Regional Anaesthesia & Enhanced Recovery after Laparoscopic Nephrectomy

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Enhanced Recovery After Surgery (ERAS)

Fast track surgery
30%-50% reduction in length of stay
Quality recovery
Fewer complications
Fewer costs
4.2 Operative

**Aim:** maximise pain control & minimise the use of opiate-based analgesia

The general principle in operative analgesia is to reduce usage of long acting opiates by incorporating local anaesthetic blocks and other techniques.

4.3 Post-operative

**Aim:** use multimodal analgesia to avoid the use of PCA and minimise the use of opiates, whilst ensuring adequate pain relief
Opioid analgesia

Moderate to severe pain
PONV, constipation, dizziness, drowsiness
? ERAS & DREAMing (DRink, Eat & Mobilise)
?? Morphine & cancer recurrence

Effect of anaesthetic technique and other perioperative factors on cancer recurrence

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Pain pathways

Visceral & somatic
- T8-L1 kidneys
- T10 –L2 ureters

Port pain
- Incisions (to remove big tumours)
- Pelvic organ nociception
- Diaphragmatic irritation
- Urinary catheter & drain discomfort
Regional Anaesthetic Techniques

• Central Neuraxial techniques (Spinal/Epidural)
• Paravertebral Block
• Abdominal & Thoracic Wall Blocks
Central Neuraxial techniques (Spinal/Epidural)

- Superior analgesia

  .... BUT

- Sympathetic blockade and haemodynamic instability
- Bladder paralysis
- Lower limb paralysis
- Failure
Abdominal & Thoracic Wall Blocks

- Transversus Abdominis Plane (TAP) Blocks
- Quadratus Lumborum (QL) Blocks
- Erector Spinae Plane (ESP) Block
Transversus Abdominis Plane (TAP) Blocks
- Landmark-Guided TAP Block
- US-Guided Lateral TAP Block
- US-Guided Subcostal TAP Block
- US-Guided Bilateral Dual TAP Block
- Surgical TAP Block

Quadratus Lumborum (QL) Blocks
- QL1 (lateral)
- QL2 (posterior)
- QL3 (anterior or transmuscular)
Lateral cutaneous branches of intercostal nerves (T2-T12)

Anterior cutaneous branches of intercostal nerves (T1-T12)

External Oblique muscle (cut)

Internal Oblique muscle (cut)

Transversus Abdominis muscle

TAPB Anatomy
TAPB Techniques

Webster K. The transversus abdominis plane (TAP) block: Abdominal plane regional anesthesia. *Update in Anaesthesia* 2008;24:26


Townsley P, French J, ATOTW 239 Transversus Abdominus Plane Block 2011
Paucity of evidence in lap nephrectomy

Some studies investigated analgesic efficacy of TAPB in Live-Donor Nephrectomy

Decrease in opioid use

Reduction in pain scores

Most benefit in early postop period

(<12 hours)
QLB ANATOMY
QLB Techniques

- LA spread to thoracic paravertebral space
- Thoracolumbar fascia sympathetic pain receptors
- Somatic & visceral analgesia

Permission taken from Prof H. Elsharkawy

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QLB & lap nephrectomy

• Lack of published studies in lap nephrectomy
• Case reports & series
• Clinical experience
• Clinical efficacy in major abdominal surgery, including laparoscopic nephrectomy
Target: plane between erector spinae & transverse process
Erector spinae plane block in abdominal surgery: Case series

Juan Carlos Luis-Navarro, María Seda-Guzmán, Cristina Luis-Moreno, and Ki-Jinn Chin

4 lap nephrectomy patients
ESP catheter
T8 level
20ml bupivacaine 0.5%
Ropivacaine 0.18% infusion at 7 ml/h × 48 hrs
No rescue opioids
58 laparoscopic nephrectomies
November 2016 – January 2018
39 TAPB, 19 QLB
Retrospective analysis

Is a quadratus lumborum block superior to a transversus abdominis plane block for analgesia in laparoscopic nephrectomies?

Katrine Thorup, Thomas Gill, Antony Ratnasingham, Wendy Caddy, Paul Smith, Despoina Liotri
P050
DOI: https://doi.org/10.1016/j.eescs.2018.03.067

Postop opioid requirement

Average Length of stay (days)

QLB VS TAPB
44% D1 - 47% D2 reduction in mean opioid requirement
1 day reduction in length of stay
Novel thoracic and abdominal wall blocks may be the way forward to facilitate the goals of enhanced recovery, and to provide opioid sparing analgesia.
References


6. Alper I and Yuksel E, ‘Comparison of Acute and Chronic Pain after Open Nephrectomy versus Laparoscopic Nephrectomy A Prospective Clinical Trial’, Medicine 2016;95(16):e3433


