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Review Article

Cricoid Pressure During Rapid Sequence Induction: Revisiting the Evidence, Anatomical Rationale and Contemporary Airway Recommendations

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Abstract

Background: Cricoid pressure, traditionally known as Sellick's manoeuvre, has been incorporated into rapid sequence induction (RSI) for more than six decades to minimise regurgitation and pulmonary aspiration. Despite its widespread adoption, its clinical effectiveness remains uncertain, and concerns regarding impaired laryngoscopy, difficult tracheal intubation and compromised ventilation have challenged its routine application.

Objective: This narrative review examines the historical rationale, anatomical basis, application technique, clinical evidence, potential adverse effects and contemporary recommendations regarding cricoid pressure during RSI.

Discussion: Although cricoid pressure has a plausible anatomical rationale, its ability to prevent clinically significant pulmonary aspiration has not been conclusively established. The IRIS randomised controlled trial and subsequent systematic reviews have highlighted uncertainty regarding its protective benefit and raised concerns about its potential interference with airway management. Contemporary difficult-airway recommendations support consideration of cricoid force in patients at particularly high risk of aspiration, with prompt release when airway management is compromised. The proposed distinction between prophylactic and therapeutic cricoid force offers an additional perspective for reconsidering its role.

Conclusion: Cricoid pressure should not be regarded as an inflexible component of every RSI. Its application should be guided by individual aspiration risk, correct technique and continuous assessment of airway conditions. The priority must remain successful tracheal intubation and maintenance of oxygenation without compromising patient safety.

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KEYWORDS: Cricoid pressure; Sellick manoeuvre; rapid sequence induction; pulmonary aspiration; airway management; tracheal intubation; difficult airway.

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1. INTRODUCTION

Rapid sequence induction and intubation (RSI) is an established anaesthetic technique employed in patients considered to be at increased risk of pulmonary aspiration during induction of general anaesthesia. The traditional approach combines preoxygenation, administration of an induction agent and neuromuscular blocking agent in rapid succession, followed by prompt tracheal intubation. Cricoid pressure has historically been considered an integral component of this technique.

The manoeuvre involves applying posteriorly directed pressure over the cricoid cartilage with the intention of compressing the postcricoid hypopharynx and reducing the passage of regurgitated gastric contents into the pharynx. Since its description by Sellick in 1961, cricoid pressure has become deeply embedded in anaesthetic teaching, particularly in emergency surgery and obstetric anaesthesia [1].

However, the continued acceptance of this manoeuvre has increasingly been questioned. Its physiological rationale does not necessarily establish clinical effectiveness, particularly when anatomical variations, inconsistent application and potential interference with airway management are considered. Furthermore, pulmonary aspiration is an uncommon but potentially catastrophic event, making the demonstration of a meaningful protective effect difficult.

The debate surrounding cricoid pressure is therefore not simply whether it prevents aspiration, but whether its potential benefit outweighs the possibility of compromising airway management. With the development of videolaryngoscopy, modern airway devices, improved preoxygenation techniques and increasingly individualised airway strategies, it is appropriate to reconsider the traditional position of cricoid pressure within RSI.

This review examines the available anatomical and clinical evidence, discusses the potential complications of cricoid pressure and explores a contemporary approach based on individual aspiration risk and airway safety.

2. LITERATURE SEARCH METHODOLOGY

A focused narrative literature search was undertaken to identify publications relevant to the anatomical rationale, clinical effectiveness, safety and contemporary role of cricoid pressure during RSI.

PubMed/MEDLINE and relevant journal and publisher websites were consulted. The search used combinations of the following terms: "cricoid pressure", "Sellick manoeuvre", "rapid sequence induction", "pulmonary aspiration", "postcricoid hypopharynx", "laryngoscopy", "tracheal intubation", "difficult airway" and "cricoid force".

Priority was given to original anatomical investigations, randomised controlled trials, systematic reviews and meta-analyses, clinical guidelines, consensus recommendations and relevant correspondence published in peer-reviewed journals. Important historical publications were also considered to understand the development of the technique and its continued incorporation into anaesthetic practice.

Publications were selected according to their relevance to the objectives of this review. Particular attention was given to the IRIS randomised controlled trial, systematic reviews evaluating the clinical effectiveness of cricoid pressure, and contemporary Difficult Airway Society and All India Difficult Airway Association recommendations.

As this is a narrative review, no formal systematic-review protocol, duplicate independent screening, quantitative pooling of results or PRISMA-based study selection was undertaken. The findings are presented as a critical narrative synthesis rather than an exhaustive systematic assessment of all available literature.

3. HISTORICAL BACKGROUND

The concept of applying external pressure to prevent gastric regurgitation during anaesthesia predates the modern description of cricoid pressure. However, the technique became widely recognised following the publication by Brian Arthur Sellick in 1961 [1].

Sellick described the application of backward pressure over the cricoid cartilage to compress the oesophagus against the cervical vertebral bodies, thereby preventing regurgitation of gastric contents during induction of anaesthesia.

The manoeuvre was particularly attractive because it was simple, inexpensive and could be performed by an assistant without specialised equipment. Its incorporation into RSI was supported by its apparent anatomical rationale and early clinical observations.

Over subsequent decades, cricoid pressure became a standard teaching component of RSI. It was frequently presented as a mandatory intervention, with relatively little emphasis on the uncertainty surrounding its efficacy or the importance of releasing it when airway management became difficult.

As airway management evolved, investigators began questioning whether the technique consistently achieved its intended anatomical effect and whether its potential complications justified routine application [2].

The resulting debate has transformed cricoid pressure from an unquestioned component of RSI into an intervention requiring renewed evaluation.

4. ANATOMICAL AND PHYSIOLOGICAL BASIS

4.1 Anatomy of the cricoid cartilage

The cricoid cartilage is a complete ring-shaped hyaline cartilage situated below the thyroid cartilage and above the first tracheal ring. It forms an important component of the laryngeal framework.

Posteriorly, the cricoid cartilage has a broad lamina, whereas its anterior portion forms a narrower arch. The postcricoid hypopharynx and upper oesophageal region lie posterior to the cricoid cartilage.

The traditional explanation of cricoid pressure proposes that posterior displacement of the cartilage compresses the oesophagus against the cervical vertebral bodies, thereby preventing the upward movement of gastric contents.

However, imaging studies have demonstrated that the anatomical relationship between the oesophagus, hypopharynx and vertebral column is more complex than previously appreciated.

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4.2 Does cricoid pressure compress the oesophagus?

One of the major anatomical criticisms of Sellick's original hypothesis arose from imaging studies demonstrating that the oesophagus may not consistently lie directly behind the cricoid cartilage. Lateral displacement of the oesophagus was initially considered to challenge the reliability of the manoeuvre.

However, subsequent imaging investigations by Rice and colleagues demonstrated that the relevant structure compressed by cricoid pressure may be the postcricoid hypopharynx rather than the oesophagus itself [2].

Their study suggested that the hypopharynx is relatively fixed in relation to the cricoid cartilage and that posterior displacement of the cartilage can substantially reduce its anteroposterior diameter.

This observation provides an alternative anatomical explanation for the potential effectiveness of cricoid pressure.

Nevertheless, demonstrating anatomical compression does not establish that the manoeuvre reliably prevents clinically significant pulmonary aspiration in anaesthetised patients.

4.3 Physiological considerations

The effectiveness of cricoid pressure depends on several interacting factors:

- Correct identification of the cricoid cartilage.
- Appropriate direction of applied force.
- Adequate but not excessive pressure.
- Individual anatomical variations.
- The pressure generated by regurgitated gastric contents.
- The timing of application relative to induction and airway instrumentation.

The proposed mechanism is based on mechanical obstruction of the passage of regurgitated material into the pharynx. However, regurgitation and pulmonary aspiration are not interchangeable outcomes.

Even if upward movement of gastric contents is partially restricted, aspiration may still occur through alternative mechanisms or after release of the manoeuvre.

Therefore, the physiological rationale should be interpreted as a theoretical protective mechanism rather than proof of clinical efficacy.

5. TECHNIQUE AND OPTIMAL APPLICATION

Cricoid pressure is traditionally applied by an assistant who identifies the cricoid cartilage and applies posteriorly directed force.

The commonly described technique involves the following steps:

1. Identification of the cricoid cartilage by palpation.
2. Placement of the thumb and index finger over the cricoid arch.
3. Application of gentle pressure while the patient remains conscious.
4. Increasing the pressure following loss of consciousness.
5. Maintaining the pressure during airway instrumentation, provided it does not interfere with airway management.
6. Releasing the pressure after confirmation of successful tracheal intubation.

5.1 Recommended force

Vanner and Asai described a commonly adopted force target of approximately 10 N while the patient is conscious, increasing to 30 N after loss of consciousness [3].

These values are intended to provide sufficient posterior displacement without causing excessive compression.

However, the ability of assistants to reproduce these forces accurately is variable. Incorrect application may result in excessive airway compression, distortion of laryngeal anatomy and difficulty with tracheal intubation.

Training using calibrated weighing scales or suitable force-feedback devices has been suggested to improve consistency.

5.2 Importance of correct anatomical localisation

Incorrect identification of the cricoid cartilage may result in pressure being applied over the thyroid cartilage or adjacent soft tissues.

Such misplacement may distort the laryngeal framework without producing the intended compression of the postcricoid region.

The 2025 Difficult Airway Society (DAS) recommendations emphasise correct localisation and regular training of assistants when cricoid force is used [4].

Ultrasound-assisted identification of the cricoid cartilage may be useful in selected situations, particularly when surface landmarks are difficult to identify. However, it should not replace appropriate clinical training.

5.3 The problem of excessive force

The assumption that greater pressure provides greater protection is not supported by a simple dose-response relationship.

Excessive pressure may compress surrounding airway structures, distort the laryngeal inlet and interfere with the passage of the tracheal tube.

Consequently, appropriate localisation and controlled force are more important than simply applying maximum pressure.

6. EVIDENCE SUPPORTING CRICOID PRESSURE

The continued use of cricoid pressure is based on its proposed anatomical mechanism, historical clinical experience and the potentially serious consequences of pulmonary aspiration.

6.1 Historical clinical experience

Sellick's original publication described the clinical application of cricoid pressure during induction of anaesthesia in patients considered to be at risk of aspiration [1].

The technique subsequently became widely incorporated into anaesthetic practice because it offered a simple method of potentially reducing regurgitation during the vulnerable period between induction and tracheal intubation.

However, early clinical experience was not based on large randomised controlled trials or contemporary definitions of pulmonary aspiration.

Consequently, the historical acceptance of the manoeuvre should not be interpreted as definitive evidence of effectiveness.

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6.2 Anatomical evidence

The imaging study by Rice and colleagues provided evidence that cricoid pressure can compress the postcricoid hypopharynx [2].

This finding challenges the argument that lateral displacement of the oesophagus necessarily makes cricoid pressure ineffective.

Nevertheless, anatomical studies primarily demonstrate mechanical effects and cannot independently establish a reduction in pulmonary aspiration.

6.3 Clinical rationale in high-risk patients

Patients with delayed gastric emptying, intestinal obstruction, inadequate fasting, significant gastro-oesophageal reflux or other conditions associated with increased aspiration risk may require a modified induction strategy.

In such circumstances, clinicians may consider cricoid pressure as one component of an overall aspiration-prevention strategy.

Its potential usefulness should be assessed alongside positioning, preoxygenation, suction availability, pharmacological prophylaxis when appropriate and a planned airway strategy.

Importantly, cricoid pressure cannot compensate for inadequate preparation or an unsuccessful airway management plan.

7. EVIDENCE QUESTIONING THE ROUTINE USE OF CRICOID PRESSURE

Despite its widespread acceptance, several studies have raised concerns regarding the clinical efficacy and safety of cricoid pressure.

7.1 The IRIS randomised controlled trial

One of the most important contributions to the debate was the IRIS trial published by Birenbaum and colleagues in 2019 [5].

This multicentre, randomised, double-blind, non-inferiority trial included 3,472 patients undergoing RSI. Participants were assigned to receive either conventional cricoid pressure or a sham procedure.

The primary outcome was pulmonary aspiration.

Aspiration occurred in:

- 10 patients (0.6%) in the cricoid pressure group.
- 9 patients (0.5%) in the sham procedure group.

The study failed to demonstrate the non-inferiority of omitting cricoid pressure. Therefore, it could not establish that the sham procedure was equally safe.

However, the observed aspiration rates were very similar between the groups.

The study also identified differences in airway management conditions. Cormack–Lehane grades III and IV were more frequent in the cricoid pressure group than in the sham group (10% versus 5%). Intubation lasting more than 30 seconds occurred in 47% and 40%, respectively.

These findings suggest that cricoid pressure may adversely influence laryngoscopic exposure and prolong intubation in some patients.

The IRIS trial remains particularly important because it demonstrates the difficulty of establishing the clinical benefit of a manoeuvre intended to prevent an uncommon but serious complication.

7.2 Systematic review and meta-analysis

A systematic review and meta-analysis published by White and colleagues in 2020 evaluated 12 randomised controlled trials involving 4,862 adult non-obstetric patients [6].

The investigators found no statistically significant difference in aspiration between patients receiving cricoid pressure and those receiving no cricoid pressure or sham application.

The pooled relative risk for aspiration was 1.18 (95% confidence interval 0.71–1.96).

However, cricoid pressure was associated with:

- Reduced first-attempt intubation success.
- Longer intubation time.
- Worse laryngoscopic views.

The authors highlighted the limitations of the available evidence, particularly the relatively low-risk population studied and the small number of trials involving patients at high risk of aspiration.

These findings should therefore not be interpreted as proof that cricoid pressure is ineffective in every high-risk patient.

Instead, they demonstrate that its protective benefit remains uncertain and that potential airway-related disadvantages deserve consideration.

7.3 Why is demonstrating benefit difficult?

Pulmonary aspiration during anaesthesia is relatively uncommon. Consequently, adequately powered clinical trials require large patient populations.

Furthermore, aspiration risk varies substantially according to patient characteristics, urgency of surgery, gastric contents and airway management technique.

Studies involving routine surgical populations may therefore not adequately represent patients with intestinal obstruction, severe delayed gastric emptying or other conditions associated with substantial aspiration risk.

Another limitation is the difficulty of standardising cricoid pressure. Differences in operator experience, applied force and anatomical localisation may influence the observed outcomes.

Future studies should consider these factors when evaluating the effectiveness of cricoid pressure.

8. POTENTIAL ADVERSE EFFECTS

The potential disadvantages of cricoid pressure are particularly important because the manoeuvre is applied during a period when securing the airway is critical.

8.1 Impaired laryngoscopic view

Posterior pressure over the cricoid cartilage may alter the position and geometry of the laryngeal structures.

Depending on the direction and magnitude of force, this may interfere with visualisation of the glottis.

A poor laryngoscopic view may increase the number of intubations attempts and prolong the time required to secure the airway.

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8.2 Difficult tracheal intubation

Distortion of the laryngeal framework may interfere with the passage of the tracheal tube even when the vocal cords are adequately visualised.

This is particularly relevant in patients with pre-existing anatomical airway difficulties.

The IRIS trial and subsequent meta-analysis provide clinical evidence supporting concern regarding impaired intubation conditions [5,6].

8.3 Impaired facemask ventilation

Excessive cricoid pressure may compress or distort upper airway structures, potentially making facemask ventilation more difficult.

This is especially concerning in patients with obesity, restricted airway anatomy or reduced respiratory reserve.

In such circumstances, maintaining oxygenation must take precedence over maintaining cricoid pressure.

8.4 Interference with supraglottic airway insertion

Cricoid pressure may interfere with the insertion and positioning of supraglottic airway devices by altering the anatomy of the hypopharynx.

This is particularly important following failed tracheal intubation, when prompt restoration of oxygenation becomes the immediate priority.

Contemporary difficult-airway recommendations support releasing cricoid force when a supraglottic airway device is required [4].

8.5 Oesophageal sphincter effects

There have been concerns that cricoid pressure may influence upper and lower oesophageal sphincter function.

Changes in sphincter tone and oesophageal pressure relationships may theoretically alter the protective mechanisms against regurgitation.

However, the clinical significance of these physiological observations remains uncertain, and they should not be interpreted as proof that cricoid pressure consistently increases aspiration risk.

8.6 Other complications

Excessive or incorrectly directed pressure has also been associated with airway obstruction, patient discomfort, tissue injury and, rarely, oesophageal injury.

These complications further emphasise the importance of training, correct localisation and controlled application.

9. CRICOID PRESSURE IN SPECIAL CLINICAL POPULATIONS

9.1 Obstetric anaesthesia

Pregnant patients undergoing general anaesthesia have traditionally been considered at increased risk of pulmonary aspiration because of pregnancy-associated physiological changes, including reduced lower oesophageal sphincter tone, increased intra-abdominal pressure and altered gastric emptying in selected clinical circumstances.

Cricoid pressure has consequently remained an established component of obstetric RSI.

However, obstetric airway management presents an additional challenge because pregnancy is associated with increased oxygen consumption, reduced functional residual capacity and potentially rapid oxygen desaturation during apnoea.

The Obstetric Anaesthetists' Association and Difficult Airway Society guidelines published in 2015 emphasise early recognition of airway difficulty and timely release of cricoid pressure when intubation or ventilation becomes difficult [7].

The 2025 All India Difficult Airway Association (AIDAA) obstetric guidelines provide updated recommendations for managing unanticipated difficult airway and failed intubation in parturients undergoing general anaesthesia [8].

The central consideration is that aspiration prevention should not compromise maternal oxygenation.

Thus, obstetric practice illustrates the importance of balancing aspiration risk with the immediate physiological consequences of failed airway management.

9.2 Emergency and critically ill patients

Patients requiring emergency surgery or intubation in the intensive care unit frequently present with several simultaneous risk factors.

These may include:

- Inadequate fasting.
- Delayed gastric emptying.
- Haemodynamic instability.
- Severe hypoxaemia.
- Reduced physiological reserve.
- Anatomically or physiologically difficult airways.

Although these patients may have substantial aspiration risk, they may also tolerate prolonged intubation attempts poorly.

The application of cricoid pressure should therefore be considered in the context of the entire airway management strategy.

The presence of an increased aspiration risk should not automatically justify continued cricoid pressure when airway visualisation or oxygenation is compromised.

9.3 Patients with anticipated difficult airways

Patients with restricted mouth opening, limited neck movement, abnormal upper airway anatomy or previous difficult intubation require careful airway planning.

In these patients, the possibility that cricoid pressure may further compromise laryngoscopy should be considered before induction.

Where an awake airway technique or an alternative airway strategy is indicated, the decision to perform conventional RSI should itself be reconsidered.

If cricoid pressure is initially applied and subsequently interferes with airway management, it should be released promptly.

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10. CONTEMPORARY AIRWAY GUIDELINES AND RECOMMENDATIONS

Recent airway guidance increasingly recognises that cricoid pressure should be used with clinical judgement rather than as an unquestioned routine intervention.

10.1 Difficult Airway Society recommendations

The Difficult Airway Society 2025 guidelines for the management of unanticipated difficult tracheal intubation in adults were published online in November 2025 and appeared in the January 2026 issue of the *British Journal of Anaesthesia* [4].

The guidelines recognise uncertainty surrounding the efficacy and safety of cricoid force.

Within their RSI recommendations, they advise its use in patients at particularly high risk of pulmonary aspiration. When used, correct anatomical localisation and appropriate force are important, and the manoeuvre should be performed by a trained assistant.

The guidelines recommend removing cricoid force when:

- The view at laryngoscopy is poor.
- Difficulty with laryngoscopy or tracheal intubation occurs.
- A supraglottic airway device is required.
- Active vomiting occurs.

This approach recognises that aspiration prevention and airway security cannot be considered independently.

10.2 Obstetric airway recommendations

The 2015 OAA/DAS guidelines recommend early release or reduction of cricoid pressure when it interferes with airway management.

They particularly emphasise the need to prioritise oxygenation and facilitate supraglottic airway insertion when tracheal intubation fails [7].

10.3 Contemporary Indian recommendations

The 2025 AIDAA guidelines provide an additional context for applying contemporary airway principles in Indian anaesthetic practice.

The adult guidelines emphasise preoperative risk assessment, airway planning, appropriate use of videolaryngoscopy, oxygenation and timely progression through rescue strategies [9].

The separate AIDAA obstetric recommendations address the management of failed tracheal intubation and the importance of maintaining maternal oxygenation [8].

These guidelines should be interpreted according to their specific scope. Their broader difficult-airway principles reinforce the importance of avoiding rigid application of any manoeuvre at the expense of oxygenation and successful airway management.

11. PROPHYLACTIC VERSUS THERAPEUTIC CRICOID FORCE: AN EMERGING CONCEPT

An interesting development in the contemporary discussion was the distinction proposed by Higgs and El-Boghdadly in 2025 [10].

Traditionally, cricoid pressure has been applied prophylactically following induction of anaesthesia to prevent potential regurgitation of gastric contents and pulmonary aspiration.

However, the authors proposed distinguishing this routine preventive application from a potentially therapeutic application during airway management.

Prophylactic cricoid force refers to the application of pressure before any evidence of regurgitation, with the intention of preventing gastric contents from reaching the pharynx.

Therapeutic cricoid force refers to the proposed application of pressure when gastric contents are actually detected around the larynx or when regurgitation is occurring during airway management.

The rationale is that the potential benefit of cricoid force may be more relevant when regurgitation is observed than when it is applied routinely to every patient undergoing RSI.

However, this remains a proposed clinical concept rather than an established intervention supported by comparative clinical trials.

The authors specifically caution against using therapeutic cricoid force during active vomiting.

This distinction raises an important question: should a manoeuvre with uncertain preventive efficacy be applied universally, or should its use be reconsidered according to the clinical situation?

Further investigation is required before therapeutic cricoid force can be recommended as standard practice.

12. TOWARDS AN INDIVIDUALISED APPROACH: WHEN SHOULD CRICOID PRESSURE BE USED?

The contemporary debate should not necessarily be framed as a choice between universal application and complete abandonment.

Instead, an individualised approach may provide a more clinically meaningful framework.

The decision should incorporate two major considerations:

1. The patient's anticipated risk of pulmonary aspiration.
2. The potential effect of cricoid pressure on airway management.

12.1 Before induction

The anaesthesiologist should assess the patient's aspiration risk, airway anatomy, physiological reserve and anticipated difficulty of ventilation or intubation.

Where cricoid pressure is considered appropriate, a trained assistant should be briefed regarding its anatomical location, applied force and circumstances requiring release.

12.2 During laryngoscopy

The quality of the glottic view and ease of tracheal tube passage should be continuously assessed.

If cricoid pressure is interfering with laryngoscopy, the operator should request its release rather than persist with an ineffective or harmful manoeuvre.

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12.3 During failed intubation

When tracheal intubation becomes unsuccessful, the priority must shift towards restoring oxygenation.

Cricoid pressure should be released when it interferes with facemask ventilation or supraglottic airway insertion.

It should never delay progression through an established difficult-airway algorithm.

12.4 During observed regurgitation

The proposed therapeutic application of cricoid force may be considered as an emerging concept when regurgitated material is detected around the larynx.

However, this proposal should not be confused with management of active vomiting, during which cricoid force should be released. The manoeuvre must never delay suction, oxygenation or appropriate airway rescue.

12.5 After successful intubation

Once successful tracheal intubation has been confirmed using appropriate methods, including waveform capnography, cricoid pressure can be released.

The cuffed tracheal tube then provides a more reliable barrier against aspiration than an external manoeuvre alone, although it does not eliminate aspiration risk completely.

13. PRACTICAL CLINICAL IMPLICATIONS

The available evidence suggests that cricoid pressure should be viewed as an intervention requiring continuous clinical reassessment rather than an obligatory step in every RSI.

The following principles may help guide contemporary practice:

- Assess aspiration risk individually before induction.
- Consider cricoid pressure in patients at particularly high risk of aspiration.
- Ensure correct anatomical localisation and appropriate force.
- Use trained assistance rather than relying on unverified application.
- Reassess the manoeuvre during laryngoscopy.
- Release it promptly if it interferes with glottic visualisation or tracheal intubation.
- Prioritise oxygenation during failed airway management.
- Release it when required for facemask ventilation or supraglottic airway insertion.
- Avoid treating cricoid pressure as a substitute for comprehensive aspiration prevention and difficult-airway planning.

These principles reflect the need to balance the potential benefit of aspiration prevention against the immediate consequences of compromised airway management.

14. FUTURE DIRECTIONS

Despite decades of clinical use, several important questions remain unanswered.

1. High-risk patient populations: Large multicentre trials involving patients with intestinal obstruction, delayed gastric emptying and other conditions associated with high aspiration risk are required.

2. Standardisation of technique: Studies should investigate whether consistent force, correct anatomical localisation and structured assistant training improve clinical outcomes.

3. Videolaryngoscopy: Further studies should evaluate whether contemporary videolaryngoscopy modifies the adverse effects of cricoid pressure on laryngeal exposure and tracheal tube advancement.

4. **Ultrasound-assisted localisation:** The potential role of ultrasound in improving anatomical identification and standardising cricoid pressure requires further evaluation.

5. Prophylactic versus therapeutic application: Prospective studies are needed to investigate whether selective therapeutic application during observed regurgitation offers any meaningful clinical benefit.

6. Patient-centred outcomes: Future research should prioritise clinically significant pulmonary aspiration, hypoxaemia, failed intubation, airway trauma and patient outcomes rather than relying exclusively on anatomical or surrogate measures.

A major challenge will be designing adequately powered studies that account for the relatively low incidence of pulmonary aspiration and the heterogeneity of patients undergoing RSI.

15. CONCLUSION

Cricoid pressure represents one of the most enduring interventions in anaesthetic airway management. Its continued use is supported by a plausible anatomical rationale and a long history of clinical acceptance. However, its ability to prevent clinically significant pulmonary aspiration remains uncertain, and evidence suggests that it may adversely influence laryngoscopic conditions and the ease of tracheal intubation.

Contemporary airway recommendations increasingly support a selective approach, particularly in patients at high risk of aspiration, with clear recognition that cricoid pressure should be released when it compromises airway management.

The distinction between prophylactic and proposed therapeutic cricoid force further highlights the need to reconsider the traditional approach.

Ultimately, the objective of RSI is not simply to prevent aspiration but to secure the airway safely while maintaining oxygenation and minimising complications.

Cricoid pressure should remain a considered clinical intervention, not an unquestioned ritual. Its application should be justified by anticipated benefit, continuously reassessed and abandoned whenever it compromises airway safety.

TABLE 1. Summary Of Key Evidence Regarding Cricoid Pressure

Study	Design/population	Principal findings	Clinical interpretation
Sellick, 1961 [1]	Historical clinical description	Introduced cricoid pressure to prevent regurgitation during induction	Established the traditional rationale

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Rice et al., 2009 [2]	Anatomical imaging study	Demonstrated compression of the postcricoid hypopharynx	Supports anatomical plausibility, not clinical efficacy
Birenbaum et al., 2019 [5]	IRIS randomised trial; 3,472 patients	Aspiration 0.6% versus 0.5%; non-inferiority of sham procedure not established; poorer laryngoscopic conditions with cricoid pressure	Clinical benefit remains uncertain
White et al., 2020 [6]	Systematic review and meta-analysis; 12 RCTs, 4,862 patients	No significant reduction in aspiration; poorer first-attempt success, longer intubation time and worse laryngoscopic views	Potential airway disadvantages require consideration
Ahmad et al., 2026 [4]	DAS 2025 adult airway guideline	Cricoid force advised in patients at particularly high aspiration risk; release when view is poor, intubation difficult, SGA required or active vomiting occurs	Supports selective, reassessed application
Higgs and El-Boghdadly, 2025 [10]	Correspondence / clinical proposal	Distinguishes prophylactic from therapeutic cricoid force	An emerging concept requiring further evaluation

Abbreviations: DAS, Difficult Airway Society; IRIS, Impact of Cricoid Pressure on the Incidence of Aspiration during Rapid Sequence Induction; RCT, randomised controlled trial; SGA, supraglottic airway; RSI, rapid sequence induction.

Table 2. Proposed Clinical Framework for Cricoid Pressure

Clinical situation	Suggested approach
Patient at particularly high aspiration risk	Consider cricoid pressure as part of RSI
Low or uncertain aspiration risk	Individualise the decision; routine application is not automatically justified
Poor glottic view during laryngoscopy	Release cricoid pressure
Difficult tracheal tube passage	Release if cricoid pressure is contributing to difficulty
Failed tracheal intubation requiring SGA rescue	Release cricoid pressure
Impaired facemask ventilation	Release cricoid pressure
Active vomiting	Release cricoid pressure
Observed regurgitation around the larynx without active vomiting	Therapeutic application is a proposed concept; evidence remains limited
Successful tracheal intubation	Release after appropriate confirmation of tube placement

This table represents a synthesis of contemporary recommendations and proposed clinical reasoning. It is not a separately validated clinical protocol.

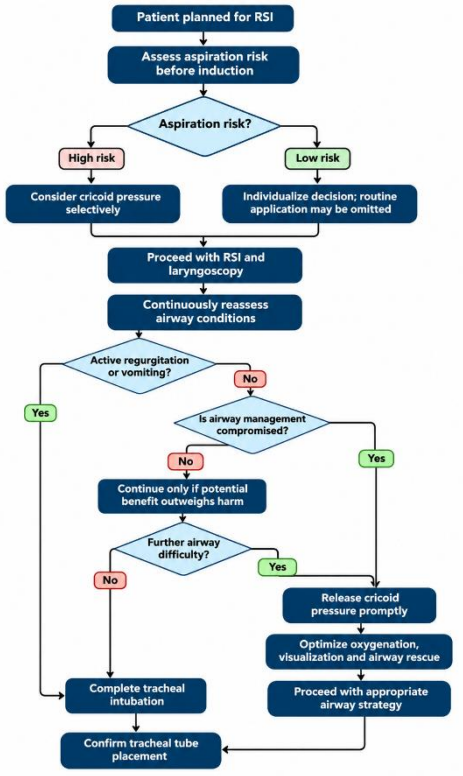


Figure 1. Proposed Clinical Decision-Making Framework

A flow diagram illustrating aspiration-risk assessment before RSI, selective consideration of cricoid pressure, continuous reassessment during laryngoscopy, and prompt release when airway management is compromised.

DECLARATIONS

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REFERENCES

1. Sellick BA. Cricoid pressure to control regurgitation of stomach contents during induction of anaesthesia. Lancet. 1961;2(7199):404-6. doi:10.1016/S0140-6736(61)92485-0.
2. Rice MJ, Mancuso AA, Gibbs C, Morey TE, Gravenstein N, Deitte LA. Cricoid pressure results in compression of the postcricoid hypopharynx: the esophageal position is irrelevant. Anesth Analg. 2009;109(5):1546-52.
3. Vanner RG, Asai T. Safe use of cricoid pressure. Anaesthesia. 1999;54(1):1-3. doi:10.1046/j.1365-2044.1999.00756.x.
4. Birenbaum A, Hajage D, Roche S, Ntouba A, Eurin M, Cuvillon P, et al. Effect of cricoid pressure compared with a sham procedure in the rapid sequence induction of anesthesia: the IRIS randomized clinical trial. JAMA Surg. 2019;154(1):9-17. doi:10.1001/jamasurg.2018.3577.
5. Algie CM, Mahar RK, Mahar PD, Tan HB, Wilson G, Wainwright CE, et al. Effectiveness and risks of cricoid pressure during rapid sequence induction for endotracheal intubation. Cochrane Database Syst Rev. 2015;(4):CD011656. doi:10.1002/14651858.CD011656.
6. Tessarolo E, Alkhouri H, Lelos N, Sarrami P, McCarthy S. Review article: effectiveness and risks of cricoid pressure during rapid sequence induction for endotracheal intubation in the emergency department: a systematic review. Emerg Med Australas. 2022;34(4):484-91. doi:10.1111/1742-6723.13993.
    1. PubMed
7. Frerk C, Mitchell VS, McNarry AF, Mendonca C, Bhagrath R, Patel A, et al. Difficult Airway Society 2015 guidelines for management of unanticipated difficult intubation in adults. Br J Anaesth. 2015;115(6):827-48. doi:10.1093/bja/aev371.
8. Myatra SN, Shah AP, Ramkumar V, Kundra P, Patwa A, Shetty SR, et al. All India Difficult Airway Association 2025 guidelines for the management of unanticipated difficult airway in adults under general anaesthesia. Indian J Anaesth. 2025;69(11):1117-41. doi: 10.4103/ija.ija_1210_25.
    2. PMC+1

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