QUADRATES LUMBORUM BLOCK VERSUS TRANSVERSES ABDOMINALS PLANE BLOCK FOR POST-OPERATIVE ANALGESIA IN PATIENTS UNDERGOING TOTAL ABDOMINAL HYSTERECTOMY UNDER GENERAL ANESTHESIA

By

Dr. SANJANA PRABHU

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Dr.VIDYA PATIL

PROFESSOR

DEPARTMENT OF ANESTHESIOLOGY

BLDE (Deemed to be University)

SHRI B.M.PATIL MEDICAL COLLEGE

HOSPITAL & RESEARCH CENTRE, VIJAYAPUR

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ABBREVIATIONS

QL-Quadratus lumborum

TAP- Transversus abdominis plane

ETT- Endo Tracheal Tube

GA- General Anaesthesia

USG-Ultrasound guided

ECG-Electrocardiogram

mm- millimetre

cm- centimetre

ASA- American Society of Anaesthesiologists

NIBP- Non-invasive Blood Pressure

SPO2- Oxygen Saturation

S.D.- Standard Deviation

hrs- Hours

min- Minutes

n- Number of Subjects

p- p-value

Sl. No.- Serial Number

BMI – Body Mass Index

ABSTRACT

AIM

This study compares the effect of bilateral QL block versus bilateral TAP block in patients posted for total abdominal hysterectomy under general anaesthesia for postoperative analgesia.

BACKGROUND

- Patients undergoing lower abdominal surgeries experience postoperative pain which delays their early recovery,ambulation and lengthens the hospital stay.
- The abdominal blocks help in providing postoperative analgesia to a greater extent.
- QL block and TAP block have been well established for the patient benefit.

METHODOLOGY

Preliminaries:

- Written informed consent was taken.
- Nil per oral status was confirmed.
- Intravenous access was secured with a 20 gauge cannula.

The patient was evaluated with a detailed history,general and systemic examinations in the preoperative room. The airway, cardiovascular system and respiratory system were examined.

Routine blood investigations were done. General anaesthesia was given. Before putting incision, a bilateral TAP block or QL block with 20 mL of 0.25% bupivacaine was injected, and the patient was monitored for 24 hours for post-operative pain.

RESULTS

- Age, Weight, ASA Grades and Duration of surgery are comparable and are statistically insignificant.
- VAS and Modified Aldrete score are statistically significant, showing that the QL block is better.
- The time before rescue analgesia in the TAP block group is 8 hours, and in the QL block group, it is 14.43 hours.
- The total requirement of analgesics in the operative period (Fentanyl in mcg) in the TAP block group is 96.67, and in the QL block group, it is 59.17.
- The total requirement of muscle relaxants in the operative period (Atracurium in mg) is 47.33 in the TAP block group and 32 in the QL block group.
- The total requirement of analgesics in the postoperative period (Diclofenac in mg) is compared between the two groups and is statistically significant as the P value is 0.000.The mean requirement of diclofenac in mg is 60 in the TAP block group and 35.83 in the QL block group.
- All these comparisons are statistically significant. Hence QL block is better than the TAP block.

CONCLUSION

- QL block provides postoperative analgesia for a longer duration than the TAP block.
- The intraoperative requirement of drugs is significantly less in the QL block.
- The post-operative analgesic requirement is less in the QL block.
- The number of patients needing post-operative analgesia is significantly low in QL block.
- Hence QL block is a better choice than TAP block for postoperative analgesia.

KEYWORDS

- QL block, TAP block, Total abdominal hysterectomy, Bupivacaine.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF GRAPHS

INTRODUCTION

- The definition of pain according to the International association for pain study, is an unpleasant experience experienced with a potential tissue damage.Anaesthesiologists aim at the prevention of pain.[1]
- Abdominal surgeries can be open or laparoscopic.Postoperative pain is severe here compared to other surgeries.
- Patient recovery is delayed in case of severe pain and the requirement of analgesics is increased in postoperative period.
- Analgesics have many adverse side effects.Nerve blocks are thus helpful in providing postoperative analgesia and reducing the analgesic usage intraoperatively.
- QL block and TAP block are mainly practiced in order to provide postoperative analgesia.

AIMS AND OBJECTIVES

AIM

This study compares the effect of bilateral QL block versus bilateral TAP block in patients posted for total abdominal hysterectomy under general anaesthesia for postoperative analgesia.

OBJECTIVES

Primary objectives

To compare QL block and TAP block for providing analgesia with respect to -

- The time of requirement for rescue analgesia.
- The total requirement of analgesics in the postoperative period for 24 hours.

Secondary objectives

- The time taken to discharge the patient from the post anaesthesia care unit(PACU) area according to Modified Aldrete scoring.

REVIEW OF LITERATURE

- **BLANCO et al, 2015** conducted a study for postoperative analgesia in patients undergoing caesarean section by using ultrasound guided QL block.There were two groups, one using the local anaesthetic and the other using saline.Results showed that the morphine requirement was decreased and VAS scores were low in the group using local anaesthetics.[2]

- **AVELINE et al, 2011** did a study among 173 patients undergoing hernioplasty with 0.5% levobupivacaine.He studied USG-guided TAP block with blind ilioinguinal nerve block.VAS scores were monitored postoperatively.Patients were followed up and the pain of any type was evaluated for six months.In the patients receiving TAP block, morphine requirement and VAS scores were low.[3]

- **OKSUZ et al, 2017** in this study 53 paediatric patients were evaluated for postoperative pain,who received QL block and TAP plane block for lower abdominal surgeries.After giving general anaesthesia,abdominal blocks were given using 0.5ml/kg of 0.2% bupivacaine and then the incision was put.The FLACC scores were noted and were low in the QL block group.[4]

- **YOUSEF et al, 2018** adult females undergoing total abdominal hysterectomy were divided into two groups.Thirty in each group were randomized.General anaesthesia was given and patient received bilateral QL block or bilateral TAP block.Intraoperative opiod requirement and postoperative VAS scores were higher in the TAP group.[5]

- **BLANCO et al, 2016** seventy six patients undergoing caesarean section were included in this study.They were randomized into two groups.TAP block or QL block was given to these patients with 0.125% bupivacaine at the dose of 0.2 mL/kg bilaterally for postoperative analgesia.Morphine usage was less in QL block group.Patients were monitored for 48 hours.[6]

- **TRAN TM et al, 2009** this study was conducted on 16 hemi abdominal cadaveric specimens.TAP block was given using aniline dye.The T10 to L1 nerves were seen emerging in between the costal margin and the iliac crest.These nerves were soaked in the dye and hence proved that for lower abdominal surgeries TAP block could be given.[7]

- **KENDIGELEN et al, 2016** this study was done in 45 paediatric patients undergoing hernial repair surgeries.The comparision was between ultrasound guided TAP block versus local infiltration of the wound.There was reduction in analgesic needs and VAS scores in the TAP group for 24 hours.[8]

- **MUROUCHI T et al, 2016** the patients undergoing laparoscopic ovarian surgery were selected for this study.QL block with 20 ml of 0.375% of ropivacaine versus TAP block was compared.The peak concentration of ropivacaine,analgesic duration,dermatomal spread were studied among these two groups and was more in QL block group.[9]

- **SONDEKOPPAM RV et al, 2015** this study was done on nine embalmed cadaveric specimens.Ultrasound guided TAP block was given with 30 ml of 0.5% methylcellulose dye.Lateral and subcostal approaches were performed.T7 to L1 dermatomes were soaked with dye in the lateral approach.[10]

- **CARNEY et al, 2011** this study is based on the different approaches of TAP block.They are classic landmark,anterior subcostal,midaxillary and posterior approaches.The analgesic spread in the posterior TAP was from the T5 to L1 levels in the paravertebral space.[11]

- **KADAM V R, 2013** patients undergoing laparotomy were included in this study.QL block was given after the surgery with 25 ml of 0.5% ropivacaine.Patient received general anaesthesia.T8 to L1 nerves were blocked here.[12]

- **RITA CARVALHO et al, 2016** this study includes patients who have undergone hernia surgeries multiple times.To reduce the chronic pain,QL type two block was given on both the sides with 20 ml of 0.2% of ropivacaine.There was reduction in pain and VAS scores after receiving the block.[13]

- **AHMED M et al, 2016** here sixty male patients were included, who were subjected to unilateral hernioplasty.Two groups were randomly allocated.First group received ultrasound guided TAP block with 0.5 ml/kg of 0.25% levobupivacaine and the second group received infiltration with 0.2 ml/kg of 0.25% levobupivacaine.The analgesic duration was more in TAP group and the pain score was reduced.[14]

CLINICAL ANATOMY

ANTERIOR ABDOMINAL WALL

The abdominopelvic cavity is walled by L1 to L5 vertebrae.Anteriorly lies the rectus abdominis muscle. Posteriorly, Quadratus lumborum and psoas major muscles.Anterolaterally, Transversus Abdominis, Internal Oblique and External Oblique muscles.Superiorly covered by the diaphragm and inferiorly limited by the pelvic floor and the perineal muscles.

SUPERFICIAL FASCIA

It is located in between the dermis layer and the abdominal muscles.It is comprised of two layers, camper's fascia(superficial fatty layer) and scarpa's fascia(deep membranous layer).[15]

CAMPER'S FASCIA

It has a large amount of fat.The fibrous septa connects it with the deep membranous layer.It continues caudally with the superficial fascia of the thigh.Linea alba lies to it's medial side.In males, it continues over the external genitalia.In females, it merges with labia majora and the perineum.

SCARPA'S FASCIA

This layer lies above the external oblique muscle.It is comprised of connective tissue and the elastic fibres.It is attached to the linea alba and pubic sumphysis in the middle.Caudally, attached to the iliac crest.Laterally, continues with the fascia lata.In males,it continues with the superficial ligament of penis and in females,into the labia majora.[15]

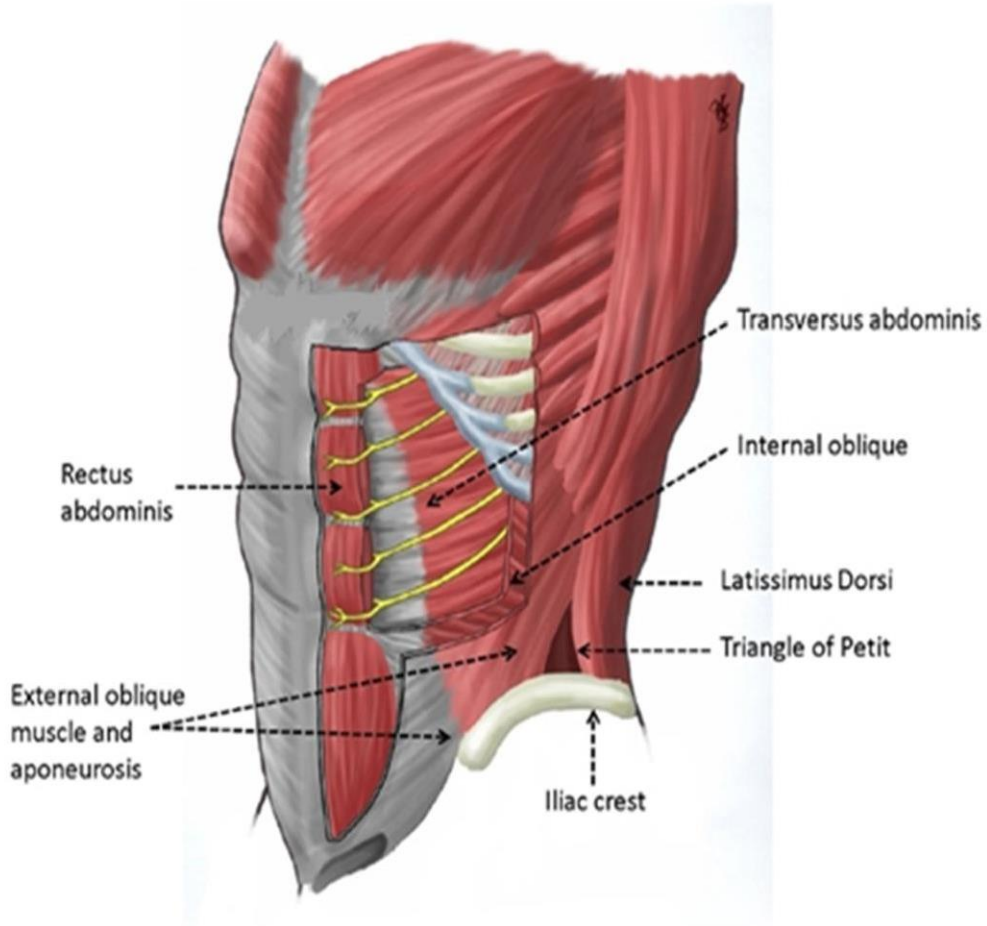


FIGURE 1- ABDOMINAL MUSCLES

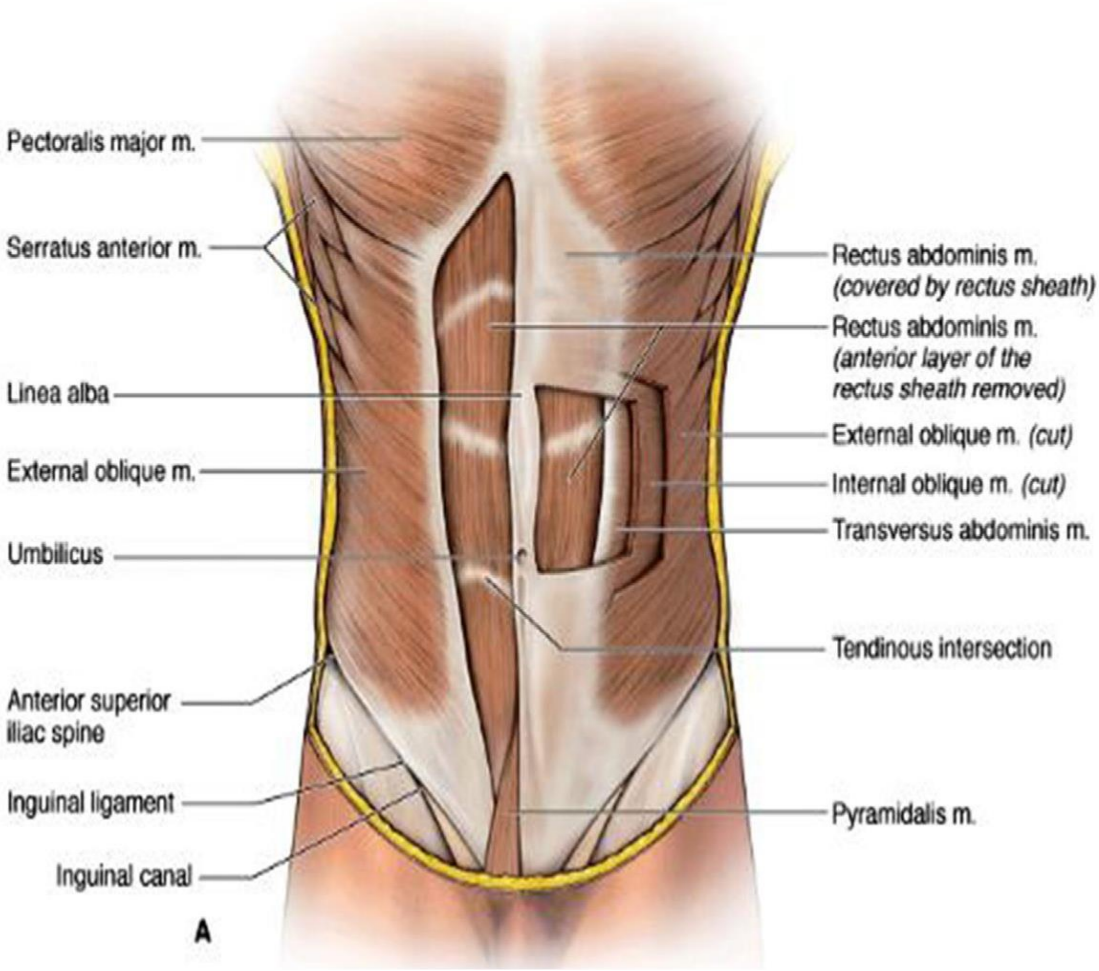


FIGURE 2-ALIGNMENT OF ABDOMINAL MUSCLES

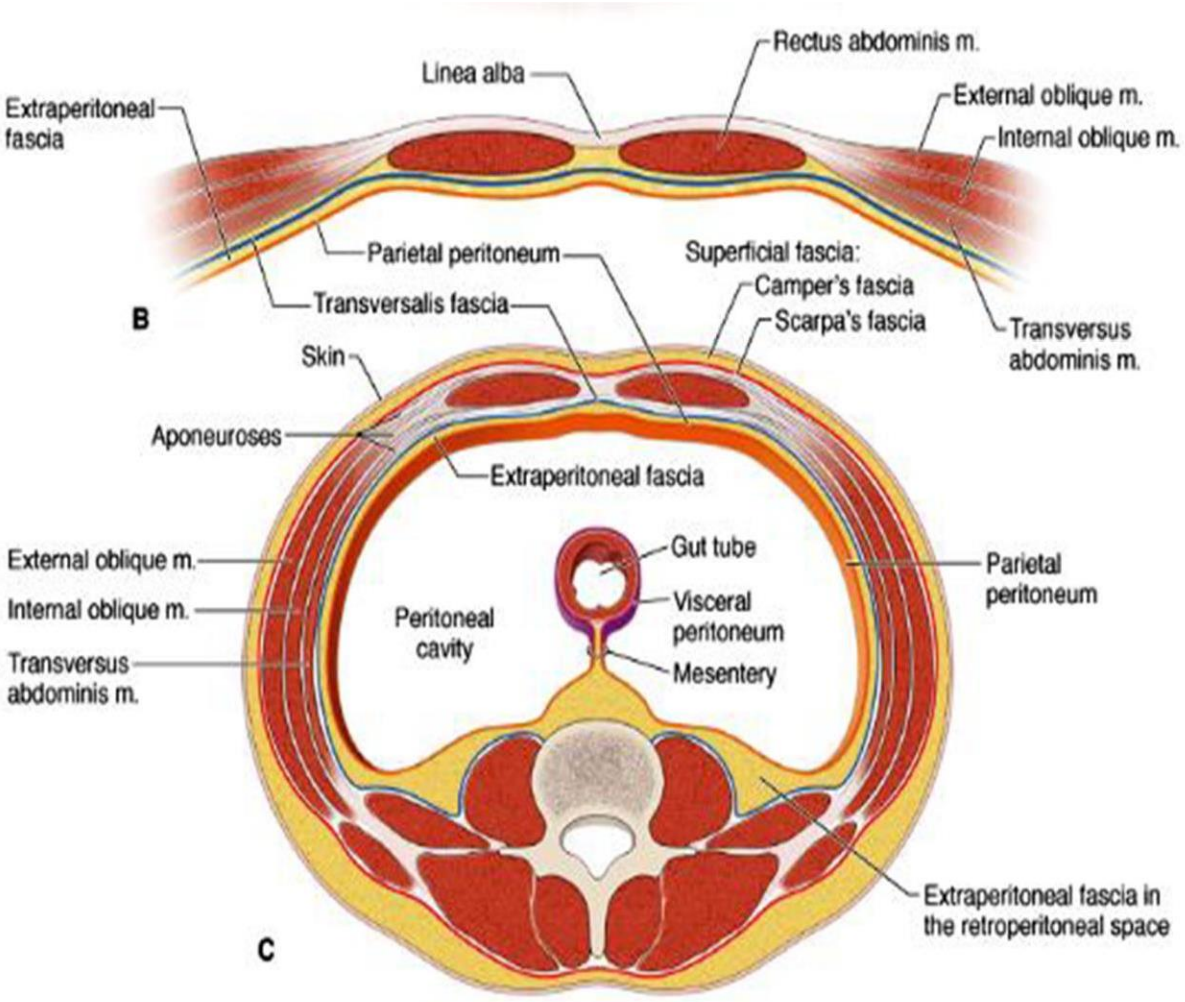


FIGURE 3-TRANSVERSE SECTION OF THE ABDOMEN

TRANSVERSUS ABDOMINIS PLANE

This is a fascial plane between the transversus abdominis and the internal oblique muscles. Nerves are deep rooted here.The aponeurosis of these mucscles fuse and get attached to the thoracolumbar fascia (TLF).

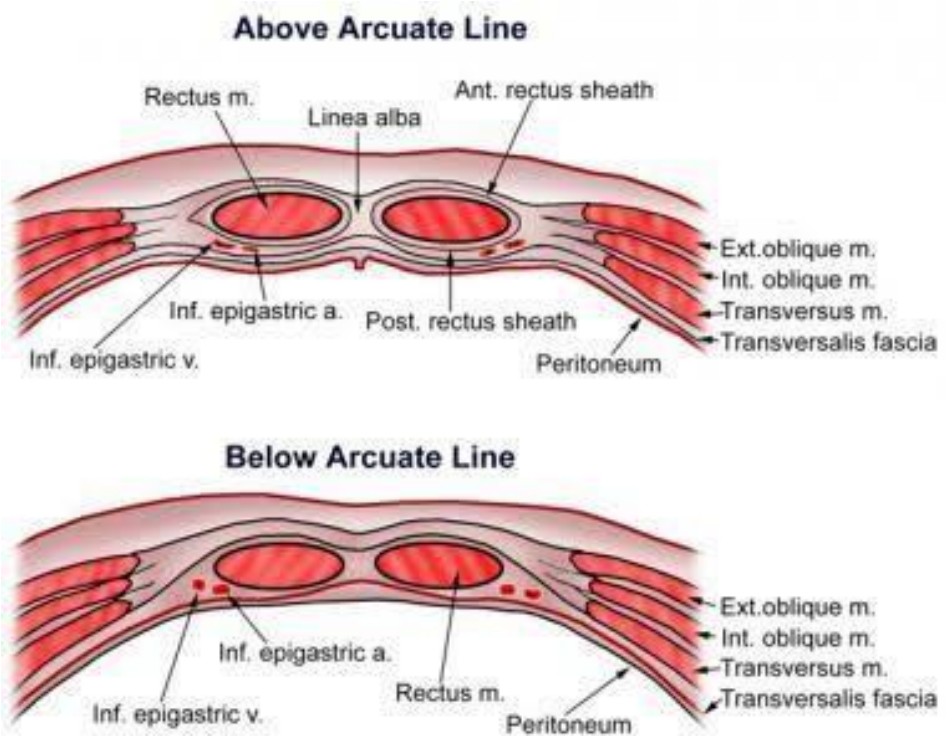


FIGURE 4-ARCUATE LINE

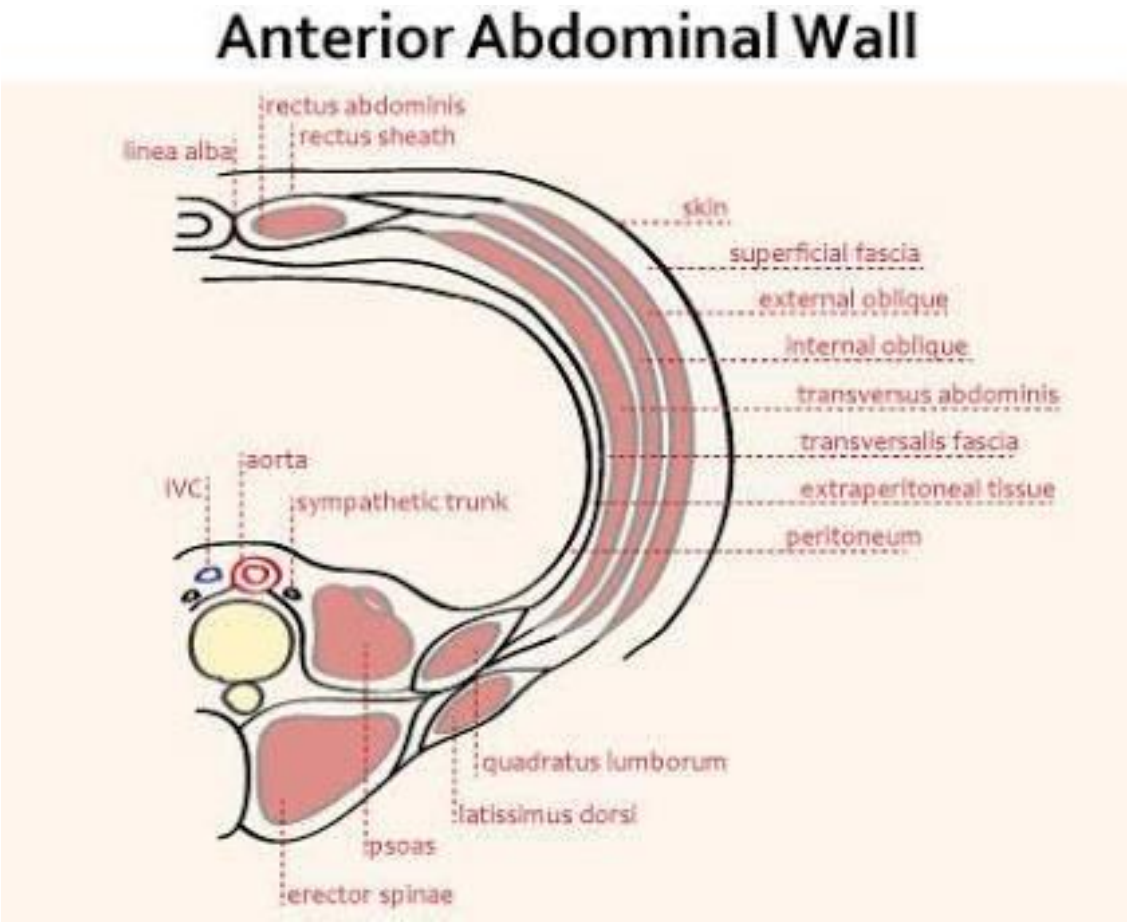


FIGURE 5-ANTERIOR ABDOMINAL WALL

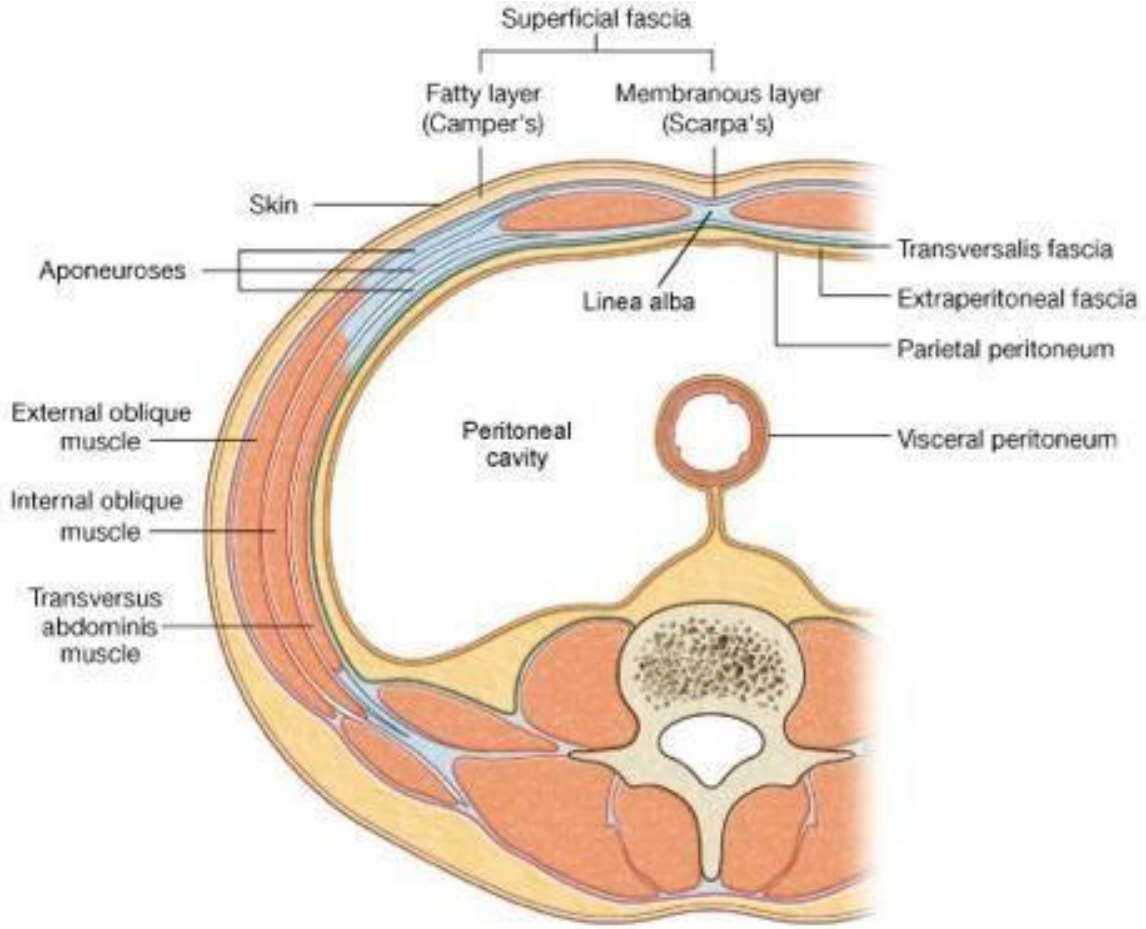


FIGURE 6-TRANSVERSE SECTION OF THE ABDOMINAL MUSCLES

EXTERNAL OBLIQUE

It is the largest muscle which attaches to the lower eight ribs.Then it continues caudally and attaches to the iliac crest.It forms anterior aponeurosis which crosses the midline.The lower margin of this aponeurosis forms the inguinal ligament.

Blood supply is by the deep circumflex iliac artery,intercostal and subcostal arteries.Subcostal and lower intercostal nerves supply it.

It maintains the intraabdominal pressure and the tone of the abdomen.

INTERNAL OBLIQUE

It is located below the external oblique muscle.It originates from the lateral two-thirds of the inguinal ligament and attaches onto the lower six ribs.It blends with the aponeurosis of the transversalis muscle forming a conjoint tendon.

The blood supply and nerve supply is similar to that of the external oblique muscle.

The external oblique of one side along with the internal oblique of the opposite side helps in the lateral flexion of the trunk.

TRANSVERSUS ABDOMINIS

It starts from the iliopectineal arch and continues to join the linea alba.Blood supply is by the epigastric arteries,iliac arteries and the lumbar arteries.The thoracic and lumbar nerves supply it.

LINEA ALBA

It extends from the xiphoid process to the pubis.It is a fibrous raphe.It is originated from the aponeurosis of the Internal oblique and Transversus abdominis muscles.

LINEA SEMILUNARIS

It is a tendinous ridge extending from the ninth rib to the pubic tubercle.It is also called as Spigelian line.It encloses Rectus abdominis muscle.

TRANSVERSALIS FASCIA

It lies in between the transversus abdominis muscle and the extraperitoneal pad of fat.Caudally it merges with thoracolumbar fascia and attaches to the iliac crest.Cranio-caudally it becomes thicker.Extensions of this fascia are the femoral sheath,interfoveolar ligament and ilio-pubic tract.

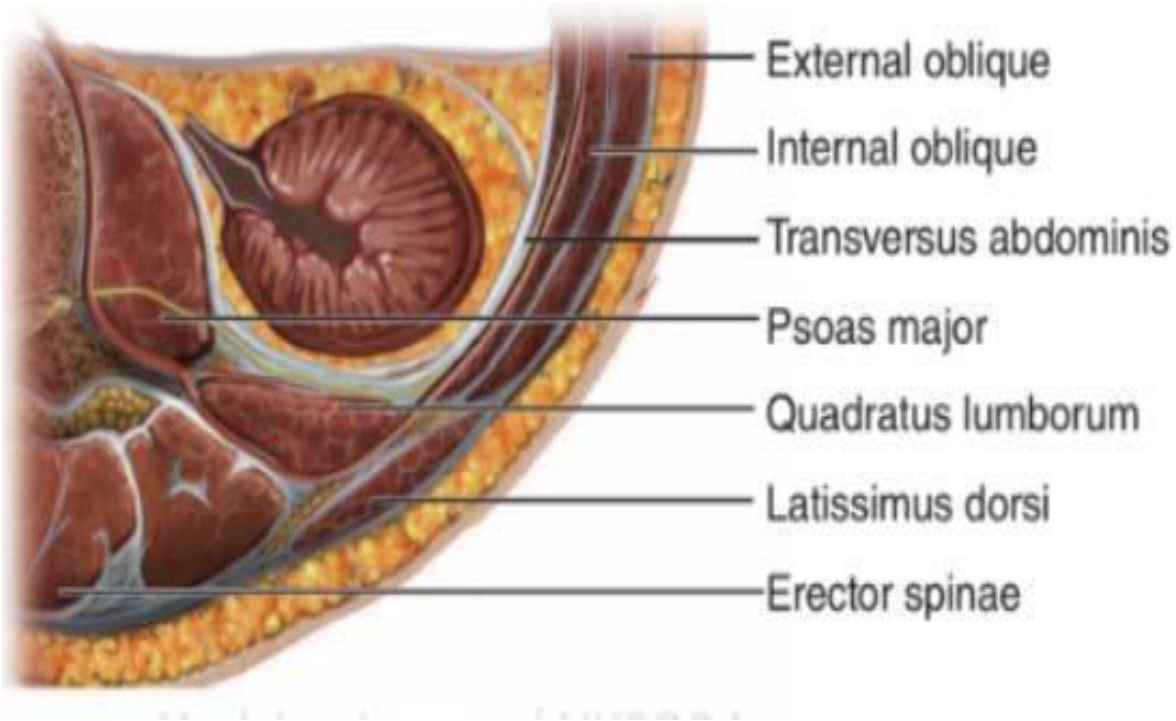


FIGURE 7-ARRANGEMENT OF ABDOMINAL MUSCLES

QUADRATUS LUMBORUM

This muscle is quadrilateral in shape.It arises from the lower surface of the twelfth rib till the iliac crest.It has three fascicles-anterior,middle and posterior.Anteriorly three nerves pass on the fascia,namely subcostal, iliohypogastric and ilioinguinal nerves.Blood supply is from the lumbar arteries,subcostal artery. The nerve supply is from the T12 to L4 ventral rami.

It aids as a muscle of inspiration.Unilateral contraction of the muscle flexes the trunk to the same side while bilateral contraction extends the spine.[15]

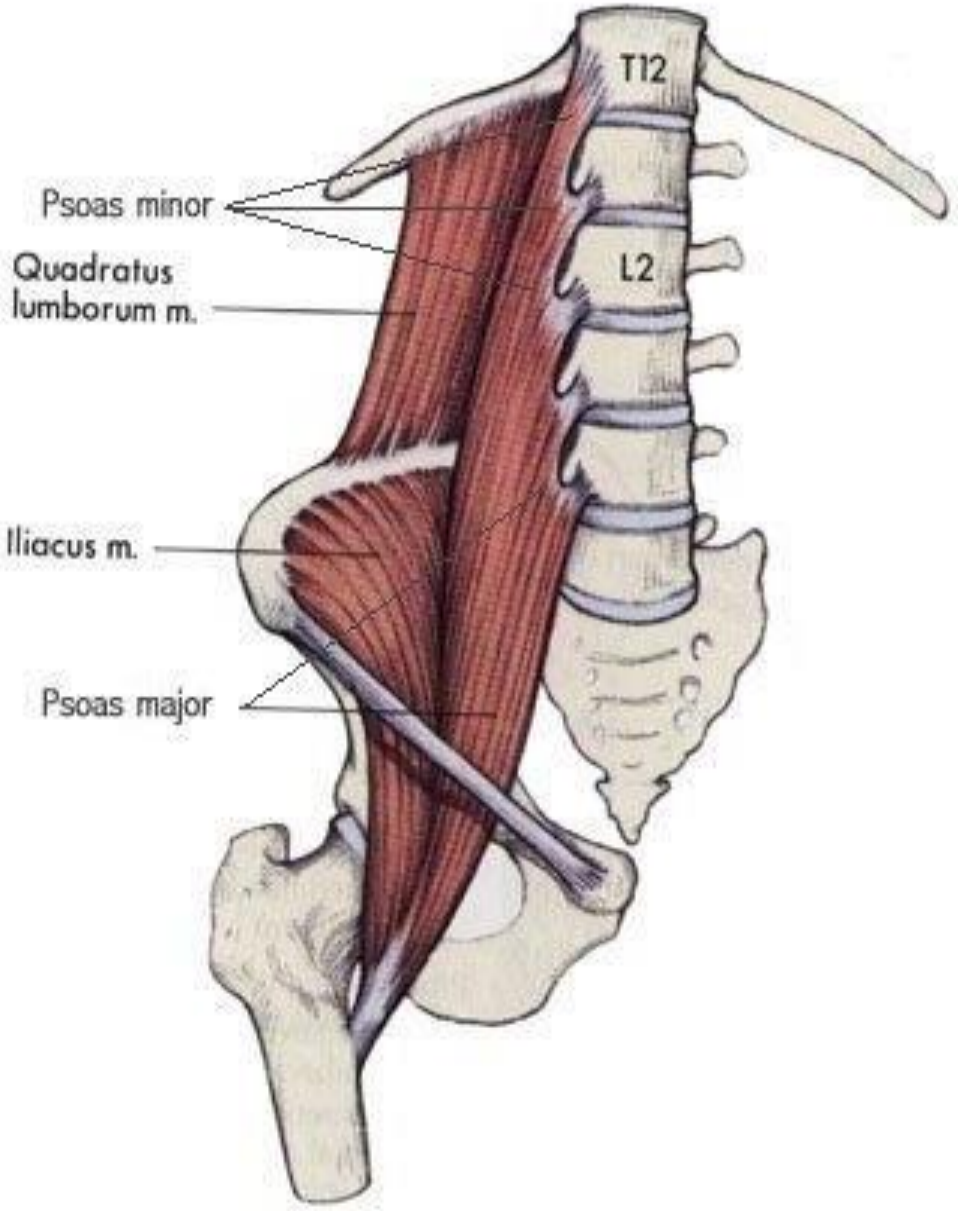


FIGURE 8- QUADRATUS LUMBORUM MUSCLE

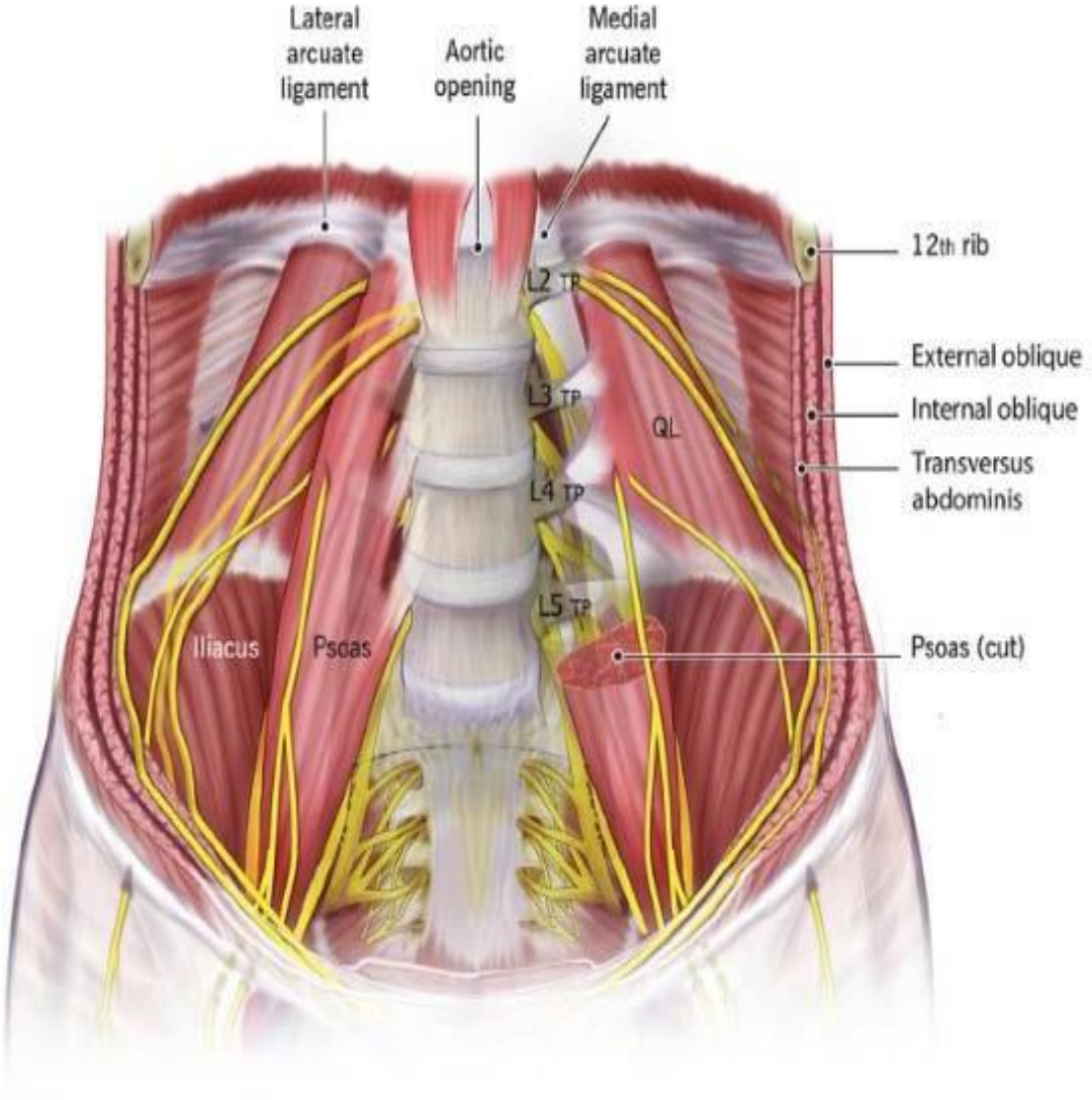


FIGURE 9-CUTSECTION OF THE ABDOMEN

THORACOLUMBAR FASCIA

It is made of multiple fascial layers.It extends from the twelfth rib superiorly to the iliac crest inferiorly.Laterally it merges with the transversalis fascia and to the aponeurosis of transversus abdominis muscle.[15]

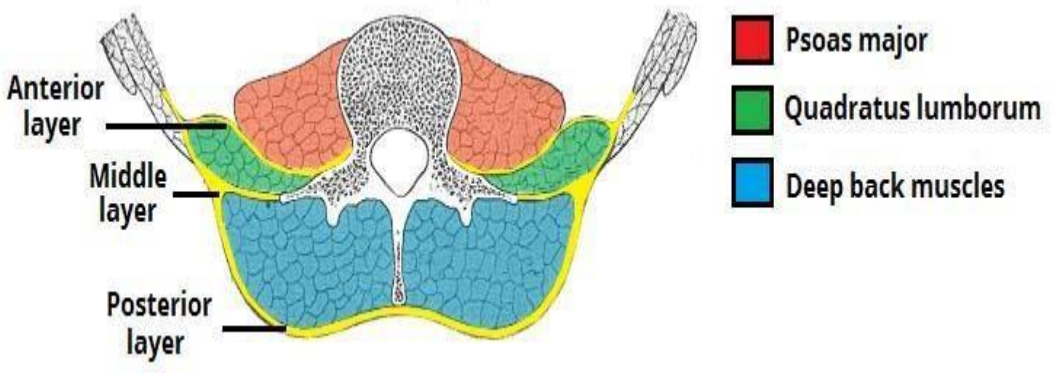


FIGURE 10- THORACOLUMBAR FASCIA

NERVES AND ARTERIES OF ABDOMINAL WALL

The nerves arising from anterior rami of T7 to L1 innervate the abdominal wall.T7 corresponds to xiphoid,T10 to the level of umbilicus and L1 at the groin area.[1]

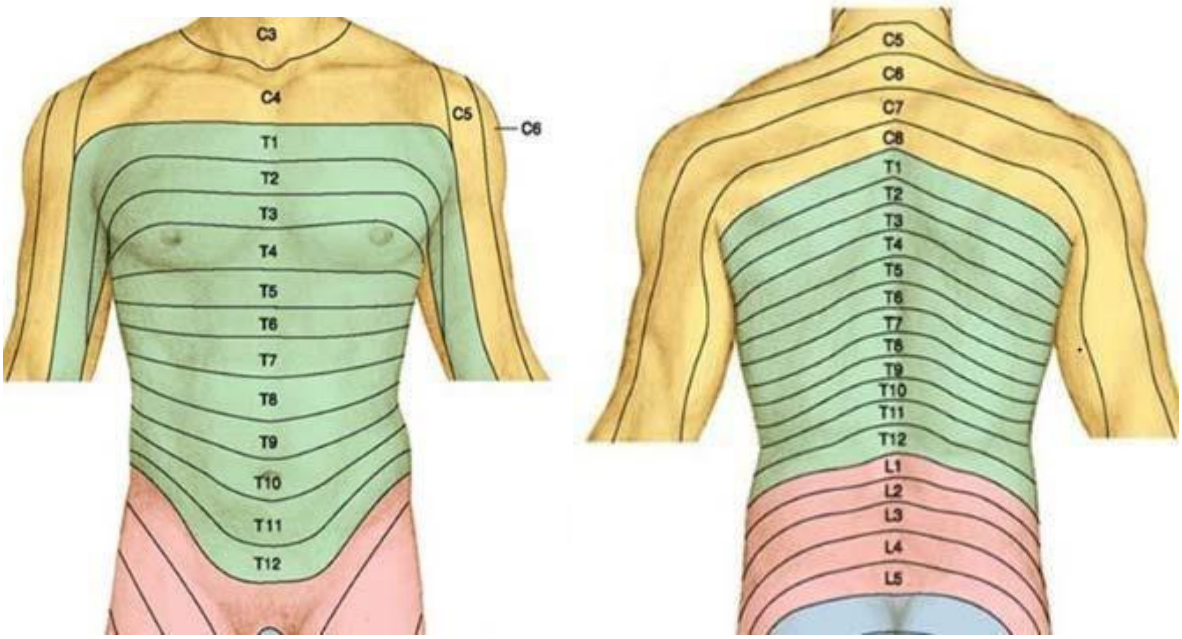


FIGURE 11-ABDOMINAL DERMATOMES

These nerves lie between the intercostal muscles at the thoracic level.They are present in the Transversus abdominis plane.L1 nerve splits up into two namely, ilioinguinal and iliohypogastric nerves.[16]

Blood supply is from epigastric arteries,Iliac arteries and lumar arteries arising from the abdominal aorta.

TRANSVERSUS ABDOMINIS PLANE (TAP) BLOCK

Rafi et al in the year 2001, made use of local anaesthetic deposition in the abdominal layers.

In 2004,McDonnell et al, used the landmark method via the petit's triangle.[17]

Later ultrasound was used to give the blocks by visualizing the anatomical structures.[18]

They can be employed for lower abdominal surgeries below the umbilical level.[19]

This block is contraindicated if,there is patient refusal,allergy,infection at the site.

It may cause any nerve injury[20],bowel injury or local anaesthetic systemic toxicity (LAST) as complications.[21]

NERVE SUPPLY

ANTERIOR ABDOMINAL WALL

The nerves from T9-L1 form the 'TAP Plexus'.[22]

They comprisesof the following nerves-

- T6 to T11 intercostal nerves
- Subcostal nerve
- First lumbar nerve

LUMBOSACRAL PLEXUS

This plexus arises from the T12 nerve and anterior rami of L1 to L4 nerves.It is enclosed within two muscles-Quadratus lumborum and psoas muscles.[23]

The nerves involved in the QL block are-

- Ilioinguinal Nerve
- Iliohypogastric Nerve

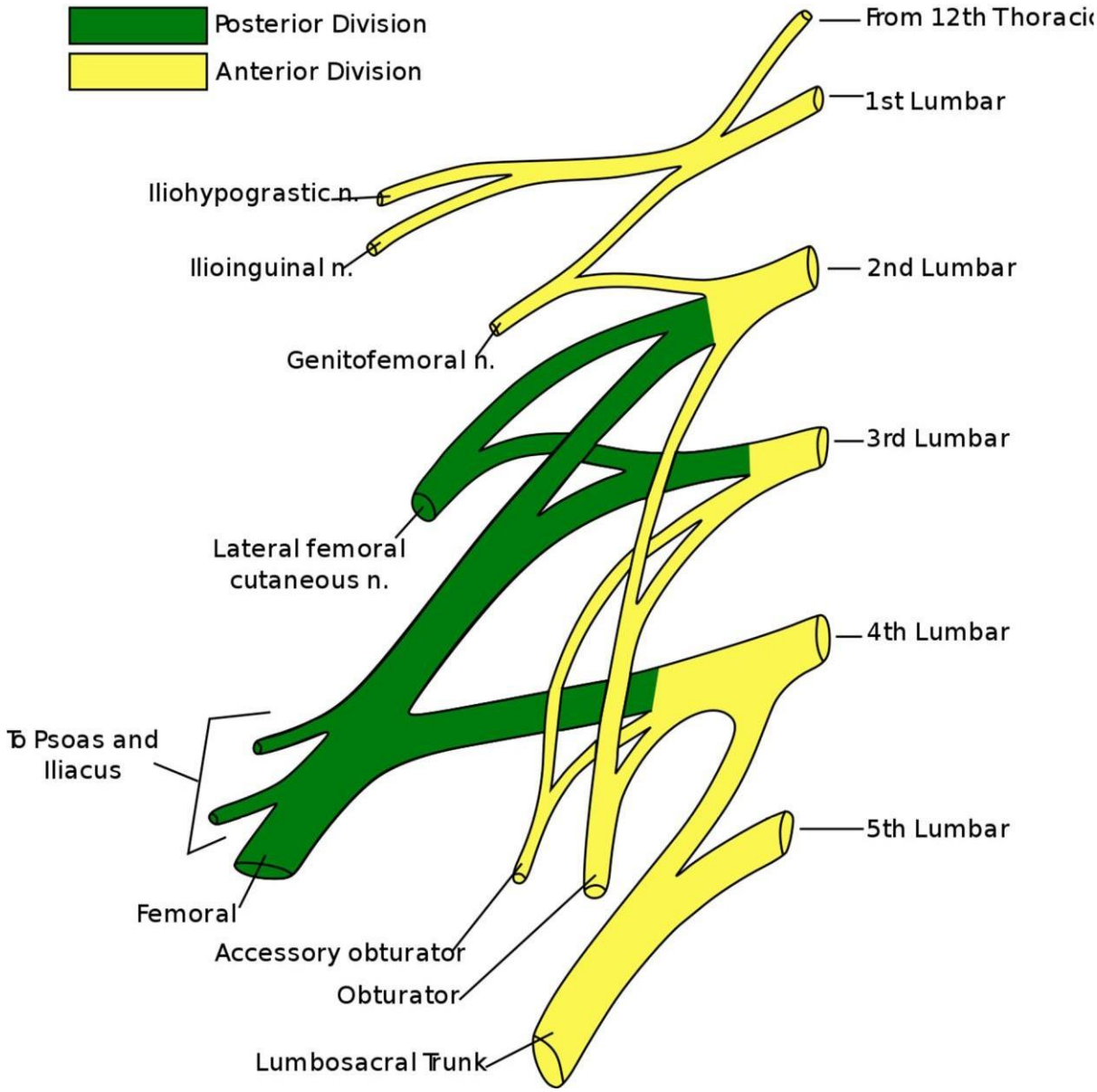


FIGURE 12-LUMBAR PLEXUS

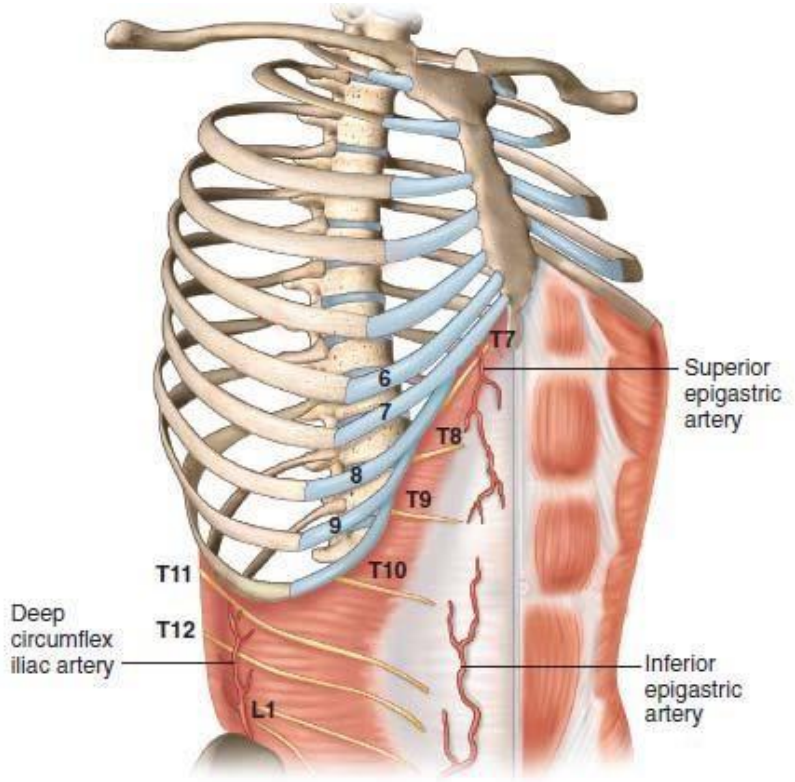


FIGURE 13-VESSELS OF THE TAP PLANE

TECHNIQUES OF TAP BLOCK

LANDMARK METHOD

The site of entry of the block is Petit's triangle.The need has to pierce the external oblique and internal oblique muscles.Two pops are felt as you advance the needle and then the local anaesthetic of 30 ml is deposited.It blocks T6 to L1 spinal nerves.[19]

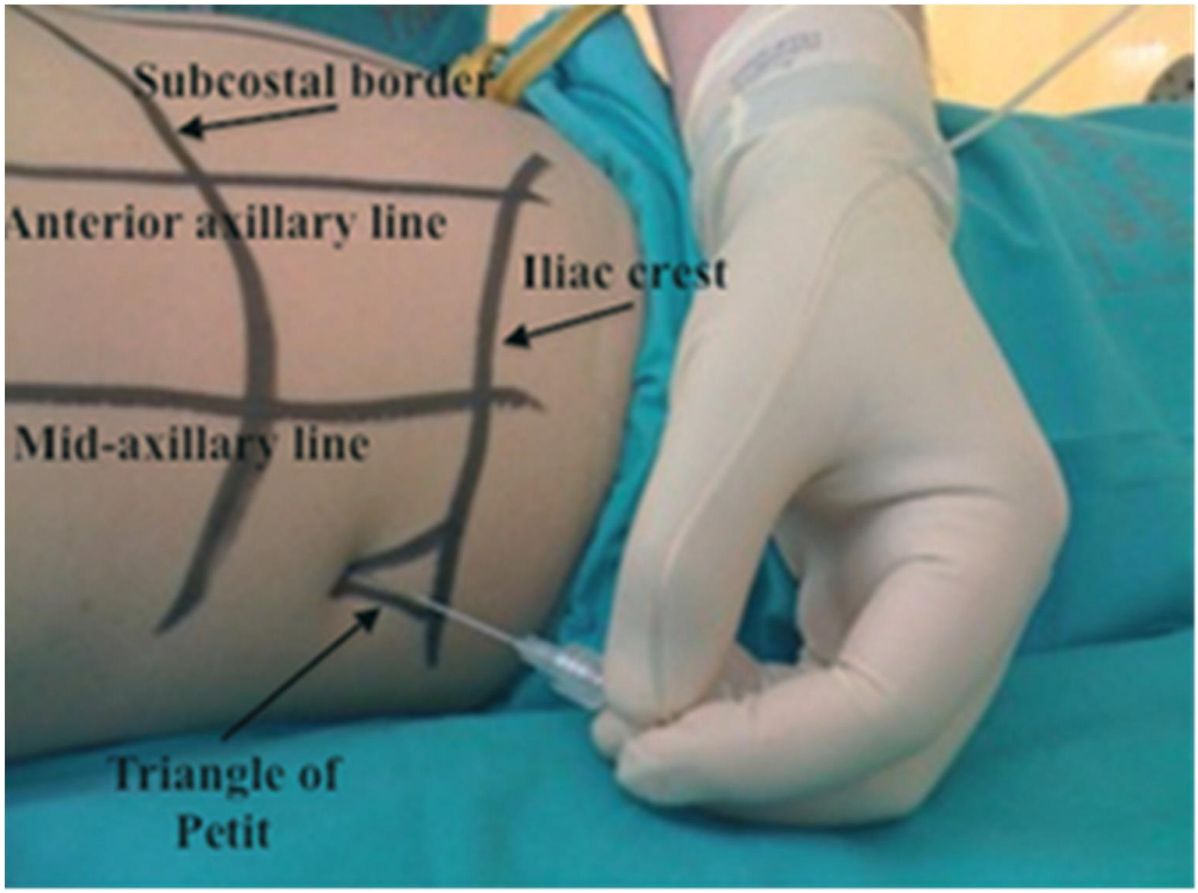


FIGURE 14- LANDMARK TECHNIQUE

USG-GUIDED TAP BLOCK

Hebbard et al in 2007, introduced this method.The patient is made to lie supine.The USG probe is kept above the iliac crest and moved cranially.After identifying the three abdominal layers,needle is visualized and advanced.The local anaesthetic drug is deposited in between the internal oblique and transversus abdominis muscle.The nerves from T6 to L1 are blocked.[10]

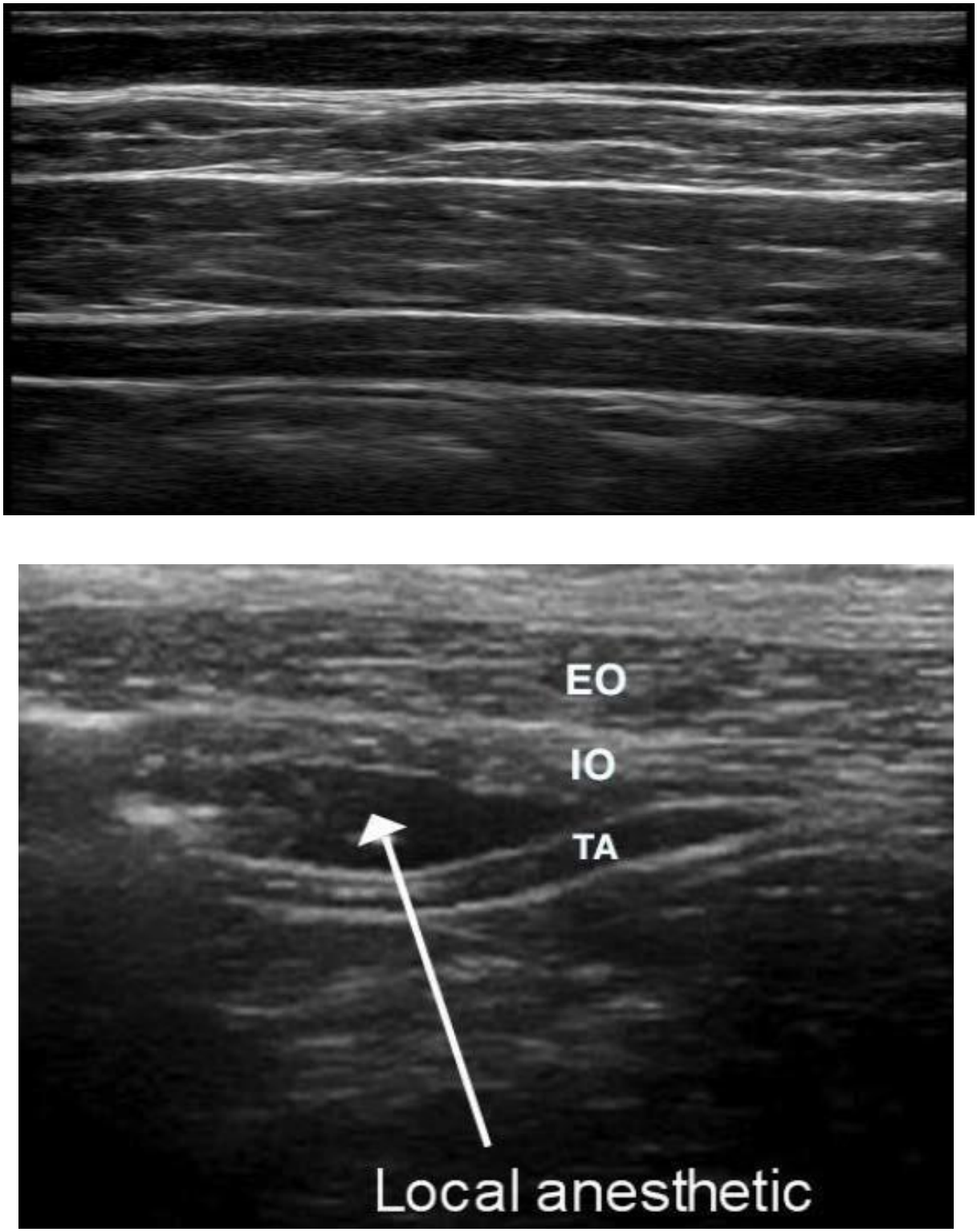


FIGURE 15-TAP BLOCK ULTRASOUND IMAGE

SUBCOSTAL BLOCK

This technique is mainly used to block T6 to T9 dermatomes.The area of interest is periumbilical region.The local anaesthtic drug is deposited between the rectus abdominis and transversus abdominis muscles.[21]

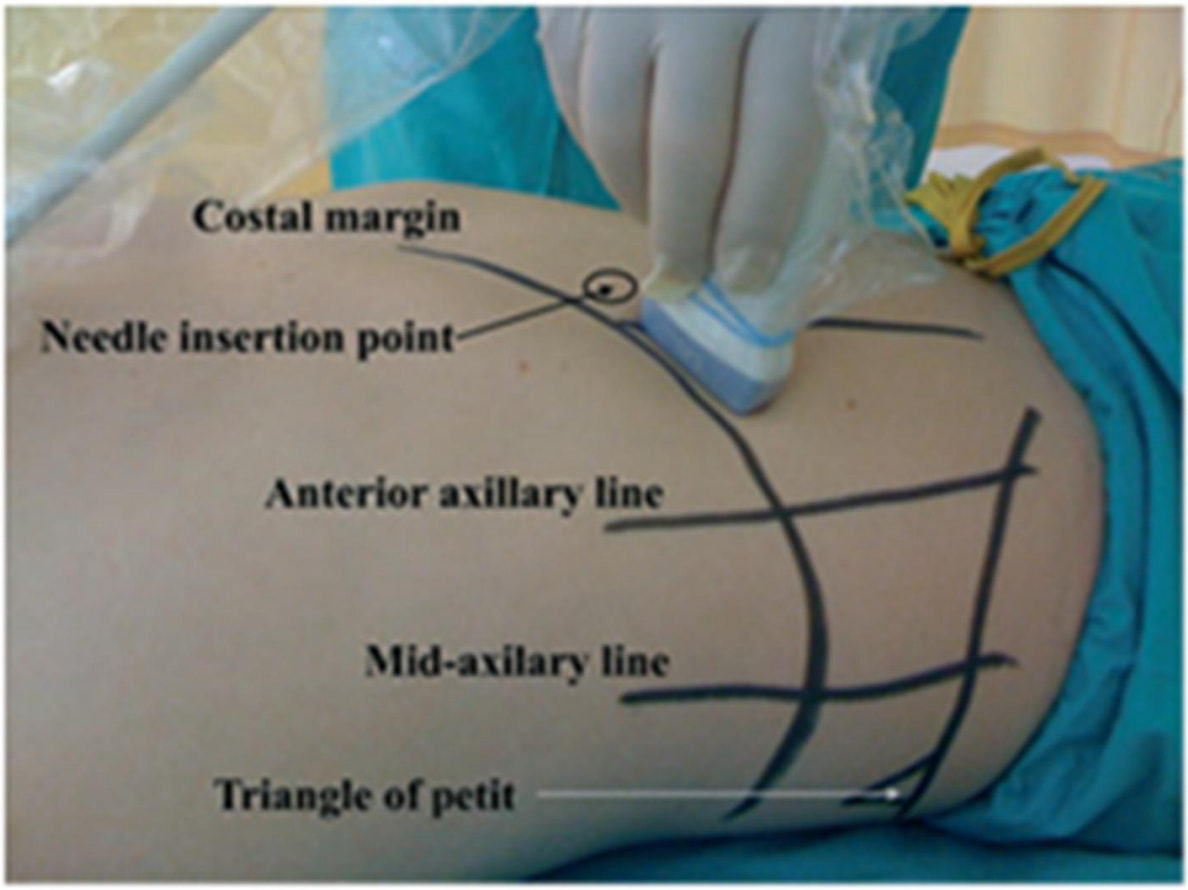


FIGURE 16-SUBCOSTAL TECHNIQUE(LANDMARKS)

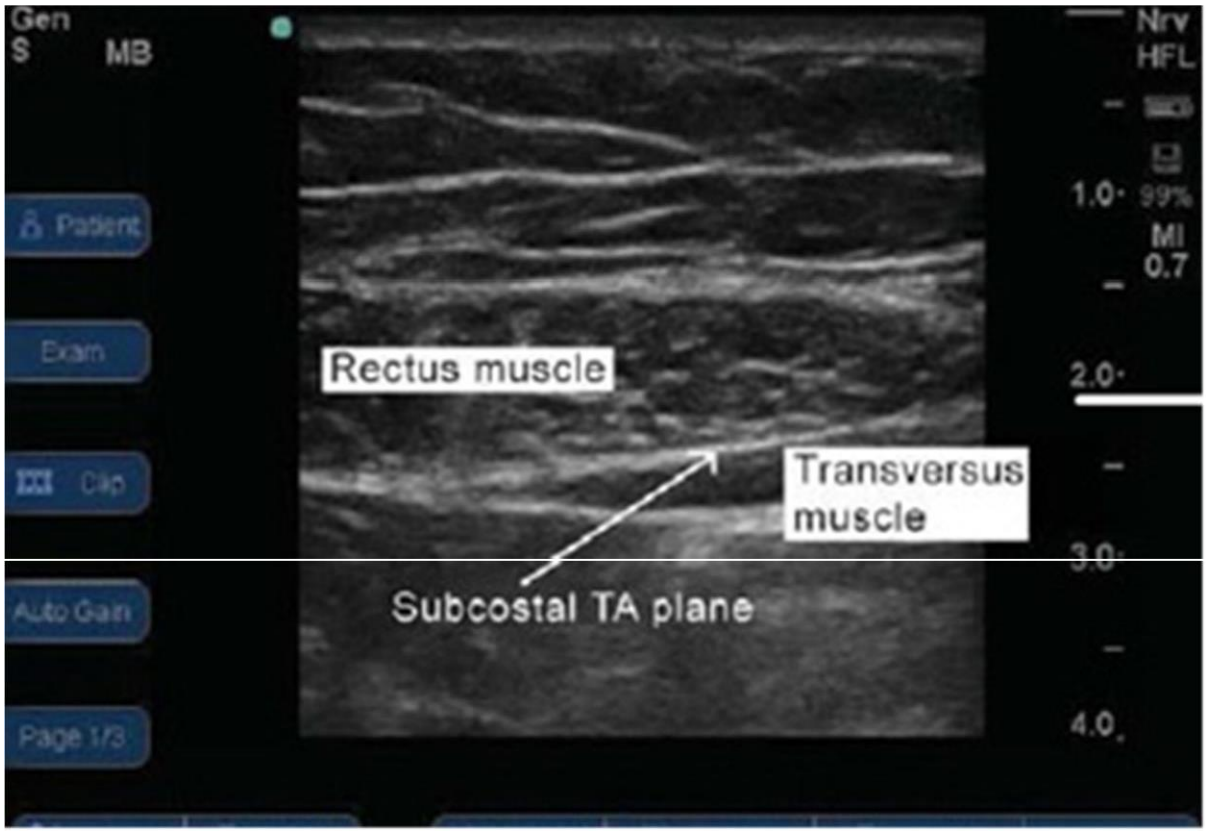


FIGURE 17-SUBCOSTAL TECHNIQUE(ULTRASOUND IMAGE)

POSTERIOR BLOCK

The patient lies in lateral position here.The probe should be placed between the iliac crest and the lower costal margin around the level of umbilicus.The needle is placed in between the transversus abdominis and internal oblique muscles and the drug is deposited.[24]

FIGURE 18-POSTERIOR TECHNIQUE(LANDMARKS)

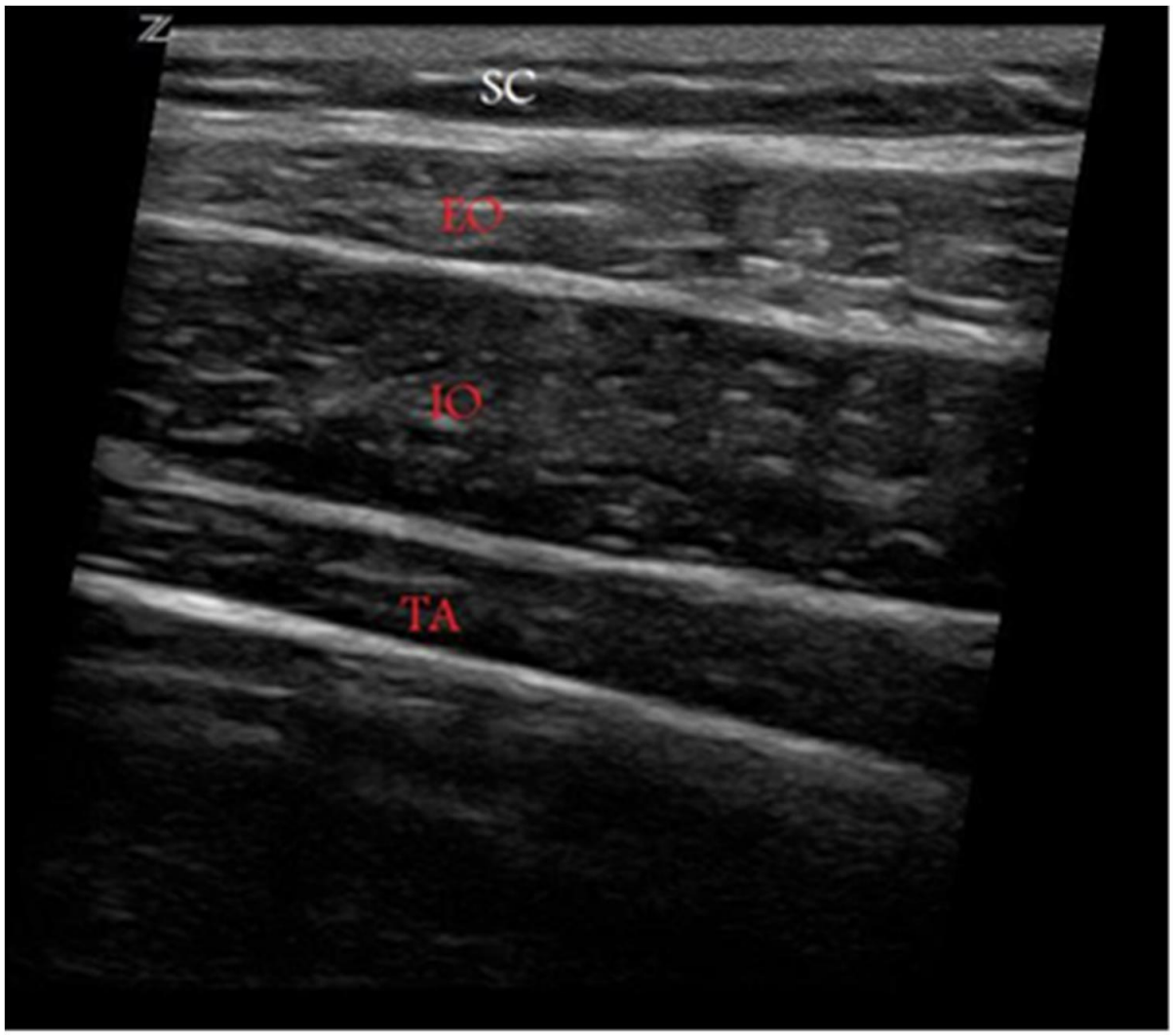


FIGURE 19-POSTERIOR TECHNIQUE(ULTRASOUND IMAGE)

QUADRATUS LUMBORUM (QL) BLOCK

Rafael Blanco,in the year 2007,explained the USG guided QL block.Here we deposit the drug over the anterolateral side of the muscle which blocks the similar dermatomes as TAP block.Visceral analgesia can also be achieved from this block.[25]

R.Blanco explained the type 2 QL block, where the drug is deposited behind the muscle.It spreads in the paravertebral space.[6]

Dr Jens Borglum in the year 2013,described about the transmuscular QL block.He explained about the 'Shamrock sign' for the site of local anaesthetic placement.[26,27]

This block is used for abdominal surgeries like appendectomy, hernioplasty, lower segment caesarean section, total abdominal hysterectomy.

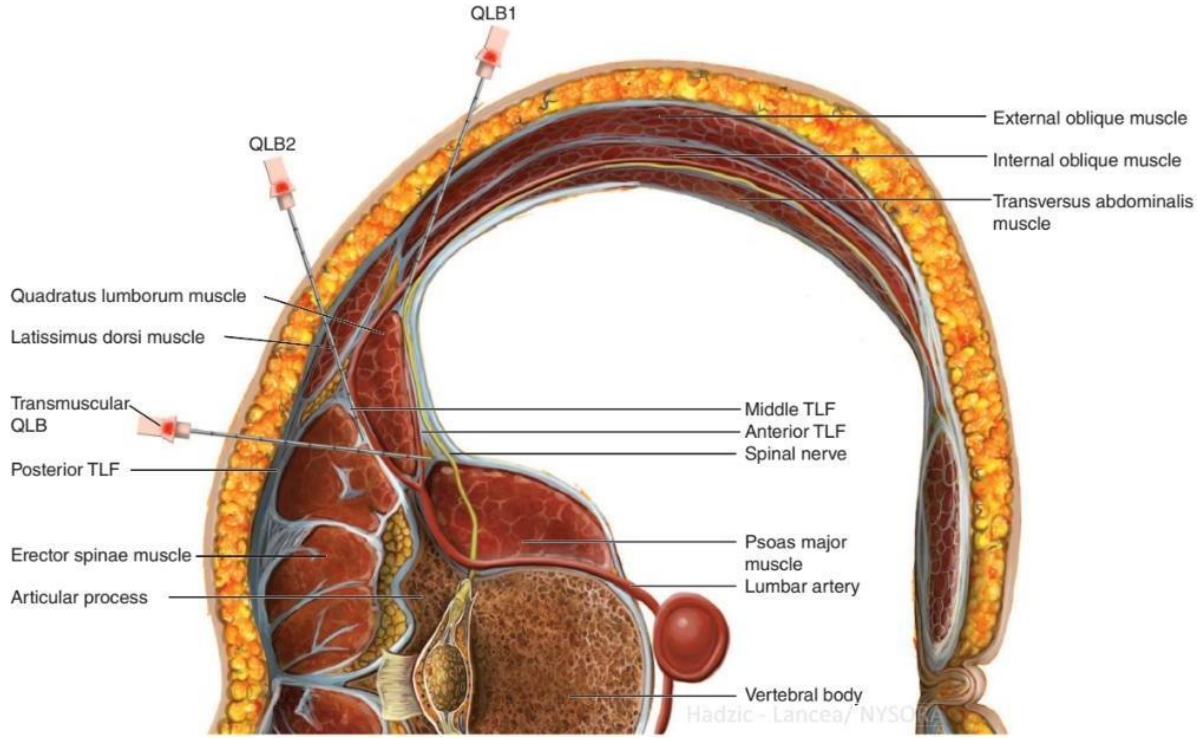


FIGURE 20-APPROACHES TO QL BLOCK

Patient is placed in lateral decubitus position.Hip is flexed. The USG probe is kept above the iliac crest and slided upwards to visualize the three abdominal muscles.Paravertebral muscles are better visualized in this position.

Then the probe is moved posteriorly to visualize the tapering down of the abdominal muscles and appearance of the QL muscle.The movements of abdominal contents with respiration can be appreciated.If we approach posteriorly,the QL muscle is seen as a darker triangular shape attaching to the apex of the transverse process of L4 vertebra,called as Shamrock sign.[29]

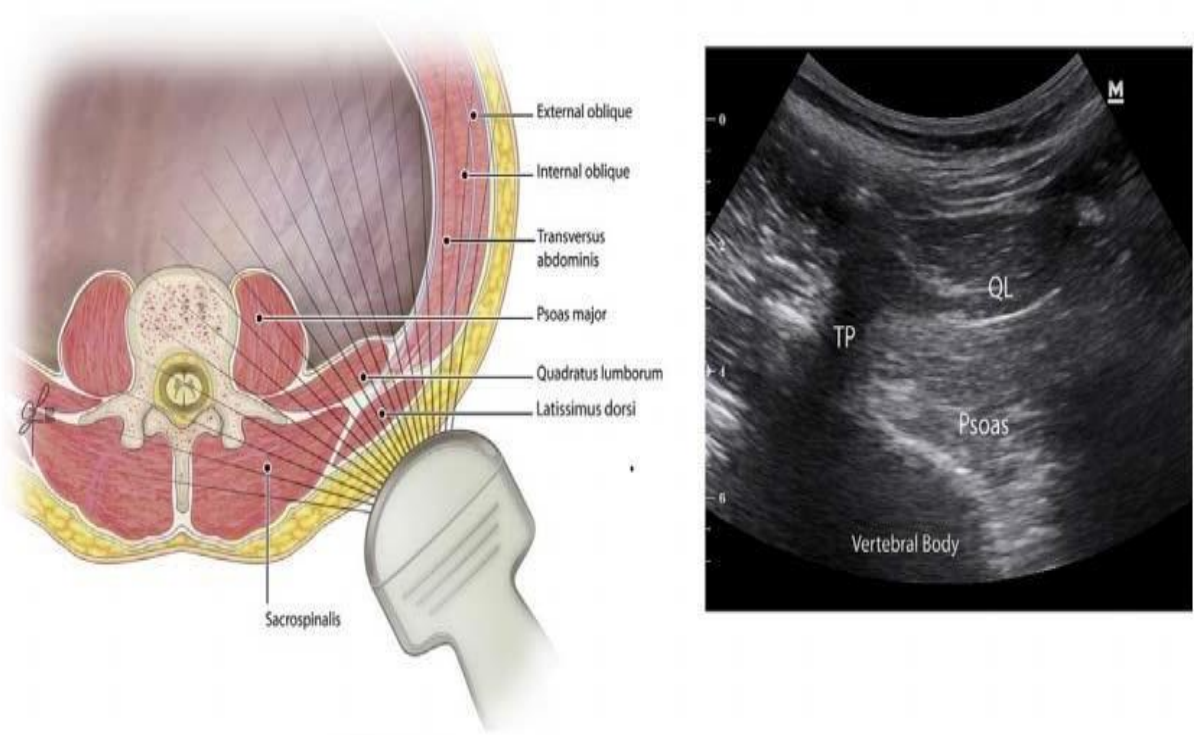


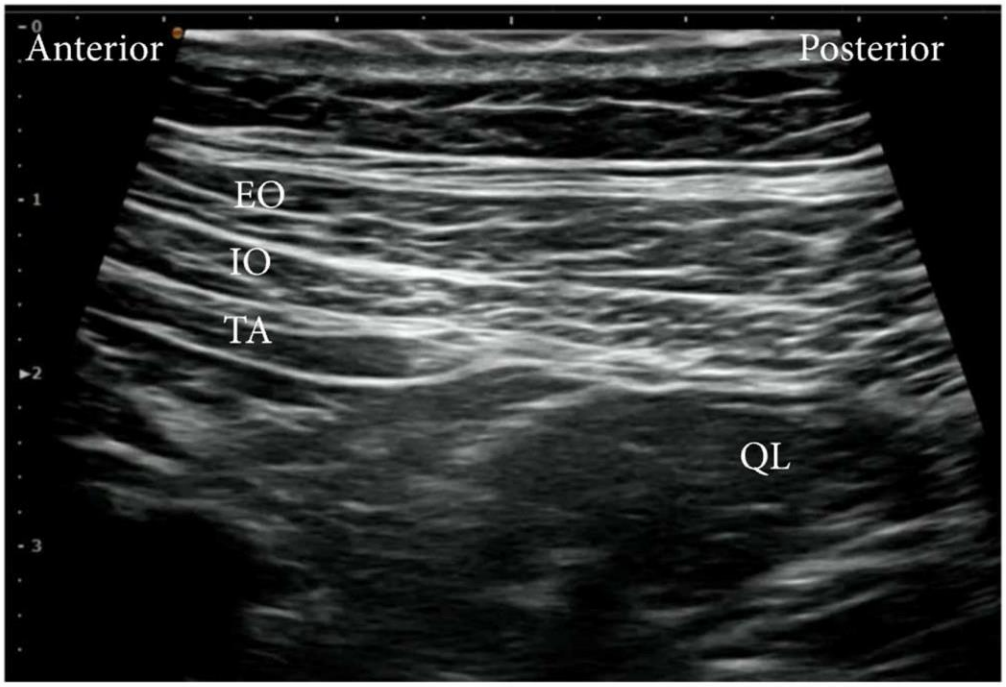
FIGURE 21-QL BLOCK(ULTRASOUND IMAGE)

QL block affects T4 to L1 dermatomes.USG guided block is given.There are 3 types of block.[28] They are-

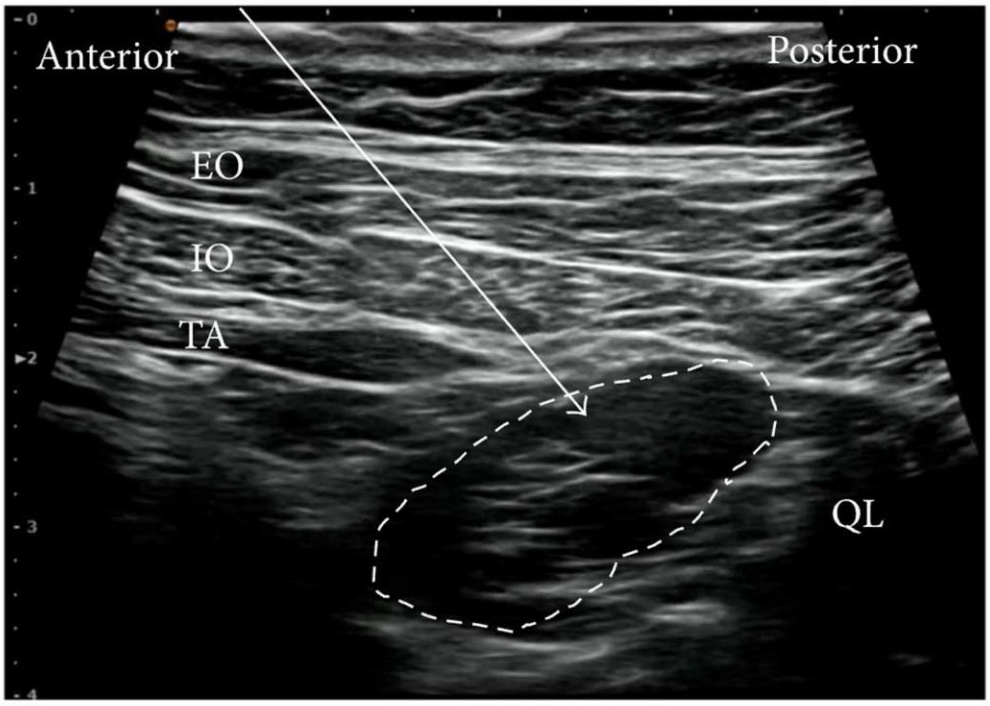
- Type 1 (anterolateral)
- Type 2 (posterior)
- Type 3 (transmuscular)

TYPE 1

In this technique the three abdominal muscles are visualized until they taper and QL muscle appear clearly.The drug is deposited anterolaterally over the muscle.



(a)



(b)

FIGURE 22-QL BLOCK(TYPE 1)

TYPE 2

The needle is directed antero-posteriorly.The drug is placed posterior to the QL muscle,in between the layers of thoracolumbar fascia.This site is called as the lumbar inter fascial triangle(LIFT).[30]

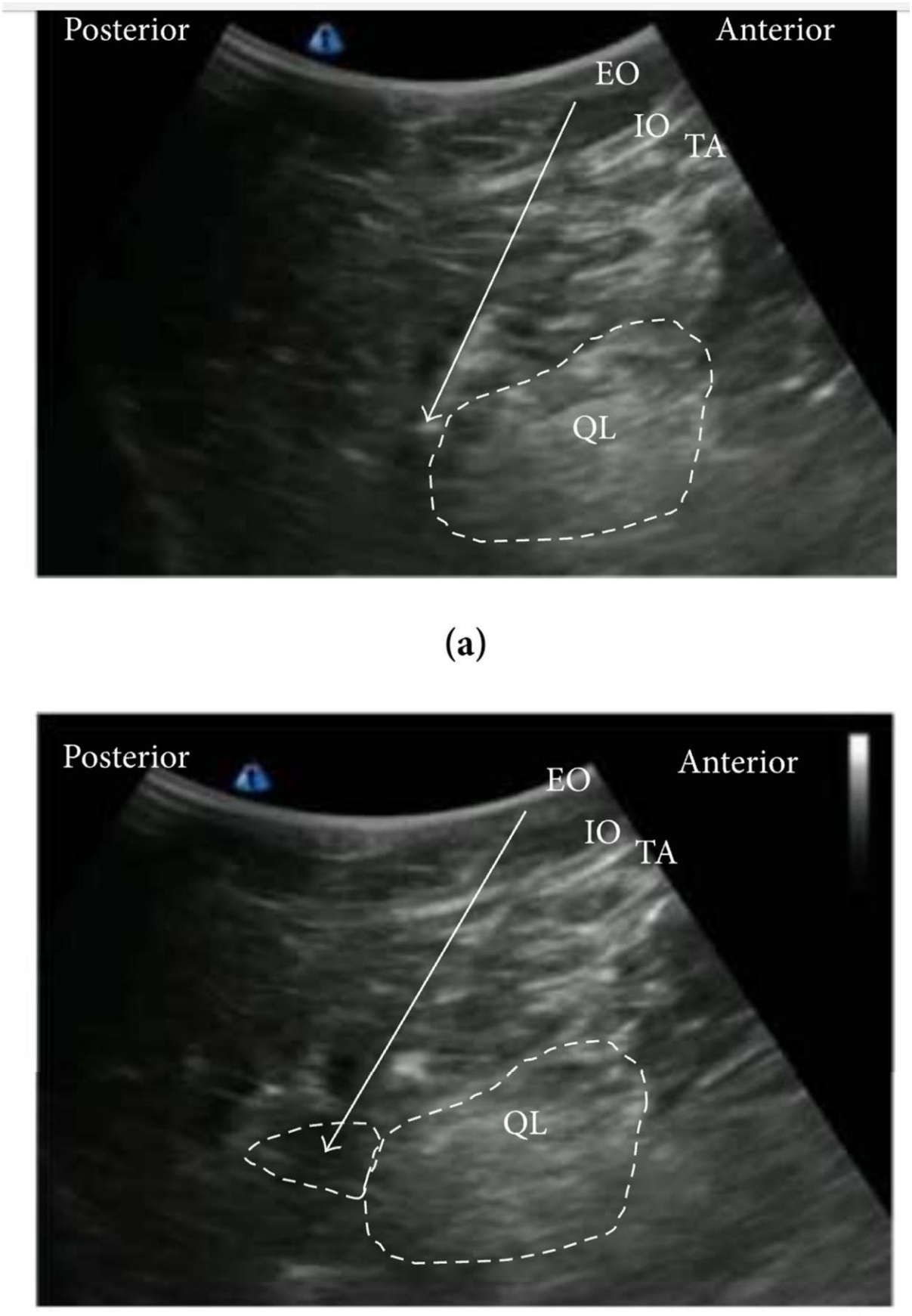


FIGURE 23-QL BLOCK(TYPE 2)

TYPE 3 (TRANSMUSCULAR APPROACH)

Here the drug placement is between the two muscles namely, Quadratus Lumborum and Psoas Major.By advancing the needle more towards intervertebral foramen,lumbar plexus can also be blocked.

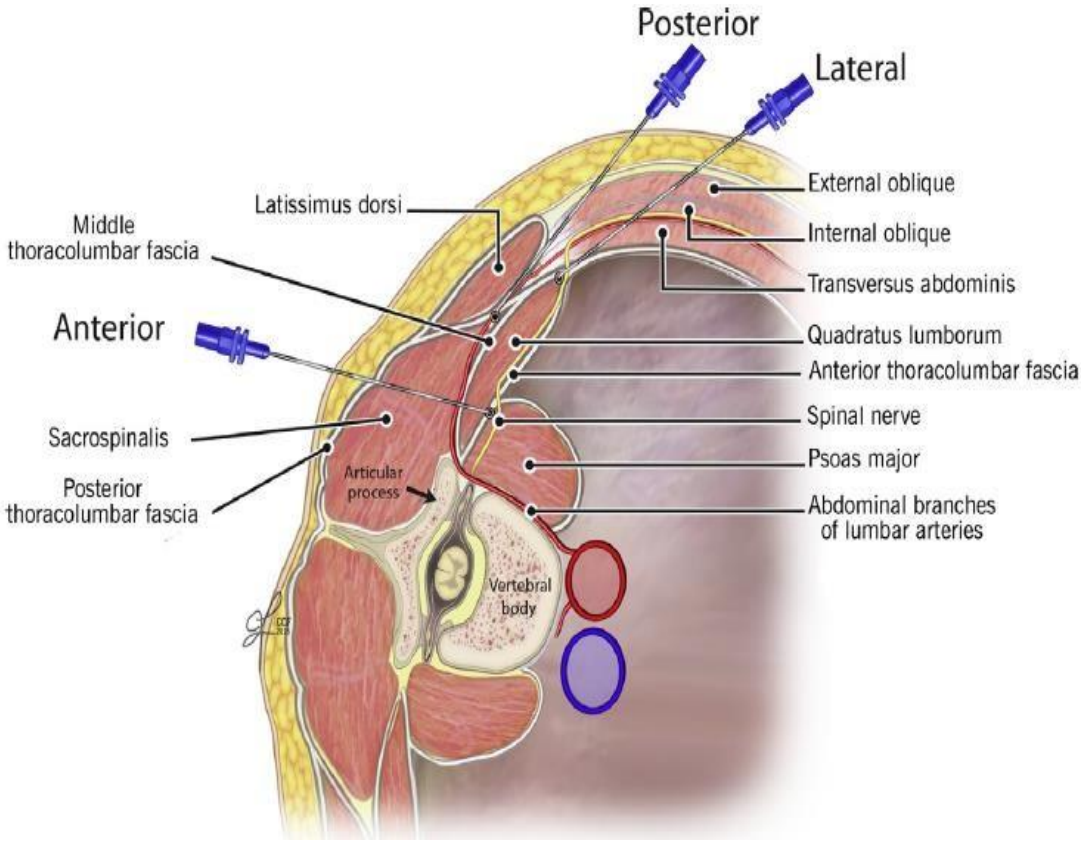
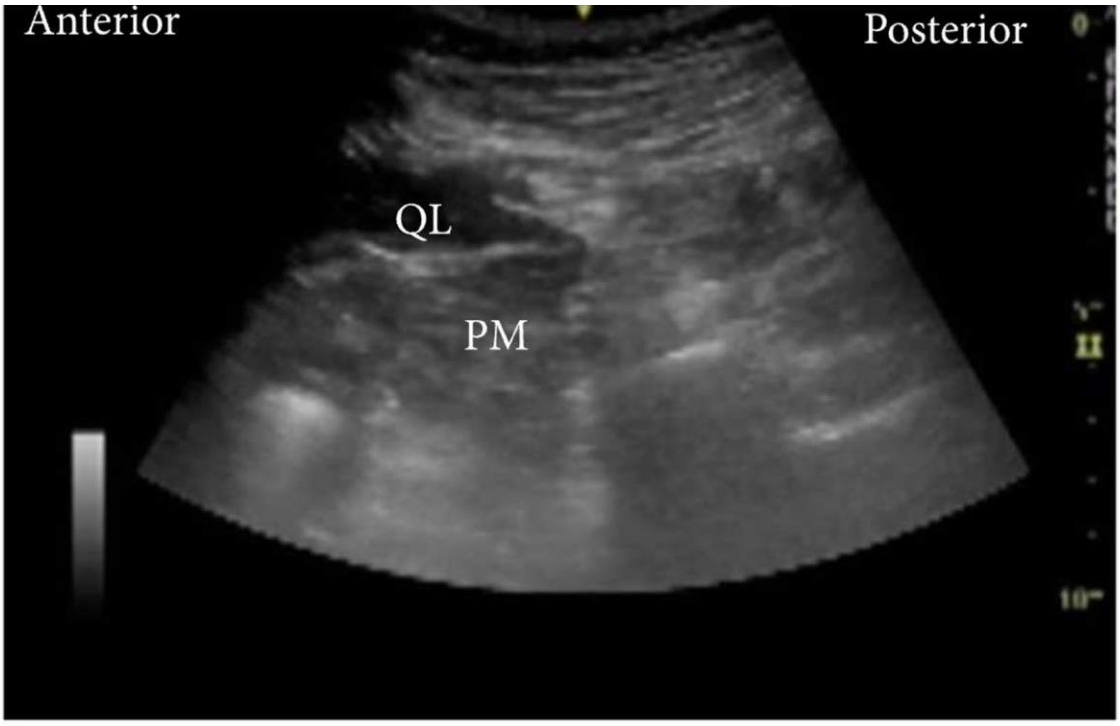


FIGURE 24-TRANSVERSE SECTION SHOWING QL BLOCK



(a)

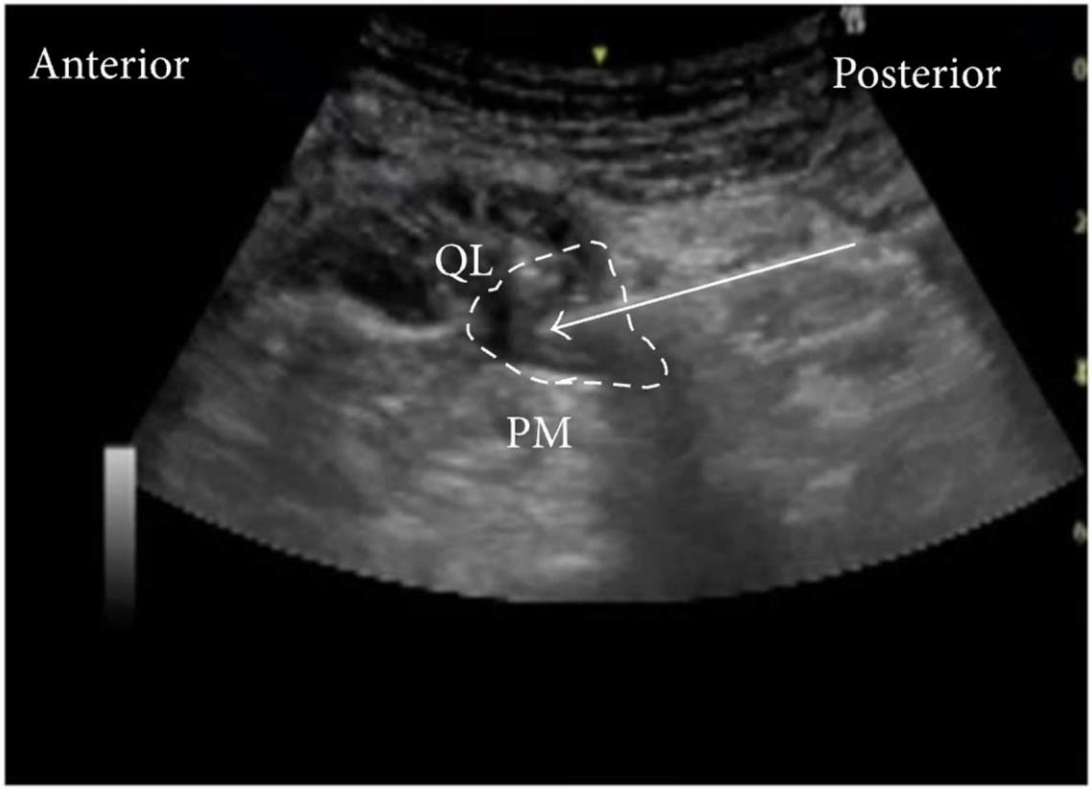


FIGURE 25-QL BLOCK(TYPE 3)

QL block is contraindicated if there is-

- No consent from the patient
- Allergy to the drug
- Infection at the site
- Bleeding diathesis

The complications are-

- Injury to the abdominal organs
- Nerve injury[31]
- Sympatholysis[32]
- Local infection

In QL block,the drug spreads into the paravertebral space which contributes to the visceral and somatic analgesia.[33]

Also the sympathetic fibers and mechanoreceptors over the thoracolumbar fascia,contribute in providing analgesia.[34]

PHYSIOLOGY OF PAIN

Pain can be acute or chronic.It can be a result of any injury,underlying morbidity,abnormal function of any organ.Long standing disease usually cause chronic pain.The visceral pain which is experienced at a location away from its actual site is called as referred pain due to the same embryological origin.[35]

Pain has four components-

- Sensory-conscious perception
- Motor- withdrawal reflex
- Autonomic-tachycardia,perspiration
- Affective-anger

Changes in each organ system due to pain are-

- Heart-tachycardia,hypertension,arrhythmias
- Lungs-oxygen consumption is increased,increase in respiratory rate
- Blood-thrombosis
- Gut-decresed gut motility,ulceration,urinary retention
- Endocrine-increased catecholamines
- Immunology-increased total count
- Psychology-anger,anxiety,decreased sleep

GATE THEORY

Ronald Melzack and Patrick wall,explained this theory.Here,the pain stimulus is not experienced if there is simultaneous stimulation by inhibitory impulses as well.Pain is delivered by A-delta and C fibers.A-beta fibres can override the pain stimulus by delivering information about touch and pressure simultaneously.[35]

Brain can decrease the pain intensity by activating endogenous pain suppression pathways.[35] Neurotransmitters involved are serotonin and enkephalin.

LOCAL ANAESTHETICS

Karl Coller introduced Cocaine in 1884,the first used local anaesthetic.These drugs cause reversible nerve blockages and decreases nerve sensation.They are used to decrease perioperative stress,for early recovery and to treat dysrhythmias.[35]

The resting membrane potential of a nerve fibre is -60 to -70 mv.The main action of these drugs is by inhibiting voltage gated sodium channels,thereby preventing the influx of sodium through these channels.This delays the depolarization causing no action potential.Small diameter nerves are blocked before large diameter nerves.Myelinated nerves are more sensitive than the non-myelinated nerves.The Minimum Effective Concentration(Cm) is the lowest quantity of local anaesthetic required to block the nerves impulses.[35]

Sodium channels have alpha and the beta subunits.They exist in three stages-open,closed,resting.Drugs bind the channels when they are in open state.[36]

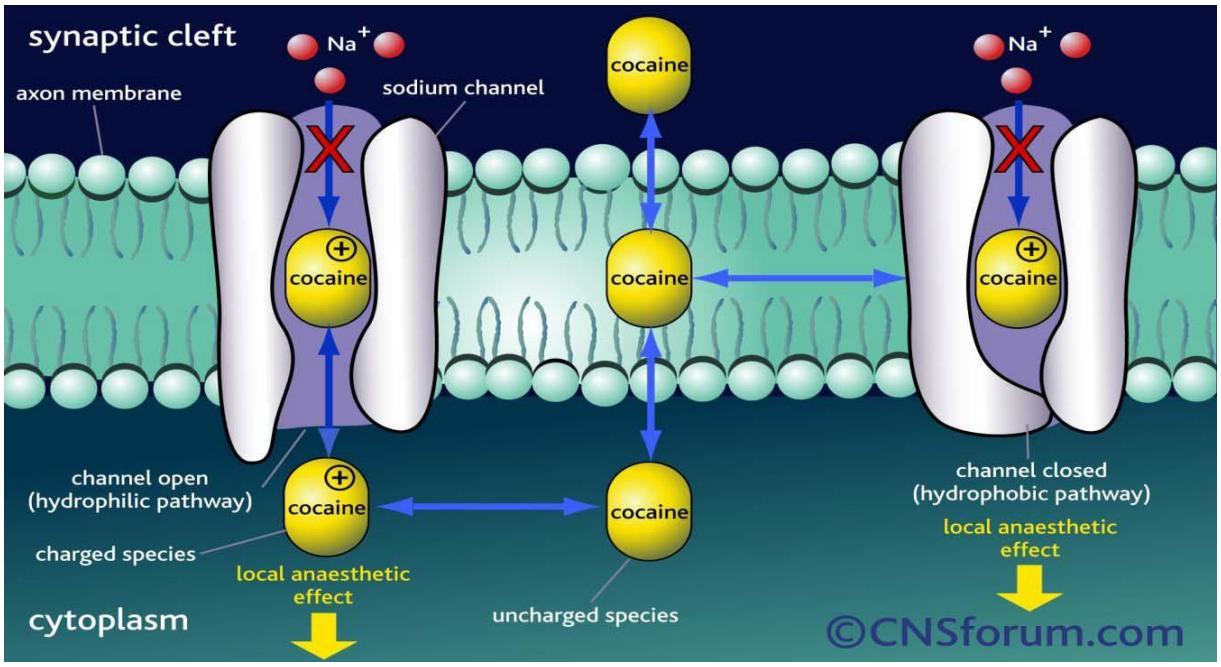


FIGURE 26-SODIUM CHANNELS

More the depolarization, more the probability of sodium channel blockade by the local anaesthetics.This is called as frequency or user dependent blockade.[36]

Motor fibres have twice the 'Cm' as that of sensory fibres. The A fibres and C fibres vary in diameter. The similar concentrations of local anaesthetics block both of them.[37]

The structure of the local anaesthetics contains two groups.A lipophilic group and a hydrophilic group.These two groups are linked by an ester or amide linkage.Depending upon this link they are classifies as esters and amides.Pseudocholine esterase enzyme metabolizes esters and amides by the liver.[35]

pKa is the pH at which there are equal amounts of unionized and ionized molecules.

The drugs having low lipid solubility and less potency acts faster.[36]

Addition of sodium bicarbonate makes the drug more alkaline,making the onset faster.

PHARMACOLOGY OF BUPIVACAINE

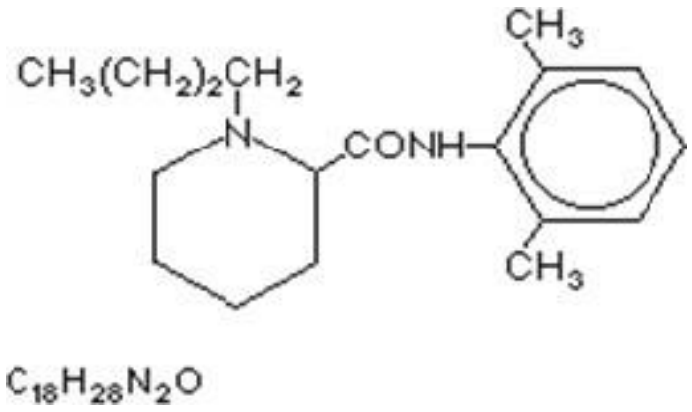


FIGURE 27-BUPIVACAINE STRUCTURE

It is a widely used local anaesthetic drug,first synthesized by Ekenstam in 1957.It was used clinically by LJ Telivuo in 1963.[38]

It has two groups namely,an aromatic ring attached to a tertiary amine by an amide link.It is more potent and lipid soluble drug.The levorotatory form named, Levobupivacaine has less cardiotoxicity comparatively.

PHARMACODYNAMICS

It binds to the voltage gated sodium channels and prevents its conformational changes.The onset of action is delayed but it is more potent compared to the other drugs.Sensory blockade is more evident compared to the motor blockade.

PHARMACOKINETICS

It has a pKa of 8.1.Protein binding is 95% and the site is α1 acid glycoprotein.The onset of action and the duration depend upon the concentration,volume,route of drug administration. The clearance from body is 0.3 L/minute.It is excreted by kidneys.

The dose is 2-3 mg/kg.The concentrations available are 0.25%,0.5%,0.75%.

USES

Spinal,Epidural,Caudal anaesthesia and for peripheral nerve blocks.

They are contraindicated in case of Intravenous regional anaesthesia (IVRA), allergies.

The intravascular injection of the drug unintentionally causes, Local Anaesthesia Systemic Toxicity(LAST).

SIDE EFFECTS

Cardiovascular system-

The drug blocks the cardiac sodium channels.Unintentional intravascular injection causes ventricular tachycardia,fibrillations,arrhythmias, bradycardia, asystole resulting in cardiac arrest.

Central nervous system-

- Circumoral numbness,metallic taste,tinnitus,restlessness,dizziness,tremors.
- May progress to seizures and unconsciousness.

TREATMENT

We need to maintain the oxygenation of the patient by ventilating with 100% oxygen.If needed patient should be intubated.For seizure suppression we can give benzodiazepines.20% of Intralipid emulsion of 1.5 ml/kg bolus should be given.Infusion dose is 0.25 ml/kg/minute.

PHARMACOLOGY OF DICLOFENAC

Diclofenac is a COX-2 selective inhibitor. Lumiracoxib is a diclofenac analogue.[39]

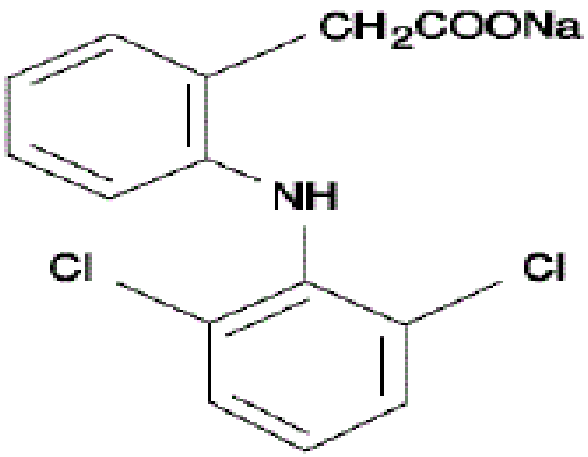


FIGURE 28-DICLOFENAC STRUCTURE

It has the antipyretic,analgesic and anti-inflammatory properties.It is highly potent.

PHARMACOKINETICS

- It is metabolized in the liver by glucuronidation and sulfation.
- It is excreted by the kidneys.
- Half life is around 1-2.5 hours.

USES

- Chronic arthritic pain
- Muscular pain, dysmenorrhea.
- Postoperative pain.

It can be administered via oral,parenteral,topical routes.Transdermal patches are also available.

SIDE EFFECTS

- Pain abdomen,nausea,diarrhoea.
- Asthma, flushing, hypotension, shock due to hypersensitivity.
- May cause oedema due to salt and water reabsorption.

MATERIALS AND METHODS

SOURCE OF DATA

This study was conducted in the Department of Anaesthesiology, B.LD.E(DEEMED TO BE UNIVERSITY)Shri B. M. Patil Medical College, Hospital and Research Centre, VIJAYAPURA. Study was conducted from January 2021 to June 2022.

METHOD OF COLLECTION OF DATA

Study design : This comparative prospective study was carried out in our hospital.

Study Period: One and half years from January 2021 to June 2022.

Sample size

- The sample size is 30 per group (i.e. a total of 60 cases) to achieve a power of > 99% and a level of significance of 1% (two sided), for detecting a true difference in means between two groups.

$$N = 2\left[\frac{(Z_a + z_\beta) * S}{d}\right]^2$$

Z_a Level of significance=95%

Z_β--power of the study=90%

d=clinically significant difference between 2 parameters

SD= Common standard deviation

Total sample size :30 + 30 = 60

Statistical Analysis

- The data was recorded in a Microsoft Excel sheet and statistical analysis was done using statistical package for the social sciences (Version 20).
- Results were presented as Mean±SD, percentages and bar graphs.
- Independent t test was used for the normally distributed continuous variables.
- Mann Whitney U test was used for the non- normally distributed variables.
- Chi square test was used for the categorical variables

P value <0.05 was considered statistically significant. All statistical tests were performed.

INCLUSION CRITERIA

- The age between 30–60 years , posted for total abdominal hysterectomy under general anesthesia.
- ASA Grade I and II.

EXCLUSION CRITERIA

- Local infection at the site
- Allergies
- Coagulopathies
- Patient's refusal for procedure
- Severe obese patients
- Physical or mental issues interfering with the pain scores.

METHODOLOGY

PRELIMINARIES

- Written informed consent was taken.
- Nil per oral status was confirmed.
- Intravenous access was secured with a 20 guage cannula.

PRE ANAESTHETIC EVALUATION

Before taking the patient for surgery,detailed history,general and systemic examination was carried out the previous day.History of any significant medical illness was elicited. Airway, respiratory system and cardiovascular system were assessed.

INVESTIGATIONS

- Complete blood count,Bleeding time, Clotting Time.
- Blood sugars, Blood urea and serum creatinine.
- X-ray-chest and Echocardiography(ECG).
- Serology.

PROCEDURE

The patients were assessed preoperatively.On the day of surgery,after confirming the nil per oral status,patient was shifted onto the surgical table. Non-invasive blood pressure,pulse oximetry,ECG leads were attached and basal values were recorded.

- Patients were induced with the analgesic, fentanyl (1 µg/kg),the induction agent, propofol (2 mg/kg) and the muscle relaxant, atracurium (0.5 mg/kg).
- Patient was intubated with the required size ETT.
- Volatile anaesthetic such as isoflurane 1% to 2% was used with 100% of oxygen.
- Patients were randomized between the two groups.
- Before taking the surgical incision,anaesthesiologist performed bilateral abdominal block.
- After confirmation of the needle tip by negative aspiration, an injection of 20 mL of 0.25% bupivacaine was deposited.
- Intraoperatively,the total usage of opiods and muscle relaxants were noted.
- Smooth extubation was carried out.
- Postoperatively the time for rescue analgesia was noted.
- VAS scores were monitored for 24 hours.If it is >3, then intravenous dose of Injection.Diclofenac was given.
- Modified Aldrete score was noted till the time patient stays in the post anaesthesia care unit.

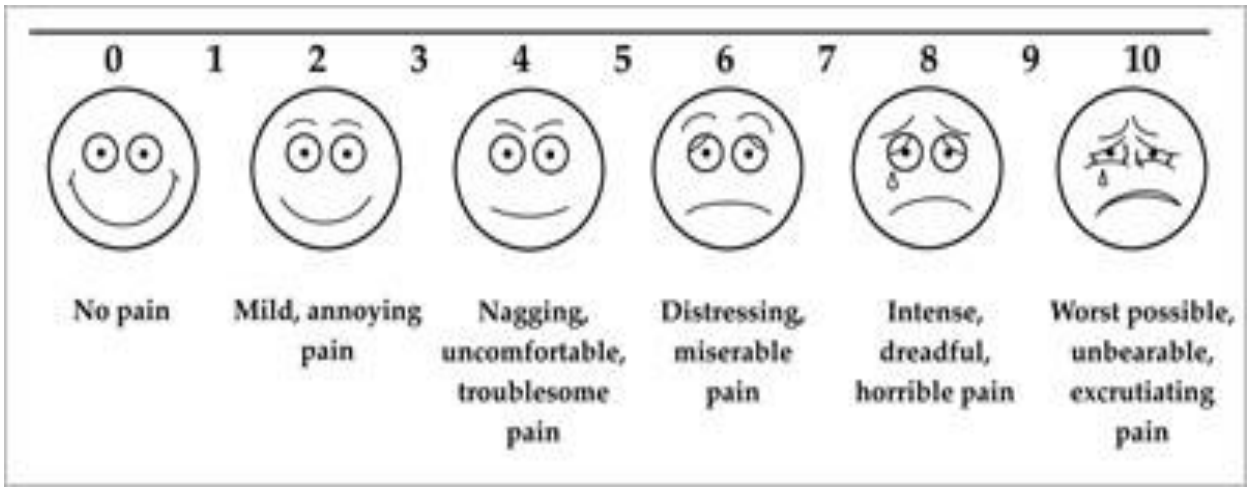


FIGURE 29- VISUAL ANALOGUE SCORE

Assessment items	Condition	Grade
Activity, able to move, voluntarily or on command	4 extremities	2
	2 extremities	1
	No	0
Breathing	Able to breathe deeply & cough freely	2
	Dyspnea, shallow or limited breathing	1
	Apnea	0
Consciousness	Fully awake	2
	Arousable on calling	1
	Unresponsive	0
Circulation (BP)	±20% of pre-anesthesia level	2
	±20% to 49% of pre-anesthesia level	1
	±50% of pre-anesthesia level	0
SPO_2	Maintains SpO_2 >92% in ambient air	2
	Maintain SpO_2 >90% with O_2	1
	Maintain SpO_2 <90% with O_2	0

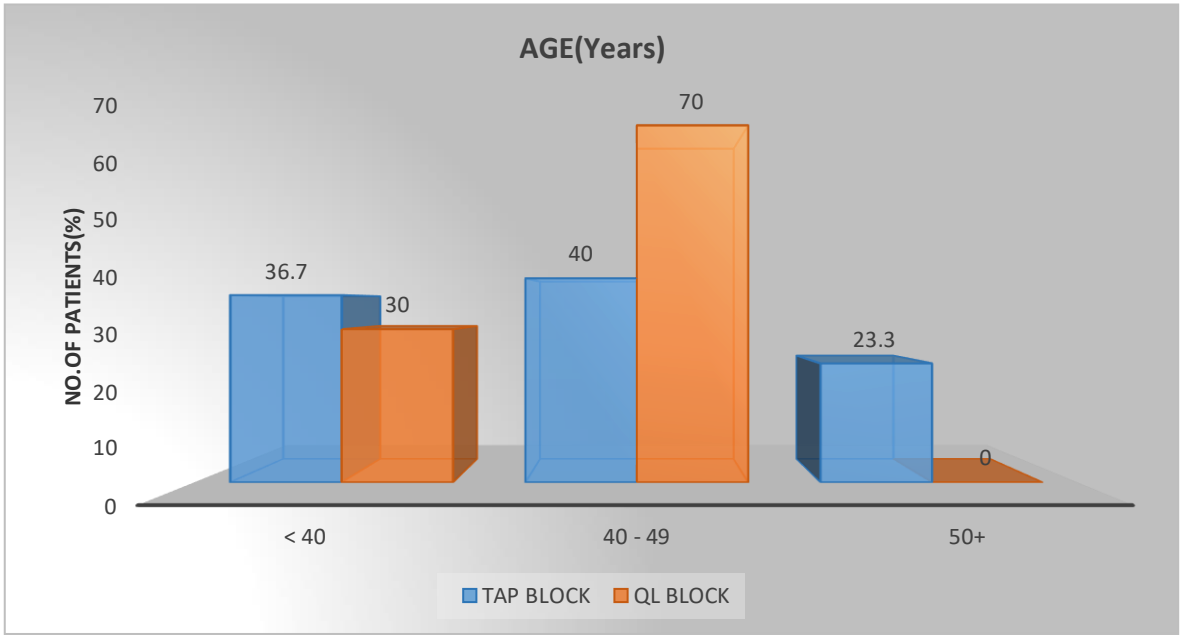
FIGURE 30- MODIFIED ALDRETE SCORE

OBSERVATION AND RESULTS

- The data collected from my study was listed in the Master Chart.
- The total sample size is 60 (30 in each group).
- Group 1 is TAP group and group 2 is QL group.
- P value less than 0.05 is considered as statistically significant.

Age (Years)	TAP BLOCK		QL BLOCK	
	Number of patients	%	Number of patients	%
< 40	11	36.7	9	30.0
40 - 49	12	40.0	21	70.0
50+	7	23.3	0	0
Total	30	100.0	30	100

TABLE 1- DISTRIBUTION OF AGE

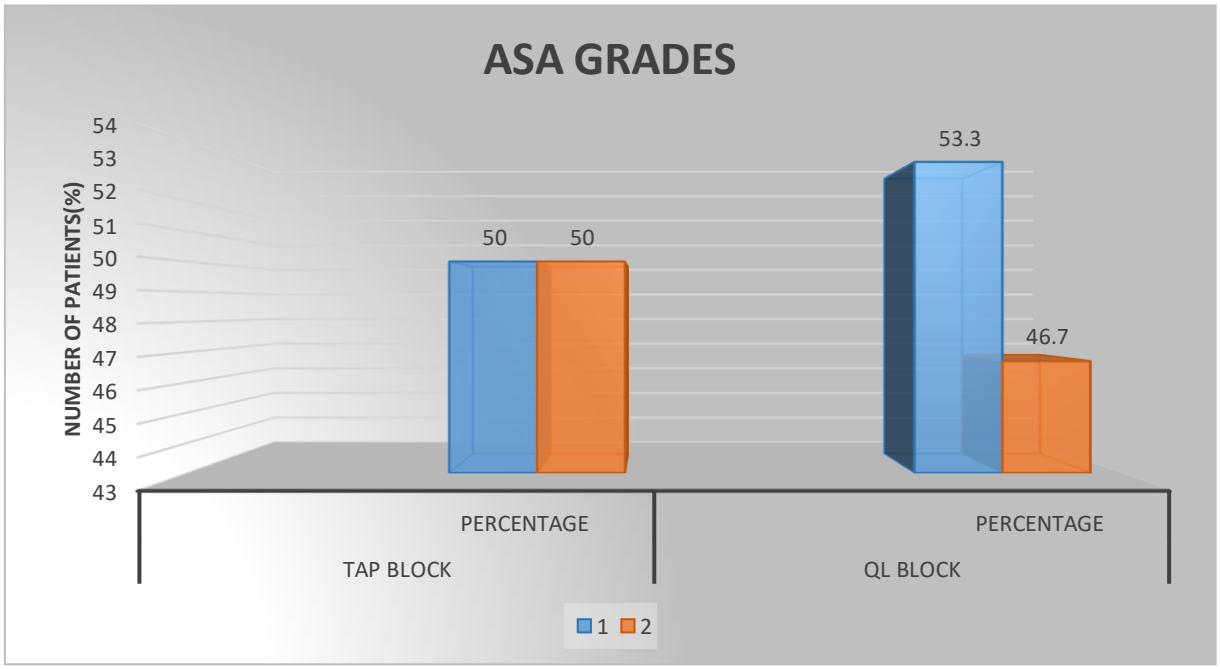


GRAPH 1- COMPARISION OF AGE DISTRIBUTION

- Age wise distribution of the sample in both the groups are comparable.

ASA Grades	TAP BLOCK		QL BLOCK		Chi square test	P value
	Number of patients	%	Number of patients	%		
1	15	50.0	16	53.3	0.06674	0.7961
2	15	50.0	14	46.7		
Total	30	100.0	30	100		

TABLE 2- DISTRIBUTION OF ASA GRADES

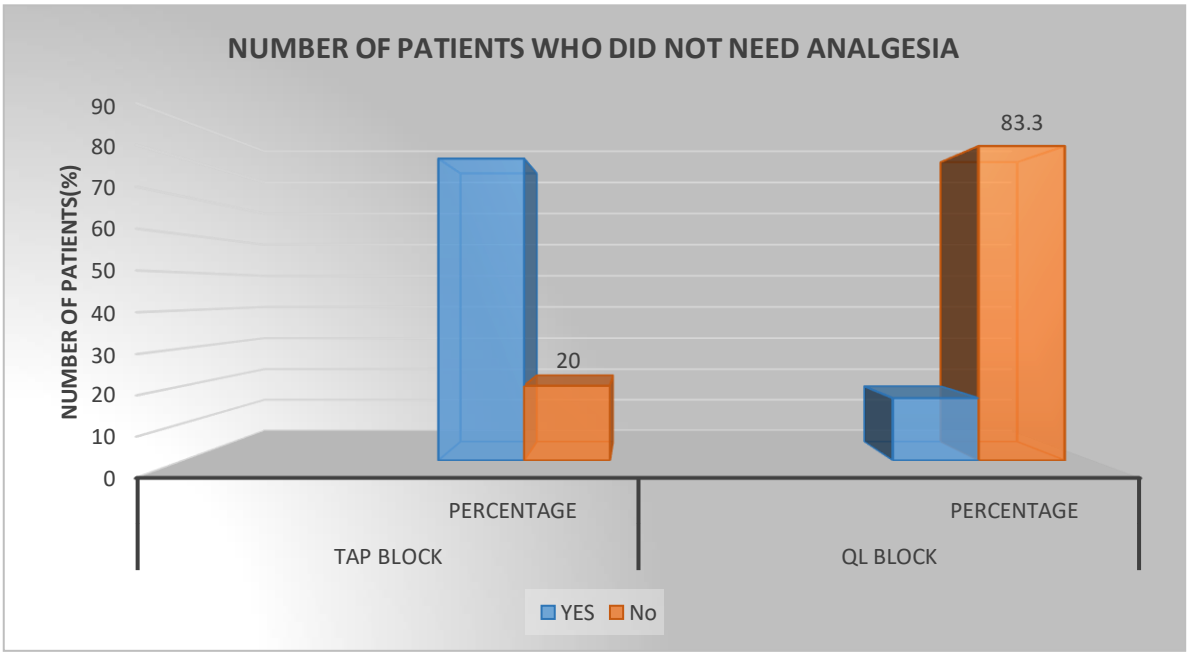


GRAPH 2- COMPARISION OF ASA GRADES

- Patients falling under ASA 1 or 2 grades are compared between both the groups. ASA grades are comparable. It is statistically insignificant as P value is 0.7961.

NUMBER OF PATIENTS WHO DID NOT NEED ANALGESIA POST OPERATIVELY(%)	TAP BLOCK		QL BLOCK		Chi square test	P value
	Number of patients	%	Number of patients	%		
YES	24	80.0	5	16.7	24.093	P<0.0001
NO	6	20.0	25	83.3		
Total	30	100.0	30	100		

TABLE 3- DISTRIBUTION OF NUMBER OF PATIENTS WHO DID NOT NEED ANALGESIA

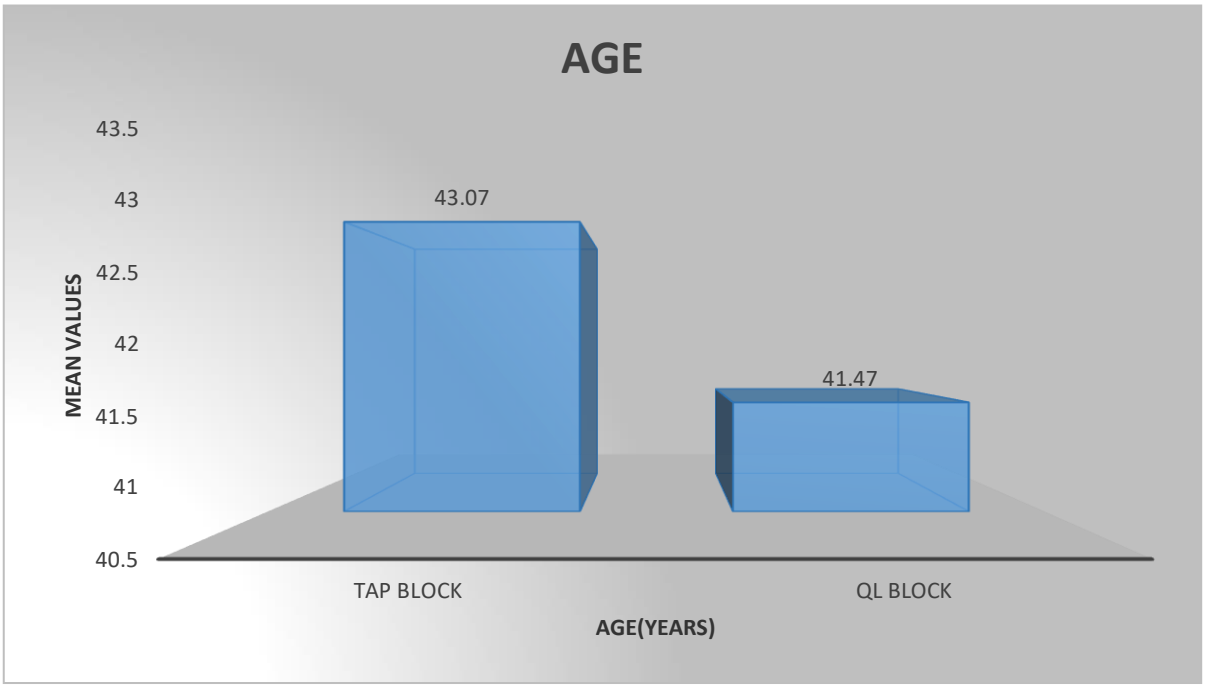


GRAPH 3- COMPARISION OF NUMBER OF PATIENTS WHO DID NOT NEED ANALGESIA

- The comparision is statistically significant.
- P value is <0.0001.
- Postoperatively,in TAP block group,20% and in QL group, 83.3% of the patients did not need analgesia.

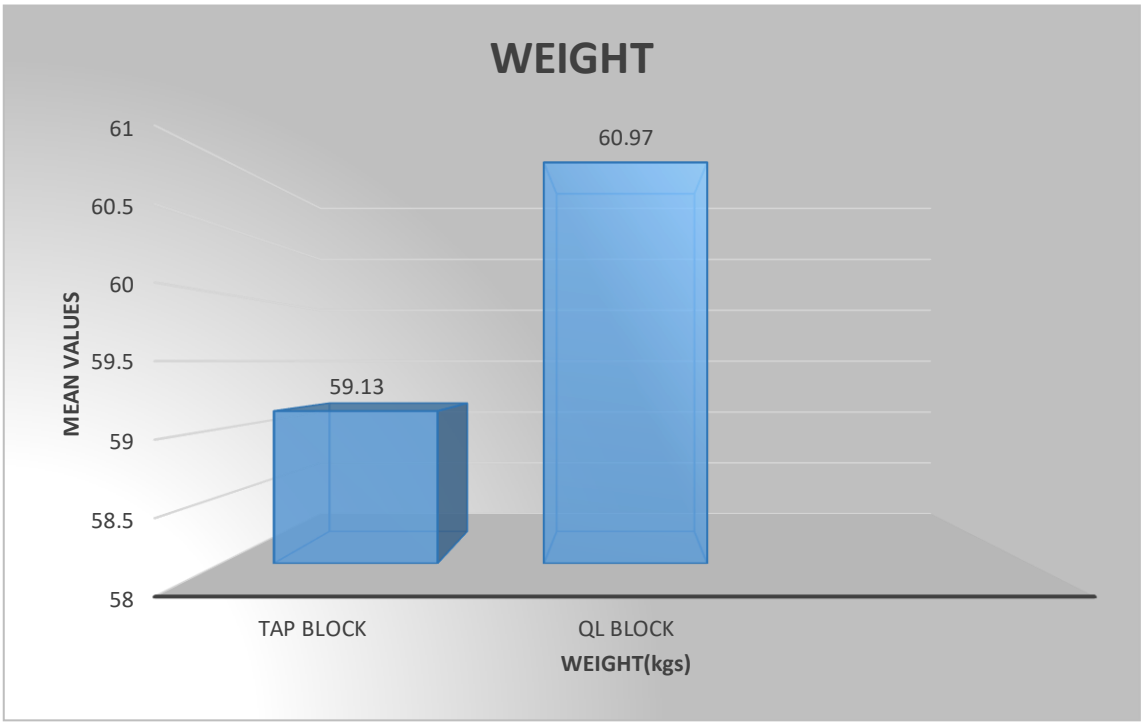
Parameters	TAP BLOCK		QL BLOCK		Mann-Whitney test	P-value
	Mean	Standard Deviation	Mean	Standard Deviation		
Age(years)	43.07	6.533	41.47	4.305	(Student t test) t=1.120	0.267
WEIGHT(kgs)	59.13	6.715	60.97	6.510	U=385.000	0.335
DURATION OF SURGERY(minutes)	126.17	11.423	119.33	13.817	U=331	0.075

TABLE 4- DISTRIBUTION OF THE AGE, WEIGHT AND DURATION OF SURGERY BETWEEN TWO GROUPS



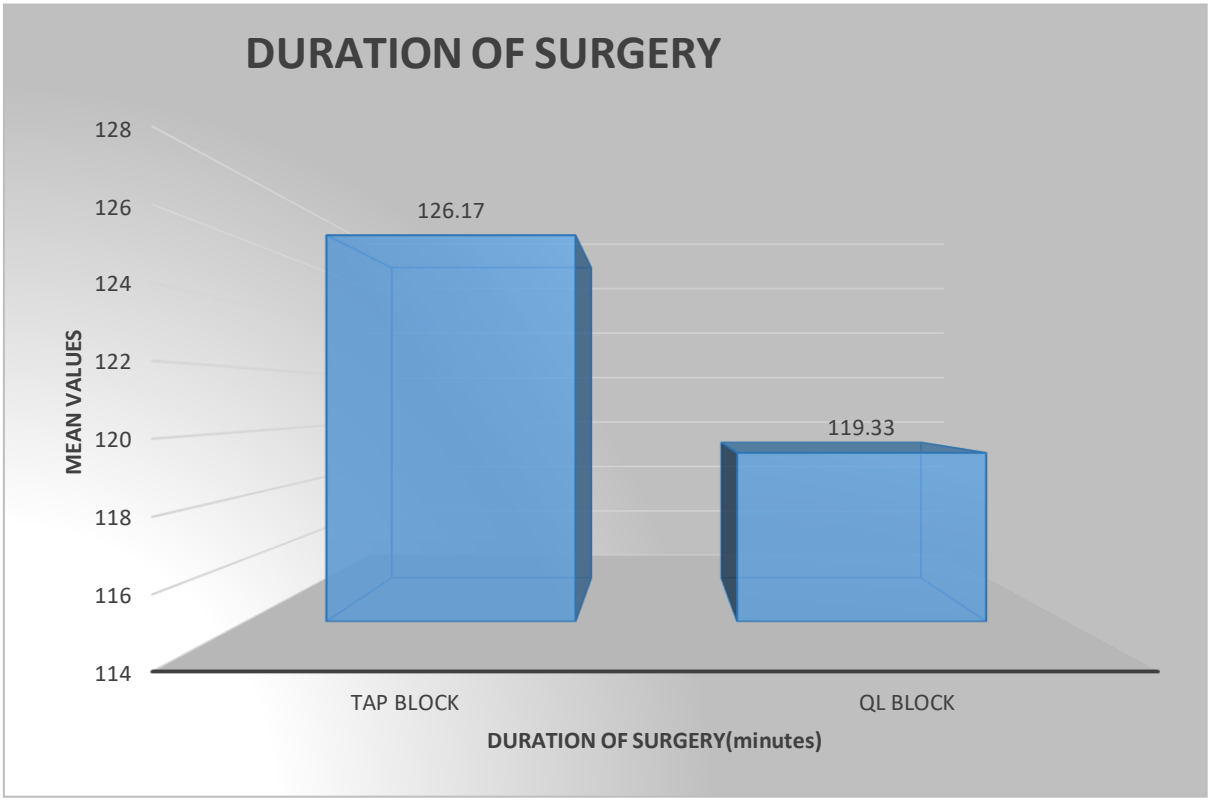
GRAPH 4-COMPARISION OF AGE

- Age is comparable. The comparision is statistically insignificant as P value is 0.267.



GRAPH 5-COMPARISION OF WEIGHT

- Weight is comparable. The comparision is statistically insignificant as P value is 0.335.

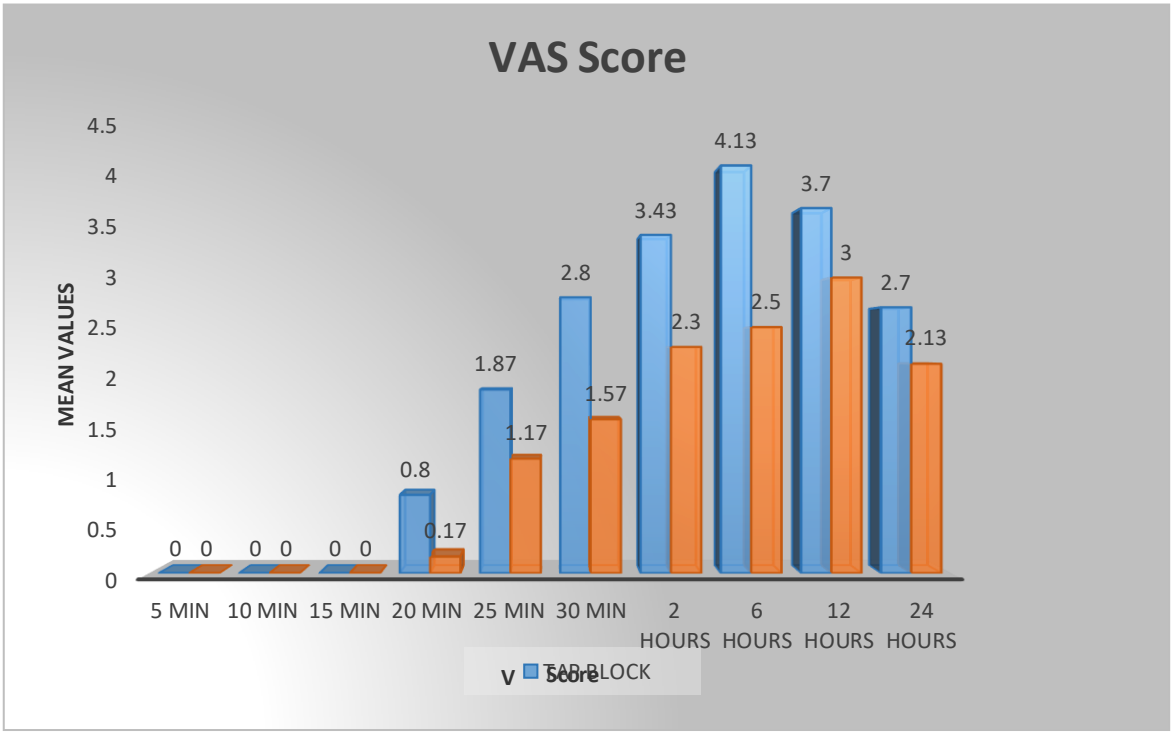


GRAPH 6-COMPARISION OF DURATION OF SURGERY

- Surgical duration is comparable. It is statistically insignificant as P value is 0.075.

VAS Score	TAP BLOCK		QL BLOCK		Mann-Whitney test	P-value
	Mean	Standard Deviation	Mean	Standard Deviation		
5 min	0.00	0.000	0.00	0.000	450.000	1.000
10 min	0.00	0.000	0.00	0.000	450.000	1.000
15 min	0.00	0.000	0.00	0.000	450.000	1.000
20 min	0.80	0.407	0.17	0.379	165.000	0.000
25 min	1.87	0.507	1.17	0.379	160.000	0.000
30 min	2.80	0.407	1.57	0.774	111.000	0.000
2 hours	3.43	0.817	2.30	0.702	165.500	0.000
6 hours	4.13	1.167	2.50	0.777	140.000	0.000
12 hours	3.70	0.466	3.00	0.000	135.000	0.000
24 hours	2.70	0.466	2.13	0.346	195.000	0.000

TABLE 5- DISTRIBUTION OF VAS SCORE BETWEEN TWO GROUPS



GRAPH 7-COMPARISION OF VAS SCORES

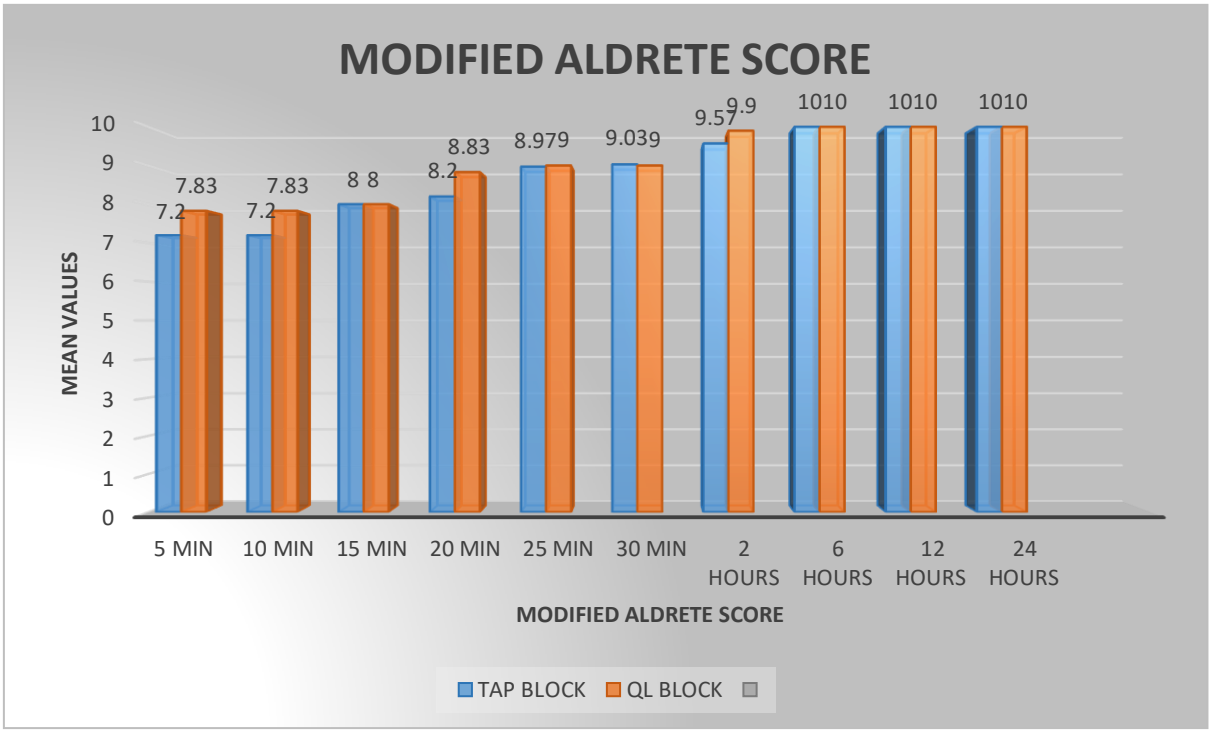
- VAS score at 5 minutes,10 minutes,15 minutes is comparable and is statistically insignificant as the P value is 1 (more than 0.05).

- At 20,25, 30 minutes, 2 , 6 ,12 and 24 hours the comparision is statistically significant as P value is 0.00 (less than 0.05).

- The mean values are more in TAP block compared to QL block group. So the post operative analgesia is better experienced in QL block group.

MODIFIED ALDRETE SCORE	TAP BLOCK		QL BLOCK		MANN-WHITNEY SCORE	P-VALUE
	Mean	Standard Deviation	Mean	Standard Deviation		
5 min	7.20	0.407	7.83	0.379	165.000	0.000
10 min	7.20	0.407	7.83	0.379	165.000	0.000
15 min	8.00	0.000	8.00	0.000	450.000	1.000
20 min	8.20	0.407	8.83	0.379	165.000	0.000
25 min	8.97	0.183	9.00	0.000	435.000	0.317
30 min	9.03	0.183	9.00	0.000	435.000	0.317
2 hours	9.57	0.504	9.90	0.305	300.000	0.004
6 hours	10.00	0.000	10.00	0.000	450.000	1.000
12 hours	10.00	0.000	10.00	0.000	450.000	1.000
24 hours	10.00	0.000	10.00	0.000	450.000	1.000

TABLE 6- DISTRIBUTION OF MODIFIED ALDRETE SCORE BETWEEN TWO GROUPS

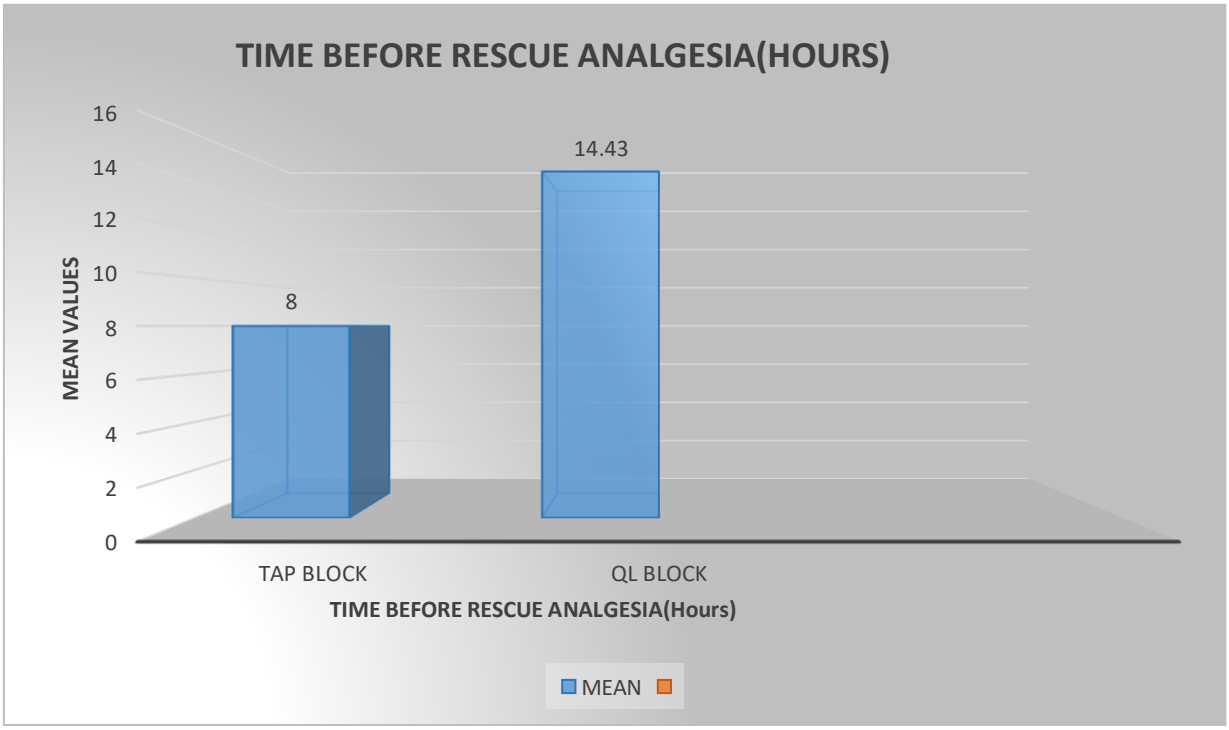


GRAPH 8-COMPARISION OF MODIFIED ALDRETE SCORES

- Modified Aldrete score at 5 minutes,10 minutes is statistically significant.P value is less than 0.05.
- The mean value is more in QL block when compared to TAP block.So the post operative analgesia is better in QL block.
- At 15 minutes,it is comparable and is statistically insignificant as the P value is 1.
- At 20 minutes it is statistically significant.P value is 0.000. The mean value is more in QL block group. So the analgesia with QL block is better here.
- At 25 minutes,30 minutes it is comparable and is statistically insignificant as the P value is more than 0.05.
- At 2 hours it is statistically significant.P value is 0.004.The mean value is more in QL block group.So the analgesia is better in this group.
- At 6 hours,12 hours,24 hours it is comparable and is statistically insignificant as the P value is more than 0.05.

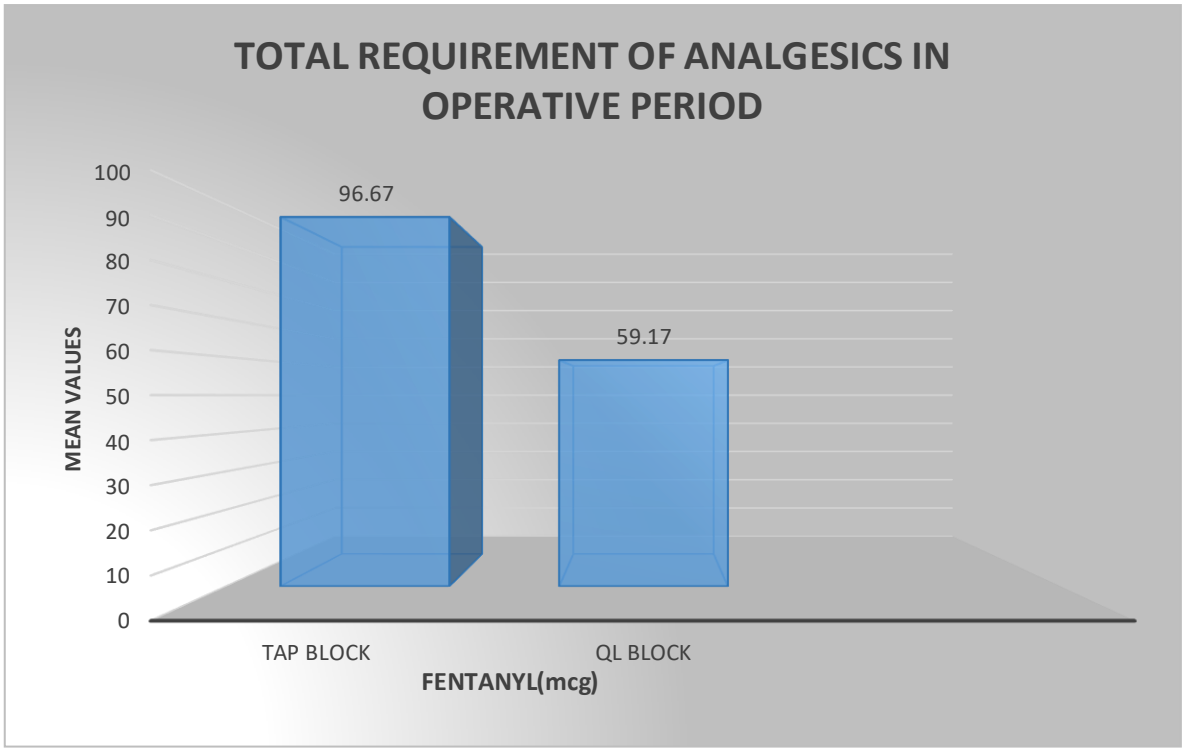
PARAMETERS	TAP BLOCK		QL BLOCK		MANN-WHITNEY TEST	P-VALUE
	Mean	Standard Deviation	Mean	Standard Deviation		
TIME BEFORE RESCUE ANALGESIA(HOURS)	8.00	2.464	14.43	2.885	44.500	0.000
TOTAL REQUIREMENT OF ANALGESICS IN OPERATIVE PERIOD(FENTANYL in mcg)	96.67	22.489	59.17	18.712	102.500	0.000
TOTAL REQUIREMENT OF MUSCLE RELAXANT IN OPERATIVE PERIOD(ATRACURIUM in mg)	47.33	7.397	32.00	6.513	65.500	0.000
TOTAL REQUIREMENT OF ANALGESICS IN POST OPERATIVE PERIOD(Diclofenac in mg)	60.00	20.342	35.83	19.346	198.000	0.000

TABLE 7-DISTRIBUTION OF INTRAOPERATIVE AND POSTOPERATIVE VALUES



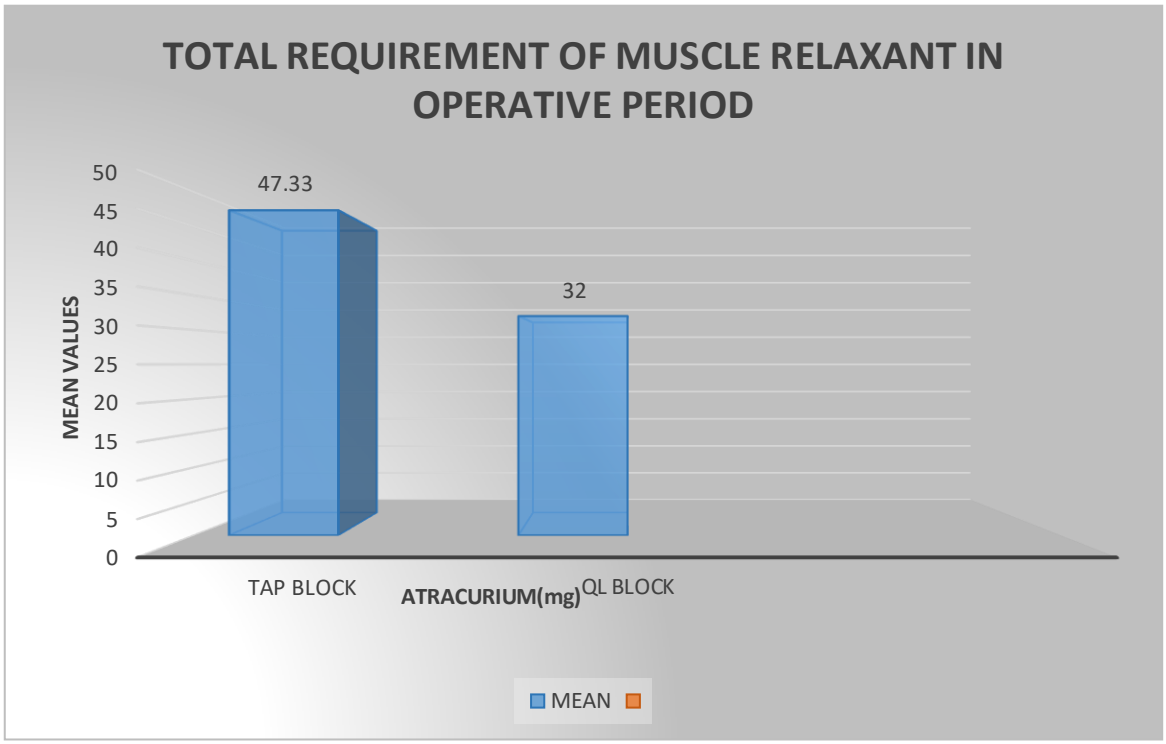
GRAPH 9-COMPARISION OF TIME BEFORE RESCUE ANALGESIA(HOURS)

- Time before the rescue analgesia (hours) is compared between the 2 groups.It is statistically significant as the P value is 0.000.
- In TAP block group,the mean is 8 hours and in QL block group it is 14.43 hours of the time before rescue analgesia.
- So, the post operative analgesia is better with QL block group.



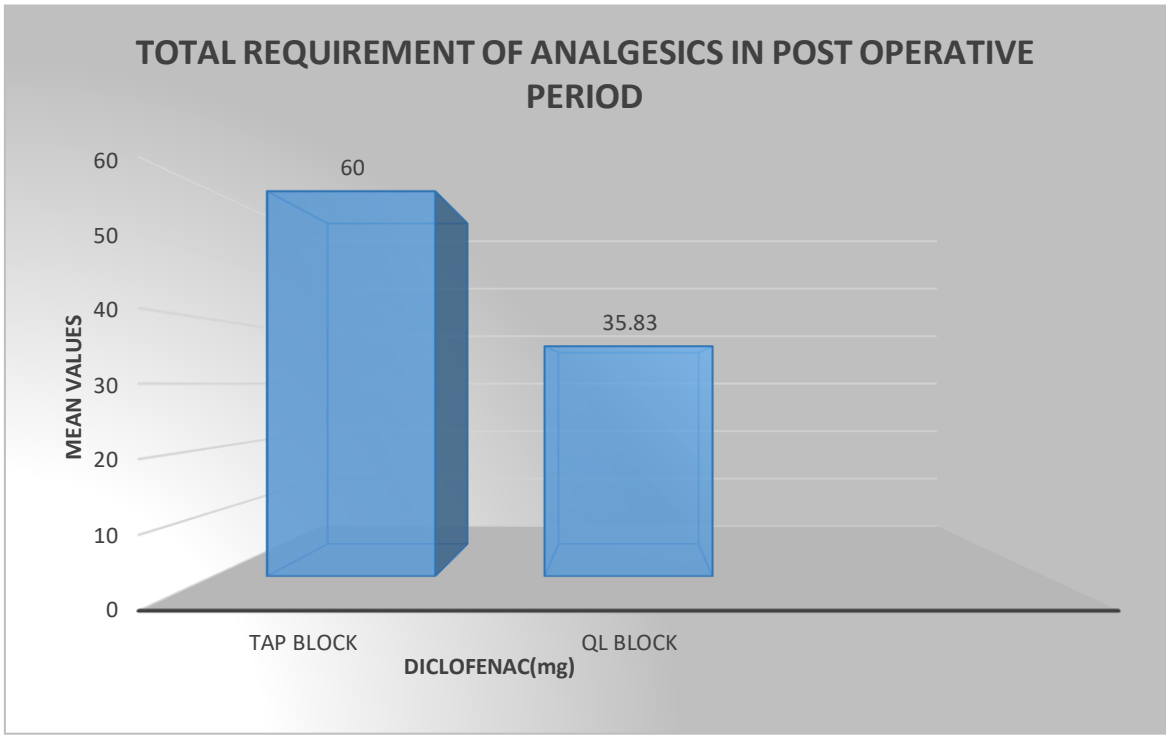
GRAPH 10-COMPARISION OF TOTAL REQUIREMENT OF ANALGESICS IN OPERATIVE PERIOD (FENTANYL in mcg)

- Total requirement of analgesics in the operative period (Fentanyl in mcg) is compared between the 2 groups.It is statistically significant.P value is 0.000.
- The mean requirement of fentanyl in mcg in TAP group is 96.67 and in QL block group it is 59.17.
- So, less requirement of intraoperative analgesia is needed in the QL block group.



GRAPH 11- COMPARISION OF TOTAL REQUIREMENT OF MUSCLE RELAXANT IN OPERATIVE PERIOD(ATRACURIUM in mg)

- Total requirement of muscle relaxant in the operative period (Atracurium in mg) is compared between the 2 groups.It is statistically significant as the P value 0.000.
- The mean of total requirement of atracurium in mg is 47.33 in TAP block and 32 in QL block group.
- So, there is less requirement of muscle relaxant in QL block group.



GRAPH 12- COMPARISION OF TOTAL REQUIREMENT OF ANALGESICS IN POST OPERATIVE PERIOD(Diclofenac in mg)

- Total requirement of analgesics in the postoperative period (Diclofenac in mg) is compared between the 2 groups.It is statistically significant.
- P value is 0.000.
- The mean requirement of diclofenac in mg is 60 in in TAP block group and is 35.83 in QL block group.
- So, there is less requirement of analgesia in the postoperative period in QL block group.

DISCUSSION

Abdominal surgeries are usually accompanied by severe postoperative pain.For the benefit of the patients,abdominal nerve blocks are introduced.It will help in decreasing the amount of intraoperative drug usage and significantly comforts the patient postoperatively.

OKSUZ et al conducted a study in 2007.TAP block and QL block were performed for postoperative analgesia among the paediatric patients undergoing abdominal surgeries.53 kids were included. QL block provided longer duration of analgesia (900 minutes) than that of TAP block (600 minutes).This is comparative to my study where QL block provides longer duration of postoperative analgesia.Here postoperative FLACC scores were compared and it was low in QL block group.[40]

Blanco et al in 2016, conducted a study where TAP block and QL block were performed on 76 patients undergoing caesarean section.The study was to see for postoperative analgesia.Posterior approach was used for the correct local anaesthetic placement for the respective blocks.Morphine consumption at set time intervals till 48 hours after the surgery was monitored.It was significantly less in QL block group.[6]

YOUSEF et al in the year 2018,conducted a study on 60 female patients undergoing total abdominal hysterectomy.They were randomly allocated into two groups namely,TAP block and QL block.After receiving general anaesthesia,bilateral block was given.Intraoperative total analgesic and muscle relaxant requirement were noted.The time of rescue analgesia and the

total dose of morphine used postoperatively and the VAS scores were recorded.All these parameters were less in QL block.[41]

Ahmed M et al conducted a study in 2016,where TAP block was compared with local infiltration of the wound.Sixty patients were included who underwent inguinal hernia repair surgery.TAP block group had 489 +/- 93.2 minutes of duration of analgesia.[42]

Aveline et al in 2011,made a study on 273 patients who were undergoing hernioplasty under general anaesthesia.One group received ultrasound guided TAP block and the other group received blind Ilioinguinal nerve block.Morphine requirement and VAS scores were noted postoperatively and it was less in the TAP group.[3]

QL block needs experienced hands and would be better appreciated if it is ultrasound guided.But the postoperative analgesia is longer compared to any other modalities in this block.On the other hand TAP block can be easily visualized and performed but the duration of analgesia may not be promising.

CONCLUSION

- ✓ In my study,the QL block provides better and longer postoperative pain relief and the time for rescue analgesic demand is late.
- ✓ The VAS scores are significantly low in QL block group.The number of patients asking for the rescue analgesia are less in QL block group.
- ✓ Modified Aldrete score is more in QL block than that of TAP block.
- ✓ The requirement of analgesia and muscle relaxant intraoperatively is less in QL block.
- ✓ The postoperative analgesic requirement is also less in QL block.
- ✓ Hence, QL block is definitely the better modality for postoperative analgesia when compared to that of TAP block.

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SAMPLE INFORMED CONSENT FORM

B.L.D.E(DEEMED TO BE UNIVERSITY) SHRI B.M. PATIL MEDICAL COLLEGE HOSPITAL AND RESEARCH CENTRE, VIJAYAPURA – 586103, KARNATAKA

TITLE OF THE PROJECT : QUADRATUS LUMBORUM BLOCK VERSUS TRANSVERSUS ABDOMINIS PLANE BLOCK FOR POST OPERATIVE ANALGESIA IN PATIENTS UNDERGOING TOTAL ABDOMINAL HYSTERECTOMY UNDER GENERAL ANAESTHESIA.

PRINCIPAL INVESTIGATOR : Dr.SANJANA PRABHU
Department of Anaesthesiology
B.L.D.E(DEEMED TO BE)UNIVERSITY
Shri B.M.Patil Medical College and Research Centre,Sholapur Road,VIJAYAPURA-03

PG GUIDE : Dr.VIDYA PATIL
Professor And HOD
Department of Anaesthesiology
B.L.D.E(DEEMED TO BE)UNIVERSITY
Shri B.M.Patil Medical College and Research Centre,Sholapur Road,VIJAYAPURA-03

PURPOSE OF RESEARCH

I have been informed that, this study is **:"**QUADRATUS LUMBORUM BLOCK VERSUS TRANSVERSE ABDOMINIS PLANE BLOCK FOR POST OPERATIVE ANALGESIA IN PATIENTS UNDERGOING TOTAL ABDOMINAL HYSTERECTOMY UNDER GENERAL ANAESTHESIA". I have been explained about the reason for conducting this study and selecting me/my ward as a subject for this study. I have also been given free choice for either being included or not in the study.

PROCEDURE

I understand that I will be participating in the study **"**QUADRATUS LUMBORUM BLOCK VERSUS TRANSVERSUS ABDOMINIS PLANE BLOCK FOR POST OPERATIVE ANALGESIA IN PATIENTS UNDERGOING TOTAL ABDOMINAL HYSTERECTOMY UNDER GENERAL ANAESTHESIA"

RISKS AND DISCOMFORTS

I understand that I/my ward may experience complications during the study and I understand that necessary measures will be taken to reduce complications as and when they arise.

BENEFITS

I understand that I/my wards participation in this study will help in finding out**,**

"QUADRATUS LUMBORUM BLOCK VERSUS TRANSVERSUS ABDOMINIS PLANE BLOCK FOR POST OPERATIVE ANALGESIA IN PATIENTS UNDERGOING TOTAL ABDOMINAL HYSTERECTOMY UNDER GENERAL ANAESTHESIA"

CONFIDENTIALITY

I understand that medical information produced by this study will become a part of this Hospital records and will be subjected to the confidentiality and privacy regulation of this hospital. Information of a sensitive, personal nature will not be a part of the medical records, but will be stored in the investigator's research file and identified only by a code number. The code key connecting name to numbers will be kept in a separate secure location.

If the data are used for publication in the medical literature or for teaching purpose, no names will be used and other identifiers such as photographs and audio or video

tapes will be used only with my special written permission. I understand that I may see the photograph and videotapes and hear audiotapes before giving this permission.

REQUEST FOR MORE INFORMATION

I understand that I may ask more questions about the study at any time.

Dr. SANJANA PRABHU is available to answer my questions or concerns. I understand that I will be informed of any significant new findings discovered during the course of this study, which might influence my continued participation.

If during this study, or later, I wish to discuss my participation in or concerns regarding this study with a person not directly involved, I am aware that the social worker of the hospital is available to talk with me.

And that a copy of this consent form will be given to me for keep for careful reading.

REFUSAL OR WITHDRAWAL OF PARTICIPATION

I understand that my participation is voluntary and I may refuse to participate or may withdraw consent and discontinue participation in the study at any time without prejudice to my present or future care at this hospital.

I also understand that **Dr. SANJANA PRABHU** will terminate my participation in this study at any time after she has explained the reasons for doing so and has helped arrange for my continued care by my own physician or therapist, if this is appropriate.

INJURY STATEMENT

I understand that in the unlikely event of injury to me/my ward, resulting directly to my participation in this study, if such injury were reported promptly, then medical treatment would be available to me, but no further compensation will be provided.

I understand that by my agreement to participate in this study, I am not waiving any of my legal rights.

I have explained to_____, the purpose of this research, the procedures required and the possible risks and benefits, to the best of my ability in patient's own language.

Date: Dr.VIDYA PATIL (Guide) Dr. SANJANA PRABHU (Investigator)

STUDY SUBJECT CONSENT STATEMENT

I confirm that **DR SANJANA PRABHU** has explained to me the purpose of this research, the study procedure that I will undergo and the possible discomforts and benefits that I may experience, in my own language.

I have been explained all the above in detail in my own language and I understand the same. Therefore I agree to give my consent to participate as a subject in this research project.

_____ _____

(Participant) Date

_____ _____

(Witness to above signature) Date

PROFORMA

Patient name - Date -

Address-

I.P. number -

Age - Weight –

Height –

Diagnosis -

Proposed Surgery -

ASA - Consent-

Medical and surgical history -

Examination in brief -:

General

PhysicalExamination

Vitals -: Pulse-

Respiratory rate: B.P. - Airway assessment -

Systemic examination -:

R.S. – C.V.S. -

P/A –

C.N.S. -

PREOPERATIVE INVESTIGATIONS -:

Hb% -

TLC/DLC -

Platelet count - BT/CT -

RBS - mg/dl

Blood Urea: Serum Creatinine:

Chest X ray if required: ECG:

Other Investigations:

Monitors Attached-

Pulse Rate:

B.P.:

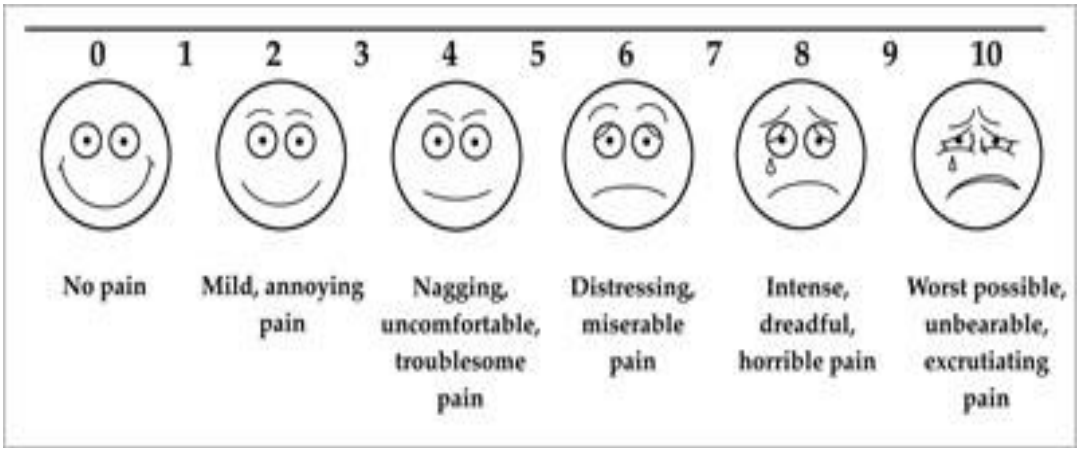
SpO2:

ECG:

Anaesthesia Start time:

Surgery Start Time: Surgery End Time:

TIME► **PARAMETER** **▼**	**5 mins**	**10 mins**	**15 mins**	**20 mins**	**25 mins**	**30 mins**	**2 hrs**	**6 hrs**	**12 hrs**	**24 hrs**
SpO2										
MAP										
Consciousness										
Respiration										
Activity										
Post op pain **VAS score**										



VAS PAIN SCALE : 0-NO PAIN 10-WORST PAIN

Time after surgery	Modified Aldrete score
5 minutes	
10 minutes	
15 minutes	
20 minutes	
25 minutes	
30 minutes	
2 hours	
6 hours	
12 hours	
24 hours	

	Time before Rescue analgesia	Total Requirement of analgesics in operative period	Total Requirement of Muscle relaxant(Atracurium) in operative period	Total Requirement of analgesics in post operative period .(Using VAS)
QL BLOCK				
TAP BLOCK				

BIODATA OF GUIDE

GUIDE NAME	:	**DR.VIDYA PATIL M.D**.
DATE OF BIRTH	:	23/09/1965
EDUCATION	:	M.B.B.S.-1991 J.N.MC,BELGAUM KARNATAKA UNIVERSITRY,DHARWAD M.D ANAESTHESIOLOGY- 1997 J.N.M.C. BELGAUM, KARNATAKA UNIVERSITRY,DHARWAD
DESIGNATION	:	PROFESSOR AND HEAD OF THE DEPARMENT DEPARTMENT OF ANAESTHESIOLOGY
TEACHING	:	UG TEACHER-20 YEARS PG TEACHER-20 YEARS
ADDRERSS	:	PROFESSOR AND HEAD OF THE DEPARTMENT DEPARTMENT OF ANAESTHESIOLOGY B.L.D.E(DEEMED TO BE) UNIVERSITY SHRI B.M.PATIL MEDICAL COLLEGE AND RESEARCH CENTRE, VIJAYAPURA – 586103
PHONE	:	(08352)261260
MOBILE NO	:	9448131260

BIODATA OF INVESTIGATOR

NAME	:	DR. SANJANA PRABHU
QUALIFICATION	:	M.B.B.S.
K.M.C. REG. NO.	:	124097
ADDRESS	:	DEPARTMENT OF ANAESTHESIOLOGY B.L.D.E(DEEMED TO BE) UNIVERSITY SHRI B.M.PATIL MEDICAL COLLEGE AND RESEARCH CENTRE, VIJAYAPURA – 586103
Contact Number	:	9449423781
E mail	:	sanjanaprabhu94@gmil.com

ETHICAL CLEARANCE CERTIFICATE

IEC/No-09/2021
22-01-2021

B.L.D.E. (DEEMED TO BE UNIVERSITY)

(Declared vide notification No. F.9-37/2007-U.3 (A) Dated. 29-2-2008 of the MHRD, Government of India under Section 3 of the UGC Act, 1956)

The Constituent College

SHRI. B. M. PATIL MEDICAL COLLEGE, HOSPITAL AND RESEARCH CENTRE

INSTITUTIONAL ETHICAL CLEARANCE CERTIFICATE

The Institutional ethical committee of this college met on 11-01-2021 at 11 am to scrutinize the synopsis of Postgraduate students of this college from Ethical Clearance point of view. After scrutiny the following original/corrected and revised version synopsis of the Thesis has been accorded Ethical Clearance

Title: Quadratus lumborum block versus transversus abdominis plane block for post operative analgesia in patients undergoing total abdominal hysterectomy.

Name of PG student: Dr Sanjana Prabhu Department of Anaesthesiology

Name of Guide/Co-investigator: Dr Vidya. A. Patil, Professor & HOD of Anaesthesiology

DR .S.V.PATIL
CHAIRMAN, IEC

Institutional Ethical Committee
B L D E (Deemed to be University)
Shri B.M. Patil Medical College,
VIJAYAPUR-586103 (Karnataka)

Following documents were placed before Ethical Committee for Scrutinization:

1. Copy of Synopsis / Research project
2. Copy of informed consent form
3. Any other relevant documents.

2

MASTER CHART OF TAP BLOCK GROUP

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE
1	NAME- TAP BLOCK	IP NUMB	AGE	WEIGH	DURATION (	ASA 1	VAS SCORE										MODIFIED ALDRETE SCORE										TIME BEFORE RESC	TOTAL REQUIREMENT OF ANALGESIC	TOTAL REQUIREMENT OF MUSCLE R	TOTAL REQUIREMENT OF ANALGE	NUMBER OF PATIENTS WHO DID NOT NEED ANALGESIA POST OPERATIVELY(%)
2							5 MIN	10 MIN	15 MIN	20 MIN	25 MIN	30 MI	2 h	6 h	12 h	24 h	5 MIN	10 MIN	15 MIN	20 MIN	25 MIN	30 MIN	2 HOURS	HOUR	2 HOUR	4 HOURS					
3	AVAMMA GANGAREDDY	113436	35	60	120	1	0	0	0	1	2	3	3	4	4	3	7	7	8	8	9	9	10	10	10	10	6	100	50	75	
4	SUVARNA	112180	50	57	130	2	0	0	0	1	2	3	4	5	4	3	7	7	8	8	9	9	9	10	10	10	7	80	45	50	
5	LAXMI MURAL	124895	48	48	110	2	0	0	0	1	2	3	4	5	4	3	7	7	8	8	9	9	9	10	10	10	6	110	55	75	
6	SHAILAJA KULKARNI	131771	36	55	120	1	0	0	0	1	2	3	4	5	4	3	7	7	8	8	9	9	9	10	10	10	8	120	50	75	
7	SIDDAMMA KANAMADI	130578	40	62	140	1	0	0	0	1	2	3	4	5	4	2	7	7	8	8	9	9	10	10	10	10	6	90	55	75	
8	PARVATI KENGANAL	137073	42	70	130	1	0	0	0	0	1	2	2	2	3	2	7	8	8	9	9	9	10	10	10	10	12	50	30	25	1
9	SHANTIBAI CHAVAN	433412	36	68	115	2	0	0	0	1	2	3	4	5	4	3	7	7	8	8	9	9	9	10	10	10	6	100	50	75	
10	SUNITA GAYALI	154458	36	57	110	1	0	0	0	1	3	3	4	5	3	3	7	7	8	8	9	9	10	10	10	10	8	120	55	75	
11	NAGAMMA WALIKAR	147364	38	45	135	2	0	0	0	1	2	3	4	4	4	3	7	7	8	8	9	9	9	10	10	10	6	90	45	50	
12	GURUBAI METRI	152949	45	65	130	2	0	0	0	1	2	3	4	5	4	3	7	7	8	8	9	9	9	10	10	10	6	100	50	75	
13	JAKKAMMA KUMBAR	180024	45	58	120	1	0	0	0	1	2	3	4	5	4	3	7	7	8	8	8	9	10	10	10	10	7	110	45	75	
14	JAYASHREE HANDI	74189	38	53	125	1	0	0	0	0	1	2	2	2	3	2	7	8	8	9	9	9	10	10	10	10	12	60	35	25	1
15	KAVERI	257462	38	65	115	2	0	0	0	1	2	3	4	4	3	3	7	7	8	8	9	9	9	10	10	10	6	90	50	50	
16	SHIVALEELA	234512	46	60	130	1	0	0	0	1	2	3	3	4	4	3	7	7	8	8	9	9	10	10	10	10	9	110	55	75	
17	GANGABAI	255162	58	50	140	2	0	0	0	1	2	3	3	5	4	2	7	7	8	8	9	9	9	10	10	10	6	100	55	75	
18	KAVITA	312914	42	48	150	2	0	0	0	0	1	2	2	2	3	2	7	8	8	9	9	9	10	10	10	10	14	50	35	25	1
19	GIRIYAMMA	493261	50	64	145	1	0	0	0	1	2	3	3	5	4	3	7	7	8	8	9	9	10	10	10	10	7	120	45	75	
20	ANNAPURNA	115880	40	56	110	2	0	0	0	1	2	3	4	5	4	3	7	7	8	8	9	9	10	10	10	10	8	100	50	50	
21	SUMITRA	12893	47	70	115	1	0	0	0	0	1	2	2	2	3	2	7	8	8	9	9	10	10	10	10	10	13	60	40	25	1
22	SUJATA	131241	42	66	130	2	0	0	0	1	2	3	4	4	4	3	7	7	8	8	9	9	9	10	10	10	7	100	55	75	
23	NEELA	641120	44	64	110	1	0	0	0	1	2	3	4	5	4	3	7	7	8	8	9	9	9	10	10	10	6	120	50	50	
24	VIJAYALAXMI	694461	34	58	120	2	0	0	0	1	2	3	4	4	4	2	7	7	8	8	9	9	9	10	10	10	6	100	45	75	
25	SUJATA	598982	55	49	135	2	0	0	0	1	3	3	3	5	4	3	7	7	8	8	9	9	10	10	10	10	8	120	55	75	
26	VIDYA	640142	36	55	140	1	0	0	0	0	1	2	2	2	3	2	7	8	8	9	9	9	10	10	10	10	12	70	35	25	1
27	SHARANAMMA	755320	50	65	120	2	0	0	0	1	2	3	4	5	4	3	7	7	8	8	9	9	10	10	10	10	7	110	55	75	
28	GOURAMMA	455250	54	60	115	1	0	0	0	1	2	3	4	4	4	3	7	7	8	8	9	9	9	10	10	10	7	120	45	75	
29	SUNANDA	989130	41	62	135	1	0	0	0	0	1	2	2	2	3	2	7	8	8	9	9	9	10	10	10	10	12	60	35	25	1
30	LAXMIBAI	914230	50	66	120	2	0	0	0	1	2	3	4	4	3	3	7	7	8	8	9	9	9	10	10	10	8	100	50	50	
31	SHOBHA	784220	39	58	130	1	0	0	0	1	2	3	4	5	4	3	7	7	8	8	9	9	10	10	10	10	8	120	55	75	
32	SUMANGALA	785460	37	60	140	2	0	0	0	1	2	3	4	5	4	3	7	7	8	8	9	9	10	10	10	10	6	120	45	75	

MASTER CHART OF QL BLOCK GROUP

QL BLOCK	IP NUMBE	AGE	WEIGH	DURATION (	ASA 1	VAS SCORE										MODIFIED ALDRETE SCORE														
						5 MIN	10 MI	15 MI	20 MI	25 MI	30 M	2 HO	6 HO	12 HOU	24 H	5 MIN	10 MIN	15 MI	20 MI	25 MI	30 M	2 HOUR	6 HO	12 HOU	24 HO	EFORE RESCUE ANA	TOTAL REQUIREMENT OF ANALGESIA	TOTAL REQUIREMENT OF MUSCLE R	TOTAL REQUIREMENT OF ANALGE	NUMBER OF PATIENTS WHO DID NOT NEED ANALGESIA POST OPRATIVELY(%)
MUNERA GERADI	122353	46	65	95	1	0	0	0	0	1	1	2	2	3	2	7	8	8	9	9	9	10	10	10	10	15	50	30	25	1
SHRIDEVI BIRADAR	109396	35	57	110	2	0	0	0	0	1	1	2	3	3	2	7	8	8	9	9	9	10	10	10	10	14	60	35	50	1
SHANTIBAI MAYOOR	158243	40	66	130	2	0	0	0	0	1	1	2	2	3	2	7	8	8	9	9	9	10	10	10	10	17	45	30	25	1
AMBAYYA GUDEWADI	151673	50	58	125	1	0	0	0	0	1	2	2	2	3	2	7	8	8	9	9	9	10	10	10	10	16	50	20	25	1
MATRADEVI PATEL	115077	35	60	110	2	0	0	0	0	1	1	2	2	3	2	7	8	8	9	9	9	10	10	10	10	15	60	30	25	1
SAVITRI BARAKE	163875	40	57	115	1	0	0	0	0	1	2	2	2	3	2	7	8	8	9	9	9	10	10	10	10	16	55	25	25	1
TOTABAI CHAVAN	155779	35	49	120	1	0	0	0	1	2	3	3	4	3	3	7	7	8	8	9	9	10	10	10	10	8	100	45	75	
MAHANANDA MOGI	164410	45	70	110	2	0	0	0	0	1	1	2	2	3	2	7	8	8	9	9	9	10	10	10	10	17	60	30	25	1
MALLAMMA KUNTOJI	184777	43	66	140	1	0	0	0	0	1	2	2	2	3	2	7	8	8	9	9	9	10	10	10	10	15	50	35	25	1
GURUBAI HIREMATH	371100	45	64	120	2	0	0	0	0	1	1	2	3	3	2	7	8	8	9	9	9	10	10	10	10	14	45	30	50	1
MAHADEVI KALABURGI	163860	36	58	110	2	0	0	0	0	1	1	2	3	3	2	7	8	8	9	9	9	10	10	10	10	16	50	35	25	1
MAHADEVI JADHAV	184747	45	65	135	1	0	0	0	0	1	1	2	2	3	2	7	8	8	9	9	9	10	10	10	10	14	60	30	25	1
USHABAI	512650	47	60	140	1	0	0	0	1	2	3	4	4	3	3	7	7	8	8	9	9	9	10	10	10	9	100	45	75	
MILAN	505840	40	56	90	1	0	0	0	0	1	1	2	2	3	2	7	8	8	9	9	9	10	10	10	10	17	50	30	25	1
SUNANDA JAMAGOND	428140	40	63	110	2	0	0	0	0	1	1	2	2	3	2	7	8	8	9	9	9	10	10	10	10	15	55	35	25	1
NIRMALA	144239	42	70	120	2	0	0	0	0	1	1	2	2	3	2	7	8	8	9	9	9	10	10	10	10	17	50	30	25	1
SHIVALEELA	213451	46	67	130	1	0	0	0	0	1	2	2	2	3	2	7	8	8	9	9	9	10	10	10	10	16	45	25	25	1
MEENAKSHI	214510	42	72	135	1	0	0	0	0	1	1	2	3	3	2	7	8	8	9	9	9	10	10	10	10	15	55	30	25	1
KAVITA	312914	42	48	140	2	0	0	0	1	2	3	4	4	3	2	7	7	8	8	9	9	9	10	10	10	8	90	40	75	
SHAKUNTALA	642280	45	56	110	2	0	0	0	0	1	1	2	2	3	2	7	8	8	9	9	9	10	10	10	10	16	50	25	50	1
BHARATI	686841	45	65	130	1	0	0	0	0	1	1	2	2	3	2	7	8	8	9	9	9	10	10	10	10	15	60	30	25	1
GOURAMMA	455250	36	68	135	2	0	0	0	0	1	2	2	2	3	2	7	8	8	9	9	9	10	10	10	10	16	40	30	25	1
SAVITA	808841	36	57	120	1	0	0	0	1	2	3	4	4	3	3	7	7	8	8	9	9	10	10	10	10	9	100	45	75	
KANAVVA	832362	38	48	110	2	0	0	0	0	1	1	2	2	3	2	7	8	8	9	9	9	10	10	10	10	15	40	25	25	1
BHARATI	719790	42	55	120	1	0	0	0	0	1	2	2	2	3	2	7	8	8	9	9	9	10	10	10	10	16	50	30	25	1
SHRIDEVI	102623	45	68	130	1	0	0	0	1	2	3	4	4	3	3	7	7	8	8	9	9	9	10	10	10	8	100	45	75	
SAVITRI	935470	38	63	90	2	0	0	0	0	1	1	2	2	3	2	7	8	8	9	9	9	10	10	10	10	15	50	30	25	1
FATIMA MULLA	108827	45	58	120	1	0	0	0	0	1	1	2	2	3	2	7	8	8	9	9	9	10	10	10	10	16	55	35	25	1
NIRMALA	103037	45	55	110	2	0	0	0	0	1	2	2	2	3	2	7	8	8	9	9	9	10	10	10	10	17	60	25	25	1
RENUKA	101402	35	65	120	1	0	0	0	0	1	1	2	3	3	2	7	8	8	9	9	9	10	10	10	10	16	40	30	25	1