Beginner Blocks

Blocks on anatomical surfaces that are easy to scan, are technically simple to perform and yield a good success rate may be listed under this category. These areas also have minimal anatomical variations and carry a low risk for serious complications to occur. Trainees with basic knowledge and skills are best initiated into regional anesthesia through these set of blocks. Areas that may be included (but not limited to) in this category are

1) Interscalene Block
2) Axillary Block
3) Femoral Nerve Block
4) Popliteal (Sciatic) Nerve Block
5) Rectus Sheath Block
6) Transversus Abdominis Plane Block
7) Chest wall blocks

Intermediate Blocks

Blocks on areas that depict anatomical variations, increasingly challenging scans as well as close proximity to critical structures may be included into this category. Blocks that require a greater degree of technical skills are also included. Trainees who have developed basic skills and show good aptitude towards learning may be permitted to perform these blocks. Occasionally, basic level blocks may be included in this category due to special circumstances, such as obesity, coagulopathy, etc.

1) Supraclavicular Block
2) Infraclavicular Block
3) Blocks of the terminal nerves of the brachial plexus
4) Ankle Block
5) Subgluteal Sciatic Nerve Block

Advanced Blocks

These blocks carry an inherent risk of complications, including a high risk of failure. Most deeper blocks can be categorized in this area. Some of the blocks are technically difficult to scan and perform and the operator would require to have a good degree of experience to perform these.

1) Lumbar Plexus Block
2) Sacral plexus Block
3) Quadratus Lumborum Block
4) Pediatric regional anesthesia

Scope of learning for individual blocks

The Neck and Upper Limb

Key Areas of Learning:

Anatomy

1) Anatomy of the brachial plexus
2) Anatomy of the cervical plexus
3) Major vascular structures in the neck and their critical branches
4) Dermatomes, Myotomes and osteotomes of the upper limb

Block Related Learning (ultrasound)

1) Major blocks of the neck and upper limb with their modern variants.
   a) Interscalene block : i) Approach : interscalene groove, posterior approach
      ii) Assessment of cervical vertebrae levels using tubercle morphology
      iii) Visualization of phrenic nerve during scan
      iv) Critical neural and vascular stuctures to avoid during the block
      v) MSK anatomy of the area
      vi) Ergonomics and positioning

   b) Supraclavicular block : i) Approach : Lateral to medial, Corner pocket injections
      ii) Depiction of the first rib and pleura
      iii) Critical vascular structures
      iv) MSK anatomy of the area
      v) Ergonomics and positioning

   c) Infraclavicular Block : i) Ultrasound technique including the retroclavicular and costoclavicular approach
      ii) Depiction of the proximity of the pleura
      iii) MSK anatomy of the area
      iv) Ergonomics and positioning

   d) Axillary Block : i) Approach
      ii) Demonstration of all 4 nerves in the axilla.
      iii) Explanation of possible nerveconfigurations in the axilla
      iv) MSK anatomy of the area
      v) Ergonomics and positioning

   e) Terminal nerve blocks : i) Approaches
      ii) MSK
      iii) Ergonomics

f) Cervical Plexus Block : i) Approaches : Superficial, Intermediate and Deep

g) Others : Suprascapular Nerve Block, Axillary nerve block

2) Theoretical Considerations for the upper limb
   a) Indications for each block
   b) Local anesthetic volumes for all blocks (minimum and maximum)
   c) Complications of each approach and management.
   d) Diagnosing and preventing phrenic nerve blockade
   e) Supraclavicular block and pneumothorax
   f) Nerve Blocks for shoulder surgery & analgesia
   g) Local anesthetic additives.
   h) Awake or asleep upper limb blocks?

The Abdomen

Key Areas of Learning:

Anatomy

1) Anatomy of the anterior abdominal wall
2) Anatomy of the posterior abdominal wall
3) Course of an intercostal nerve, its branches and innervation
4) Dermatomal distribution
5) Anatomy, connections and significance of the thoracolumbar fascia

Block Related Learning (ultrasound)

1) Major blocks of the Anterior & Posterior Abdomen and their variants

a) Rectus Abdominis Block : i) Approach
ii) MSK anatomy of the anterior abdomen, transition areas towards the midline as well as postero lateral
iii) Ergonomics and positioning
b) Transversus abdominis plane block :i) Approach : Subcostal, Posterior approach. Variation in anatomy, optimal needle entry points
ii) Ergonomics and positioning
c) Ilioinguinal/iliohypogastric nerve block : i) Approach
ii) Ergonomics and positioning

d) Quadratus Lumborum Block : i) Approach – Types of QLB. QL 1, QL 2, Transmuscular, Intramuscular
ii) Critical structures in the area – visualization of peritoneum, kidney and lumbar vessels
iii) Ergonomics and positioning

2) Theoretical Considerations for Abdominal Blocks
a) Indications for each block
b) Local anesthetic volumes for all blocks (minimum and maximum)
c) Complications of each approach and management.
d) LA uptake during high volume abdominal blocks
e) Practicality of catheter insertion

The Lower Limb

Key Areas of Learning:

Anatomy

1) Origin, course and branches of the lumbar plexus until their termination
2) Origin, course and branches of the sacral plexus until their termination
3) Dermatomes, myotomes and osteotomes of the lower limb

Block Related Learning (ultrasound)

Part 1

1) **Major blocks of the branches of the lumbar plexus**

a) Femoral Nerve Block : i) Approach
ii) Division of the femoral artery, demonstration of the circumflex branch and its significance
iii) Surrounding MSK including depiction of the fascia lata and fascia iliaca
iv) Ergonomics and positioning

b) Adductor Canal Block : i) Approach
ii) Demonstration of MSK (boundaries and contents of the adductor canal)

c) Saphenous Nerve Block : i) Approach – Sub Patellar and at the ankle

d) Lateral Cutaneous Nerve of thigh : i) Approach
e) Obturator nerve : i) Approach – Anterior and posterior branches
ii) Demonstration of MSK anatomy. Pectineus muscle, Adductors.
f) Fascia Iliaca block : i) Approach

2) Theoretical considerations

a) Indications for each block
b) Local anesthetic volumes for all blocks (minimum and maximum)
c) Complications of each approach and management.
d) Role of femoral block in total knee arthroplasty and hip surgery
e) Role of adductor canal block in total knee arthroplasty
f) Role of obturator nerve block in total knee arthroplasty and TURBT
g) Fascia iliaca block vs femoral nerve block – Whats the difference?
h) Catheter insertion and practical aspects for femoral block and adductor canal block.

PART 2

1) Major blocks of the branches of the sacral plexus
   a) Sciatic Nerve Block : i) Approaches : Sacral Plexus, Gluteal, Subgluteal, Mid thigh, anterior sciatic, popliteal, ankle block.
   b) MSK & Vascular considerations for each approach.
   c) Demonstration of the division of the sciatic nerve
   d) Ergonomics and positioning

2) Theoretical considerations
   a) Indications for each block
   b) Local anesthetic volumes for all blocks (minimum and maximum)

c) Complications of each approach and management.
d) Role of sciatic nerve block in knee surgery
e) Importance of posterior cutaneous nerve of thigh
f) Advantages &disadvantages of anterior approach
g) Importance of the paraneural sheath in popliteal sciatic nerve block
h) The subgluteal space
i) Newer USG infiltration techniques (ipack)

The Chest Wall

Key Areas of Learning:

Anatomy

1) Anatomy of the thoracic spinal nerve, course and branches
2) Dermatomal supply of the chest wall
3) Innervation of the pectoral muscles, sternum and axilla

1) Major blocks of the chest

a) Pectoral Nerve Block (PECS): i) Approach : PECS 1, PECS 2, Serratus plane block
ii) MSK of the chest region
iii) Ergonomics and positioning

b) Thoracic Paravertebral Block : i) Approach
ii) MSK of thoracic spine region
iii) Ergonomics and positioning

c) Newer variants of the Paravertebral block : Approach - Retrolaminar, Erector spinae block
d) ESP

2) Theoretical Concerns
a) Indications for each block
b) Local anesthetic volumes for all blocks (minimum and maximum)

c) Complications of each approach and management.
d) Serratus plane block: injection under or over the muscle?
e) Knowledge of correct levels for performing the paravertebral block for different surgeries.
f) Catheter techniques