3 Patient Positioning, Anesthesia Choices, and Portals

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3.1. Patient Positioning

Both the lateral decubitus position and the beach chair position have their proponents. The choice is largely determined by the position used when the surgeon was learning shoulder arthroscopy, the ease and anticipated frequency of converting to a mini-open procedure, and the availability of surgical assistants and supportive devices for arm positioning. Benefits and compromises exist for each option.

3.1.1. Lateral Decubitus Orientation

The supine position is used during the induction of general anesthesia. The patient is then repositioned to the lateral decubitus orientation on a vacuum bag. Once a soft axillary roll is appropriately placed and the head supported in a neutral orientation, the patient is allowed to roll back approximately 15° and the bag is evacuated for support. The table is then rotated to place the anesthesiologist and necessary equipment near the middle of the operating table. The surgeon is thus provided unrestricted access to the involved shoulder. A monitor is located for easy viewing, usually across from the surgeon near the head of the table. The arm is supported in 30° to 40° abduction and 15° of forward flexion using 10#s to suspend rather than place significant traction on the shoulder (this shoulder position is varied during the case depending on the access necessary to specific locations). Numerous sterile sleeves and gauntlet devices are commercially available to support the arm. Cushions pad the dependent knee and ankle. A routine sterile preparation and drape are then performed. The lateral decubitus method eliminates the need for an assistant or mechanical device to support the arm. Internal and external rotation of the suspended arm affords acceptable access to the entire rotator cuff.

While the surgeon is working in the glenohumeral joint, the glenoid is typically oriented parallel with the floor. When working in the subacromial space, the surgeon may elect either to maintain this orientation (the
acromion is vertical), or to rotate the camera head to view the acromion in a position parallel with the floor (as it would appear with the patient standing).

If the surgeon elects to convert to a mini-open approach, the unsterile portion of the suspension apparatus is removed and the patient's arm allowed to rest on the hip. Access to the supraspinatus and infraspinatus is readily obtained by extending the lateral subacromial portal proximally. An absorbable suture is introduced transversely through the deltoid at the inferior extent of the portal defect to prevent inadvertent distal extension and iatrogenic injury to the axillary nerve. The deltoid is then divided proximally along its fibers to the level of the acromion. If the surgeon converts to an open procedure for the subscapularis or biceps tendon through a standard deltopectoral approach, the vacuum bag is at least partially inflated (softened) and the patient is allowed to roll backward to a more supine position. The operating table is then adjusted to a gentle beach chair configuration, and acceptable position and support for the head and neck are verified.

3.1.2. Beach Chair Orientation

In the beach chair orientation, the patient's thorax is positioned to permit the involved shoulder to overhang the table. Alternatively, a specially designed table with a removable wing for exposure of the operative shoulder may be used. The operating table is then adjusted to create a beach chair configuration. Bony prominences are appropriately padded. A relatively more vertical orientation for the back will minimize the dependent position of the camera when in the posterior portal and avoid fogging of the lens. The anesthesiologist sets up near the patient's uninvolved shoulder and the viewing monitor is placed opposite the surgeon near the foot of the table. A surgical assistant or a sterile, maneuverable mechanical arm holder adjusts the position of the shoulder during the procedure, depending on the access necessary. The beach chair position allows greater mobility of the arm than does the lateral decubitus position, particularly with respect to internal and external rotation of the shoulder. The upright (anatomical) orientation for the arthroscope is maintained while working in both the glenohumeral and subacromial regions. Conversion to an open procedure for all regions of the cuff is relatively simple and usually requires only reducing the degree of thorax elevation.

3.2. Anesthesia Choices

3.2.1. General Anesthesia

Both endotracheal intubation (GET) and a laryngeal mask airway (LMA) provide safe, reliable options for the administration of general anesthesia. However, no durable analgesia is afforded once the patient awakens, and