exceedingly low. In this study, the authors reported only six cases (0.29%). However, the mean head-to-body delivery time in the cases involving HIE was 10.75 minutes, which is troubling. One case of HIE occurred within a reported time frame of 3 minutes.

No real differences between providers were identified

No significant differences in the rate of injury were observed when shoulder dystocia was managed primarily by a resident physician (7.4%), compared with a midwife (2.9%) or attending physician (5.2%). This finding is somewhat confusing because the authors attributed "primary" management to the individual who delivered the newborn and "thus initiated the maneuvers." I suspect that

WHAT THIS EVIDENCE MEANS FOR PRACTICE

For now, the McRoberts maneuver and suprapubic pressure remain first-line maneuvers of choice. This study, along with several other recent investigations, does suggest that delivery of the posterior arm should be considered if these initial maneuvers are unsuccessful.

As simulation is utilized increasingly in resident learning, providers should become more comfortable facilitating delivery of the posterior arm.

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when a case was managed by a resident, an attending physician was actively involved.

No causal relationship was established

The authors have made a valiant argument that delivery of the posterior arm should be a priority when shoulder dystocia occurs. However, their findings do not confirm a cause-effect relationship between delivery of the posterior arm and resolution of dystocia, for the following reasons:

- Patients were not randomized to a uniform series of maneuvers.
- The order in which the maneuvers were employed could be determined in only 65.7% of cases.
- Management of shoulder dystocia at the study centers was heterogeneous in nature. 🚫

Reference

1. American College of Obstetricians and Gynecologists Committee on Practice Bulletins—Gynecology. ACOG Practice Bulletin No. 40: Shoulder dystocia. *Obstet Gynecol.* 2002;100(5 Pt 1):1045-1050.

>> Read more about shoulder dystocia...

Pelvic injury from the McRoberts maneuver? This case with a \$5.5M judgment is described on page 43 in **MEDICAL VERDICTS.**



Findings do not confirm a cause-effect relationship between delivery of the posterior arm and resolution of dystocia