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Enhancing Competency in Shoulder Dystocia Management: The Role of OSCEs in Medical Student Training

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Abstract

Objective: Shoulder dystocia is an obstetric emergency associated with significant maternal and neonatal morbidity. This critical review evaluates current strategies for the prediction, prevention, and management of shoulder dystocia, with a focus on clinical effectiveness and safety outcomes.

Methods: A structured review of recent literature (2015–2025) was conducted using major medical databases, including randomized controlled trials, cohort studies, and clinical guidelines. Key areas analyzed included risk factor identification, intrapartum management techniques, simulation training, and maternal–neonatal outcomes. Emphasis was placed on evidence-based protocols and comparative effectiveness of established maneuvers.

Results: Predictive models for shoulder dystocia remain limited in accuracy, with fetal macrosomia and maternal diabetes identified as major but inconsistent risk factors. Preventive strategies, such as elective cesarean delivery, reduce risk in selected high-risk populations but are not universally recommended. First-line management techniques, including the McRoberts maneuver and suprapubic pressure, demonstrate high success rates when applied promptly. Secondary maneuvers (e.g., delivery of the posterior arm, rotational techniques) improve resolution but require skilled providers. Simulation-based training significantly enhances clinician preparedness and reduces neonatal injury rates. However, variability in adherence to standardized protocols persists across clinical settings.

Conclusion: Effective management of shoulder dystocia relies on rapid recognition, systematic application of evidence-based maneuvers, and team coordination. While prevention remains challenging due to limited predictive capability, improved training and standardized clinical pathways have enhanced outcomes. Future research should focus on refining risk stratification tools and optimizing simulation-based education to further reduce morbidity.

Keywords: Shoulder dystocia; obstetric emergency; fetal macrosomia; McRoberts maneuver; suprapubic pressure; posterior arm delivery; simulation training; risk prediction; maternal morbidity; neonatal outcomes; clinical management.

Introduction

Shoulder dystocia is a rare but potentially life-threatening obstetric emergency that occurs when the fetal shoulders fail to deliver spontaneously after the head has emerged, typically due to impaction of the anterior shoulder behind the maternal pubic symphysis [1]. Although its incidence ranges from approximately 0.2% to 3% of vaginal deliveries, the condition carries a disproportionate risk of serious maternal and neonatal complications, including postpartum hemorrhage, perineal trauma, brachial plexus injury, and, in severe cases, neonatal hypoxia or death [2] . The unpredictable nature of shoulder dystocia and its rapid progression make it a critical focus of obstetric care and clinical preparedness [3]. Despite extensive research, the ability to accurately predict shoulder dystocia remains limited. Several risk factors have been identified, including fetal macrosomia, maternal

diabetes mellitus, obesity, prolonged labor, and operative vaginal delivery [4]. However, the majority of cases occur in women without identifiable risk factors, thereby reducing the clinical utility of risk-based prevention strategies. As a result, emphasis has shifted from prediction to effective intrapartum management and rapid response.

The management of shoulder dystocia involves a sequence of well-established obstetric maneuvers aimed at relieving the impacted shoulder and facilitating delivery [5]. First-line techniques, such as the McRoberts maneuver and application of suprapubic pressure, are widely recommended due to their simplicity and effectiveness [6]. When these initial interventions fail, secondary maneuvers—including delivery of the posterior arm, internal rotational techniques, and, in rare cases, more invasive procedures—may be required. The success of these interventions depends heavily on the clinician's skill, experience, and ability to act promptly under pressure. In recent years, there has been growing emphasis on simulation-based training and standardized clinical protocols to improve team coordination and response times during obstetric emergencies [7, 8]. Evidence suggests that such training programs can significantly reduce the incidence of neonatal injury and improve overall outcomes. Nevertheless, variability in clinical practice and adherence to guidelines persists across healthcare settings. This article provides a critical review of the current evidence on the management of shoulder dystocia, examining the effectiveness, limitations, and clinical implications of existing strategies. It aims to identify gaps in knowledge and highlight opportunities for improving maternal and neonatal outcomes through enhanced clinical practice and education.

Materials and Methods

This study was designed as a critical narrative review of the literature on the management of shoulder dystocia, aiming to evaluate current evidence and identify gaps in clinical practice. A comprehensive search of electronic databases, including PubMed, Scopus, Web of Science, and the Cochrane Library, was conducted to identify relevant studies published between January 2020 and March 2025. The search strategy combined keywords and Medical Subject Headings (MeSH) terms such as "shoulder dystocia," "obstetric emergency," "management," "McRoberts maneuver," "suprapubic pressure," "posterior arm delivery," and "simulation training." Inclusion criteria comprised randomized controlled trials, systematic reviews, meta-analyses, observational cohort studies, and clinical practice guidelines addressing the prediction, prevention, or management of shoulder dystocia. Studies focusing exclusively on non-human subjects, case reports with limited generalizability, and articles not published in English were excluded. Additional relevant publications were identified through manual screening of reference lists.

Data extraction focused on study design, sample size, clinical setting, type of intervention or management technique, and reported maternal and neonatal outcomes. Particular attention was given to the effectiveness and timing of specific obstetric maneuvers, as well as the impact of training programs and standardized protocols on clinical outcomes. The quality of included studies was assessed using appropriate appraisal tools, such as the Cochrane risk-of-bias tool for randomized trials and the Newcastle–Ottawa Scale for observational studies. Findings were synthesized descriptively due to heterogeneity in study designs, outcome measures, and reporting standards. This methodological approach allowed for a comprehensive and critical evaluation of existing evidence, facilitating a balanced assessment of current management strategies for shoulder dystocia and their implications for clinical practice.

Results

A total of relevant studies, including randomized controlled trials, observational cohort studies, systematic reviews, and clinical guidelines, were analyzed to evaluate current approaches to the management of shoulder dystocia. The findings demonstrate that, despite ongoing research, accurate prediction of shoulder dystocia remains limited. While fetal macrosomia, maternal diabetes, obesity, and prolonged second stage of labor were consistently identified as significant risk factors, their predictive value was low, as a substantial proportion of cases occurred in women without identifiable risks [9]. In terms of management, first-line maneuvers-particularly the McRoberts maneuver combined with suprapubic pressure—were consistently reported as effective initial interventions, with success rates ranging from 40% to 60% when applied promptly [10]. These techniques were associated with reduced need for more invasive procedures and lower rates of neonatal injury when executed early [11]. Evidence also indicated that proper timing and coordinated team response significantly improved outcomes [12].

When first-line techniques failed, second-line maneuvers, including delivery of the posterior arm and internal rotational techniques (e.g., Woods screw and Rubin maneuvers), demonstrated high effectiveness in resolving shoulder dystocia [13]. However, these procedures required greater clinical expertise and were associated with an increased risk of maternal trauma, including perineal tears and postpartum hemorrhage [14]. More invasive interventions, such as the Zavanelli maneuver or intentional clavicular fracture, were rarely required and typically reserved for severe, refractory cases [15]. Simulation-based training emerged as a key factor in improving clinical performance. Multiple studies showed that structured training programs enhanced clinicians' ability to recognize shoulder dystocia promptly, apply appropriate maneuvers in sequence, and reduce the incidence of brachial plexus injury and hypoxic complications [16]. Additionally, the implementation of standardized management protocols and checklists improved team communication and reduced delays in intervention. Despite these advances, variability in clinical practice persisted across institutions, particularly in the sequence and selection of maneuvers. Documentation quality and adherence to established guidelines were also inconsistent [17]. Overall, the

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evidence highlights that while effective management strategies exist, their success is highly dependent on timely recognition, clinician skill, and adherence to standardized protocols [18].

Shoulder dystocia is a critical obstetric emergency and an essential component of an objective structured clinical examination (OSCE) training for medical students and residents. Its importance lies in the need for rapid recognition, structured management, and effective team communication to prevent serious maternal and neonatal complications [19]. As it is unpredictable and time-sensitive, simulation-based OSCE scenarios help trainees develop confidence and competence in performing key maneuvers such as the McRoberts position and suprapubic pressure. Incorporating shoulder dystocia into training ensures that learners acquire practical skills, improve clinical decision-making, and are better prepared to manage real-life emergencies safely and efficiently [20]. The HELPERR mnemonic outlines a structured, evidence-based approach for managing shoulder dystocia, an obstetric emergency characterized by failure of fetal shoulder delivery after the head. H (Help) involves calling for assistance. E (Evaluate for episiotomy) assesses need for space. L (Legs, McRoberts maneuver) hyperflexes maternal hips to widen the pelvis. P (Pressure, suprapubic) reduces anterior shoulder impaction. E (Enter maneuvers) includes internal rotational techniques. R (Remove posterior arm) decreases biacromial diameter. R (Roll patient) repositions to all-fours. This systematic sequence improves maternal and neonatal outcomes while minimizing complications such as brachial plexus injury and hypoxia [21,22].

OSCE Guidelines for Shoulder Dystocia Management

Shoulder dystocia is a high-stakes obstetric emergency frequently assessed in Objective Structured Clinical Examinations (OSCEs). Candidates are expected to demonstrate structured clinical thinking, effective communication, and correct execution of management steps.

Initial Recognition and Diagnosis

Promptly recognize shoulder dystocia when the fetal head delivers but the shoulders fail to follow, or when the "turtle sign" (retraction of the head) is observed. Clearly state the diagnosis aloud to the examiner and team.

Call for Help

Immediately request senior obstetric, anesthetic, and neonatal support. Time is critical, and early escalation is essential.

Maternal Communication

Explain the situation clearly and calmly to the patient, obtaining cooperation. Instruct her to stop pushing temporarily while maneuvers are initiated.

First-Line Management

Begin with the McRoberts maneuver (hyperflexion and abduction of the maternal hips), which increases pelvic dimensions. Simultaneously apply suprapubic pressure (not fundal pressure) to dislodge the anterior shoulder. These steps should be performed quickly and efficiently.

Assess Progress

If delivery is not achieved, proceed systematically to second-line maneuvers.

Second-Line Maneuvers

Rubin maneuver: Apply pressure to the posterior aspect of the anterior shoulder to rotate it.

Woods screw maneuver: Rotate the posterior shoulder to release impaction.

Delivery of the posterior arm: Reduces shoulder diameter and facilitates delivery.

Advanced Measures

If standard maneuvers fail, consider more invasive options such as episiotomy (to facilitate access), the Zavanelli maneuver (cephalic replacement followed by cesarean section), or other last-resort techniques.

Avoid Harmful Actions

Do not apply fundal pressure, as this may worsen impaction and increase risk of fetal injury.

Post-Delivery Care

Assess the neonate for complications such as brachial plexus injury or hypoxia. Monitor the mother for postpartum hemorrhage and perineal trauma.

6.10. Documentation and Debriefing

Accurately document the sequence of events, timing, and maneuvers performed. Participate in team debriefing to improve future practice.

Discussion

Shoulder dystocia continues to present significant clinical challenges due to its unpredictable nature, rapid progression, and potential for severe maternal and neonatal complications [23]. One of the primary challenges lies in its diagnosis, which is largely subjective and often made only after difficulty in delivering the shoulders, becomes apparent. The absence of a universally accepted definition further complicates clinical assessment, leading to variability in reporting and management practices across institutions. Another major challenge is the limited ability to predict shoulder dystocia. Although risk factors such as fetal macrosomia, maternal diabetes, obesity, and prolonged labor are well recognized, their predictive accuracy is low [24]. Most cases occur in pregnancies without identifiable risk factors, making selective prevention strategies, such as elective cesarean

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delivery, difficult to justify on a broad scale. This unpredictability necessitates that all obstetric care providers maintain a high level of readiness during every vaginal delivery. Management itself presents both technical and organizational challenges. The successful resolution of shoulder dystocia depends on the rapid and correct application of sequential maneuvers. However, in high-pressure situations, delays in decision-making, lack of familiarity with techniques, or poor team coordination can negatively impact outcomes. Inconsistent adherence to established clinical guidelines further contributes to variability in care and outcomes. Training and skill retention are also ongoing concerns. While simulation-based education, particularly through OSCE frameworks, has been shown to improve clinician performance, access to regular, high-quality training may be limited in some settings [25, 26]. Additionally, maintaining competency over time requires repeated practice, which is not always feasible in busy clinical environments. Furthermore, medico-legal implications add another layer of complexity, as shoulder dystocia is associated with a high rate of litigation, particularly in cases involving neonatal injury. This can influence clinical decision-making and documentation practices. Addressing these challenges requires a multifaceted approach, including improved standardization of definitions, enhanced training programs, and stronger emphasis on team-based management to optimize patient outcomes.

Conclusion

Shoulder dystocia remains one of the most challenging and unpredictable obstetric emergencies, with significant implications for both maternal and neonatal outcomes. Despite advances in obstetric care, the ability to predict its occurrence is still limited, emphasizing the importance of preparedness and effective intrapartum management. Timely recognition and the systematic application of evidence-based maneuvers re critical in reducing complications. A key factor influencing successful outcomes is the training and preparedness of healthcare providers. In this context, Objective Structured Clinical Examination (OSCE)-based training has emerged as an invaluable educational tool. Simulation-based OSCE scenarios allow medical students and residents to practice the stepwise management of shoulder dystocia in a controlled, risk-free environment. This form of training enhances not only technical skills but also non-technical competencies, including communication, teamwork, leadership, and decision-making under pressure.

References

1. Tsikouras P, Kotanidou S, Nikolettos K, Kritsotaki N, Bothou A, Andreou S, et al., (2024) Shoulder Dystocia: A Comprehensive Literature Review on Diagnosis, Prevention, Complications, Prognosis, and Management. J Pers Med 14(6): 586.
2. French CB, Young BC, Golen T (2022) Shoulder Dystocia: Neonatal Implications. Neoreviews 23(9): e645-e649.
3. Elbarbary N, Atre R, Kurian D, Viswanatha R, Ghai V, et al., (2024) Stratification of outcome of shoulder dystocia according to maneuver used for delivery, retrospective cohort and meta-analysis. Int J Gynaecol Obstet 167(3): 1160-1167.
4. Heinonen K, Saisto T, Gissler M, Sarvilinna N (2024) Maternal and neonatal complications of shoulder dystocia with a focus on obstetric maneuvers: A case-control study of 1103 deliveries. Acta Obstet Gynecol Scand 103(10): 1965-1974.
5. Cheedalla A, Thompson A, Fortman E, Grasch JL, Venkatesh KK, et al., (2025) Maternal body mass index, maneuvers, and neonatal morbidity associated with shoulder dystocia. Am J Obstet Gynecol 232(6): 570.e1-570.e7.
6. Heinonen K, Saisto T, Gissler M, Kaijomaa M, Sarvilinna N (2024) Pitfalls in the diagnostics of shoulder dystocia: an analysis based on the scrutiny of 2274 deliveries. Arch Gynecol Obstet 309(4): 1401-1409.
7. Habek D, Mikuš M, Cerovac A (2023) The proposal of the novel fetal shoulder dystocia graduation: a clinical-based opinion. J Perinat Med 51(9): 1129-1131.
8. Jakubowski P, Abele H, Bamberg C, Bogner G, Desery K, et al., (2025) Shoulder Dystocia. Guideline of the DGGG, OEGGG and SGGG (S2k-Level, AWMF Registry No. 015/098, 10/2024). Z Geburtshilfe Neonatal 229(3): 173-182.
9. Habek D (2022) Fatal neonatal spinal cord injury during shoulder dystocia. Childs Nerv Syst 38(1): 5-6.
10. Tairy D, Frank S, Lev S, Paz YG, Bar J, et al., (2024) Predictors of maternal and neonatal outcomes in labors complicated by shoulder dystocia: a comparative analysis. Arch Gynecol Obstet 310(5): 2405-2411.
12. Chauhan SP, Gherman RB (2022) Shoulder Dystocia: Challenging Basic Assumptions. Obstet Gynecol Clin North Am 49(3): 491-500.
13. Hill DA, Lense J, Roepcke F (2020) Shoulder Dystocia: Managing an Obstetric Emergency. Am Fam Physician 102(2): 84-90.
14. Elbarbary N, Atre R, Kurian D, et al. (2024) Stratification of outcome of shoulder dystocia according to maneuver used for delivery, retrospective cohort and meta-analysis. Int J Gynaecol Obstet 167(3): 1160-1167
15. Olson DN, Logan L, Gibson KS (2021) Evaluation of multidisciplinary shoulder dystocia simulation training on knowledge, performance, and documentation. Am J Obstet Gynecol MFM 3(5): 100401.
16. Lau SL, Sin WTA, Wong L, Lee NMW, Hui SYA, et al., (2024) A critical evaluation of the external and internal maneuvers for resolution of shoulder dystocia. Am J Obstet Gynecol 230(3S): S1027-S1043.
17. Ansell L, Ansell DA, McAra-Couper J, Larmer PJ, Garrett NKG (2019) Axillary traction: An effective method of resolving shoulder dystocia. Aust N Z J Obstet Gynaecol 59(5): 627-633.
18. Alves ALL, Nozaki AM, Polido CBA, Knobel R (2022) Management of shoulder dystocia. Rev Bras Ginecol Obstet 44(7): 723-736.
19. Vetterlein J, Doehmen CAE, Voss H, Dittkrist L, Klapp C, et al., (2021) Antenatal risk prediction of shoulder dystocia: influence of diabetes and obesity: a multicenter study. Arch Gynecol Obstet 304(5): 1169-1177.
20. Diack B, Pierre F, Gachon B (2023) Impact of fetal manipulation on maternal and neonatal severe morbidity during shoulder dystocia management. Arch Gynecol Obstet 307(2): 501-509.
21. Fuglsang J (2024) Shoulder dystocia-Still a feared complication. How can we improve? Acta Obstet Gynecol Scand 103(10): 1908-1909.
24. Gardosi J, Ewington LJ, Booth K, Bick D, Bouliotis G, et al., (2025) Induction of labour versus standard care to prevent shoulder dystocia in fetuses suspected to be large for gestational age in the UK (the Big Baby trial): a multicentre, open-label, randomised controlled trial. Lancet 405(10491): 1743-1756.

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25. Elmas B, Ercan N, Ersak DT, Ozdemir EU, Çelik IH, et al., (2022) Risk factors for brachial plexus injury and permanent sequelae due to shoulder dystocia. Niger J Clin Pract 25(12): 2016-2023.

26. Terzi E (2021) A new approach to predicting shoulder dystocia: fetal clavicle measurement. Turk J Med Sci 51(4): 1932-1939.

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