New Setup in Shoulder Arthroscopy: Combining the Benefits of the Beach Chair and Lateral Decubitus Positions

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Patient positioning in shoulder arthroscopy is crucial for visualisation, access, neurovascular safety, and surgical efficiency. Traditionally, procedures are performed in either the Beach Chair (BC) or Lateral Decubitus (LD) positions, each offering specific advantages and disadvantages.

We introduce a new hybrid setup that combines the strengths of BC and LD positioning. The patient is placed laterally with a 60° posterior tilt, stabilised with beanbags and straps. The non-operative limb rests on an arm board, while the operative limb is supported by a stabilising device or light traction (4–5 lb). The surgical table is inclined in an anti-Trendelenburg position (30–45°), with optional posterior tilt at the surgeon's preference. This positioning provides excellent joint space, anatomical orientation, and optimised visualisation while reducing traction-related complications.

This hybrid position offers the visualisation and working space of LD, while incorporating the ergonomic and teaching benefits of BC. It presents a safe, practical, and reproducible setup for shoulder arthroscopy.

Keywords: Shoulder arthroscopy; Patient positioning; Beach Chair; Lateral Decubitus; Hybrid setup; Surgical technique

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Introduction

Optimal patient positioning is crucial to the success of shoulder arthroscopy. The two most widely adopted setups are the Beach Chair (BC) and Lateral Decubitus (LD) positions, both of which have advantages and drawbacks [1][4][8][9]. The BC position provides an upright anatomical orientation, straightforward conversion to open procedures, and clear teaching perspectives; however, it is associated with hypotension, cerebrovascular events, and neurovascular strain [6][7][10][11]. In contrast, the LD position offers excellent joint visualisation and working space but requires traction devices, carries risks of traction-related neurapraxia, and complicates conversion to open surgery [2][3][5][6]. To address these limitations, we describe a novel hybrid setup that combines the benefits of BC and LD positioning.

Positioning Technique

The patient is positioned laterally with a 60° posterior tilt and stabilised using beanbags under the neck and waist, as well as straps across the head, pelvis, and feet to prevent sliding (**Figure 1**). The non-operative arm rests on an arm board. An axillary nerve roll may also be used, optionally. A stabilising device supports the operative limb; if such a device is unavailable, light traction (4–5 lb/2-4 Kg) is applied (**Figure 2**). The surgical table is inclined at 30–45° in an anti-Trendelenburg position, with additional posterior tilt as needed (**Figure 3**). The final position is adjusted according to the surgeon's preference to ensure optimal comfort and exposure. This hybrid setup provides a more anatomical shoulder alignment and removes many disadvantages of traditional traction-based LD positioning.

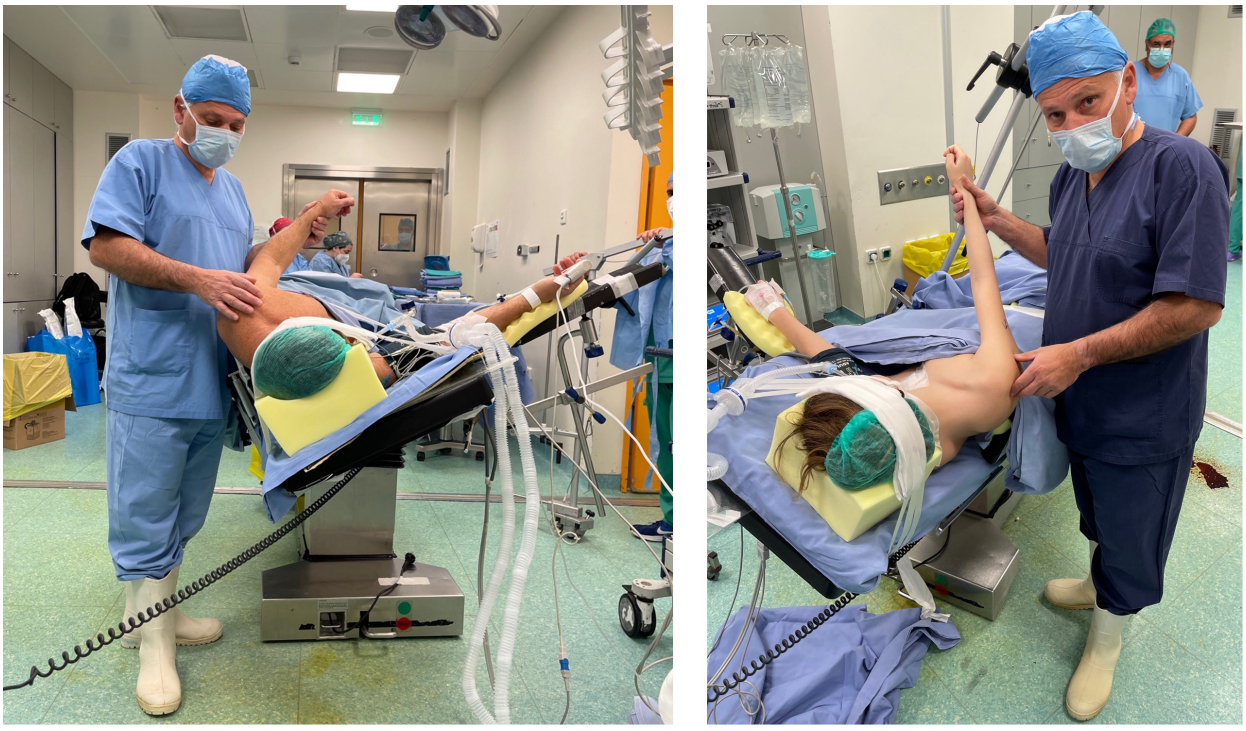


Figure 1. The position of the patient on the OR table for the new setup.



Figure 2. The new setup during the surgery as seen from different angles.

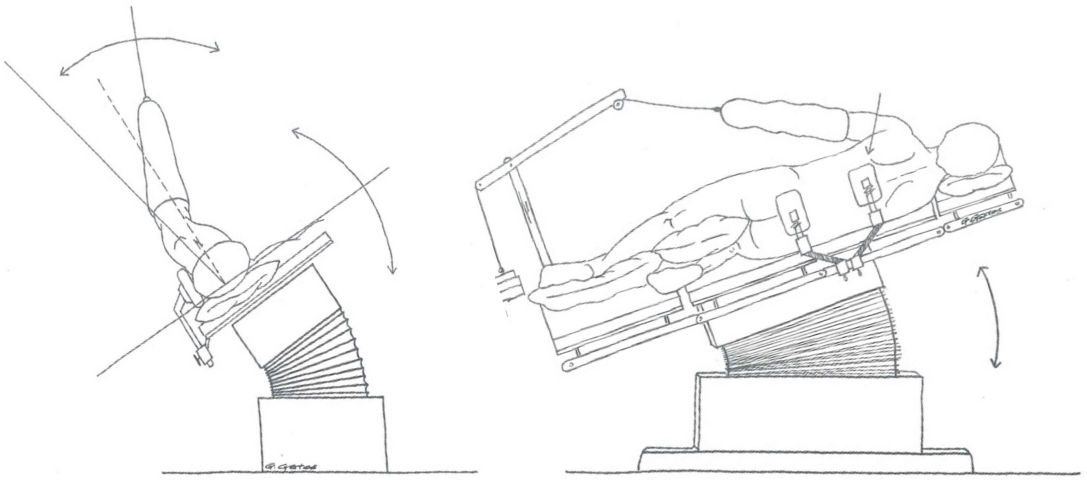


Figure 3. Drawing of the new setup.

Pearls and Pitfalls

• Ensure adequate stabilisation with beanbags and straps to prevent sliding.

• Light traction should not exceed 4–5 lb to reduce the risk of neurapraxia.

• Adjust table inclination dynamically to optimise exposure.

• Avoid over-tilting, which may compromise ergonomics or airway access.

Discussion

This hybrid setup combines the ergonomic and anatomical benefits of the BC position with the excellent visualisation and working space of the LD position. Using minimal or no traction reduces the risk of neurapraxia and enhances patient safety. Incorporating an anti-Trendelenburg tilt allows the surgeon to achieve a more natural anatomical orientation, which aids in teaching and understanding intra-articular structures. Compared with BC, this setup lowers cerebrovascular risks, and compared with LD, it simplifies intraoperative limb control. To facilitate comparison between the traditional positions and the proposed hybrid setup, the principal advantages, disadvantages, and clinical indications of each configuration are summarised in **Table 1**. The authors use this positioning for arthroscopic bone block, arthroscopic Latarjet procedures, arthroscopic-assisted AC joint stabilisation, and in RC repair cases when manoeuvres needed to be performed at the anterior part of the shoulder (i.e., subscapularis repair), rather than their preferred standard lateral decubitus position. All the authors progressively incorporated this positioning technique into their everyday practice for all shoulder arthroscopic procedures, reaching 400 cases per year by 2025, based on data from that year. More specifically, every patient is positioned in this setup, and the procedure starts in the classical lateral decubitus position. When the surgeon should perform anterior shoulder manoeuvres, the lateral decubitus position can be easily transformed into a position resembling the beach chair position using this hybrid setup. The technique has proven reproducible and has facilitated both intra-articular visualisation and instrument handling. No positioning-related complications have been encountered. Although these observations reflect clinical experience rather than data from a prospective clinical study, they support the practical feasibility of the proposed setup. Limitations include the need for careful stabilisation, familiarity with setup modifications, and the lack of large-scale comparative data. Further prospective studies are needed to assess outcomes, complications, and surgeon-reported ergonomics.

Table 1. Comparison of the advantages, limitations, and principal indications of the Beach Chair, Lateral Decubitus, and the proposed Hybrid Position for shoulder arthroscopy.

Feature	Beach Chair (BC)	Lateral Decubitus (LD)	Proposed Hybrid Position
Patient orientation	Upright, seated	True lateral decubitus	Lateral decubitus with approximately 60° posterior tilt and anti-Trendelenburg
Anatomical orientation	Excellent; intuitive anatomy	Less intuitive	Near-anatomical orientation with improved spatial perception
Glenohumeral visualisation	Good	Excellent	Excellent
Joint distraction	Limited; usually without traction	Excellent; requires traction	Excellent with minimal or no traction
Working space	Moderate	Excellent	Excellent
Need for traction	Usually, unnecessary	Required (typically 4–10 lb)	Minimal (4–5 lb) or none when using an arm-positioning device
Risk of traction-related complications	Minimal	Increased risk of neurapraxia and soft-tissue traction injury	Reduced because of minimal traction
Risk of hypotension/cerebral hypoperfusion	Increased	Low	Lower than BC owing to semi-lateral positioning
Conversion to open surgery	Easy	More demanding	Relatively straightforward
Teaching and arthroscopic orientation	Excellent	More challenging for trainees	Excellent owing to improved anatomical orientation
Surgeon ergonomics	Comfortable	May be limited by traction system and limb position	Comfortable with adjustable table inclination and arm positioning
Typical indications	Arthroscopy combined with open procedures, arthroplasty	Instability surgery, rotator cuff repair, labral procedures	Complex arthroscopic procedures requiring excellent visualisation with improved ergonomics (e.g. arthroscopic Latarjet, arthroscopic bone-block procedures, arthroscopic-assisted AC joint stabilisation)
Main limitations	Cerebral hypoperfusion, hypotension, limited joint distraction	Traction-related complications, more difficult conversion to open surgery	Requires familiarity with the positioning technique and careful patient stabilisation

Conclusion

The described hybrid setup combines the benefits of the Beach Chair and Lateral Decubitus positions to provide a safe, reproducible, and ergonomic approach to shoulder arthroscopy. It enhances visualisation, improves anatomical orientation, and minimises traction-related risks. This innovative configuration could serve as a valuable alternative for surgeons aiming to optimise positioning in shoulder arthroscopy.

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Conflict of Interest Statement

The authors declare that they have no conflicts of interest relevant to this manuscript.

Ethical Approval

This article describes a surgical positioning technique used in routine clinical practice and does not report the results of a prospective clinical study or an experimental intervention. Therefore, formal institutional ethical approval was not required.

Author Contributions

George Gatos: Preparation of the manuscript, drawing images, clinical implementation. Emmanouil Brilakis: Methodology, clinical implementation, supervision, manuscript preparation, review and editing. Berte Boe: Conceptualisation, clinical implementation, methodology, manuscript review and editing. Tom Clement Ludvigsen: Conceptualisation, Clinical implementation, methodology, manuscript review and editing. Emmanouil Antonogiannakis: Conceptualisation, clinical implementation, supervision, manuscript review and editing. All authors contributed to the development and clinical application of the described technique, critically reviewed the manuscript, and approved the final version for publication.

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