

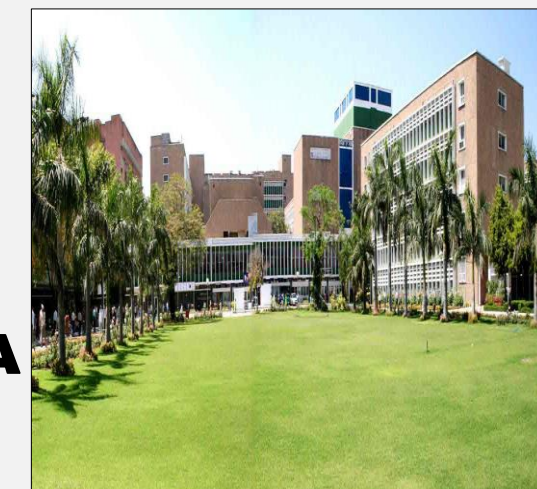


# Comparison of Caudal Epidural Block with Paravertebral Block for Renal Surgeries in Paediatric Patients.

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## Abstract

- Background:** Renal surgery is a common surgical procedure performed in children. It is associated with postoperative pain. Neuraxial analgesia and peripheral nerve blocks provide superior analgesia as compared to systemic opioids and NSAIDs.
- Objectives:** To compare the analgesic efficacy of ultrasound-guided caudal epidural block with single shot paravertebral block for renal surgeries in children.
- Methods:** In this prospective single blind study 50 children were studied. They were randomised into 2 groups, Group C -caudal block and Group P - paravertebral block (PVB). GA was induced with either IV or inhalational induction and maintained with 50% O<sub>2</sub>/N<sub>2</sub>O, isoflurane, atracurium and fentanyl. At the end of surgery, trachea was extubated. Post-operative pain assessed for 24 hours.
- Results:** The requirement of fentanyl in intraoperative period was similar in both the groups. The post operative requirement of fentanyl was significantly less in PVB group (p<0.0004). Parents of 18 children in Group P reported excellent satisfaction, compared to 8 in Group C, statistically significant (p<0.02).
- Conclusion:** In children undergoing renal surgeries Paravertebral block provides better and prolonged post operative analgesia than caudal epidural block with comparable side effects. However, adequate practice and expertise required for performance of blocks under ultrasound guidance

## Background:

- Paediatric renal surgeries associated with significant post-operative pain, requiring multimodal analgesia
- Regional analgesia, i.e. neuraxial and peripheral nerve blockade superior to systemic analgesia- both in terms of pain relief and incidence of side-effects
- Ultrasound-guidance increases accuracy of the regional blocks - success of the block.

## Objective:

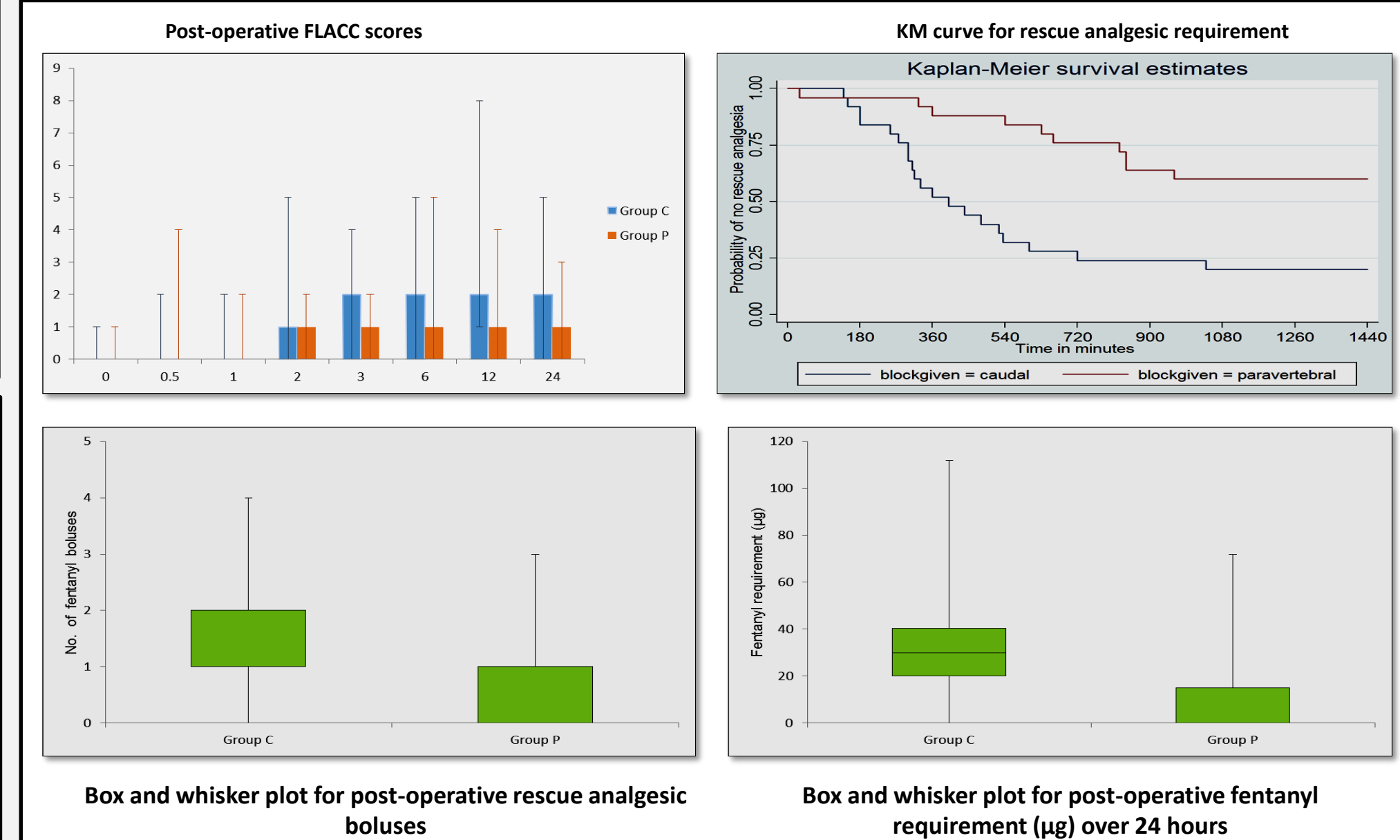
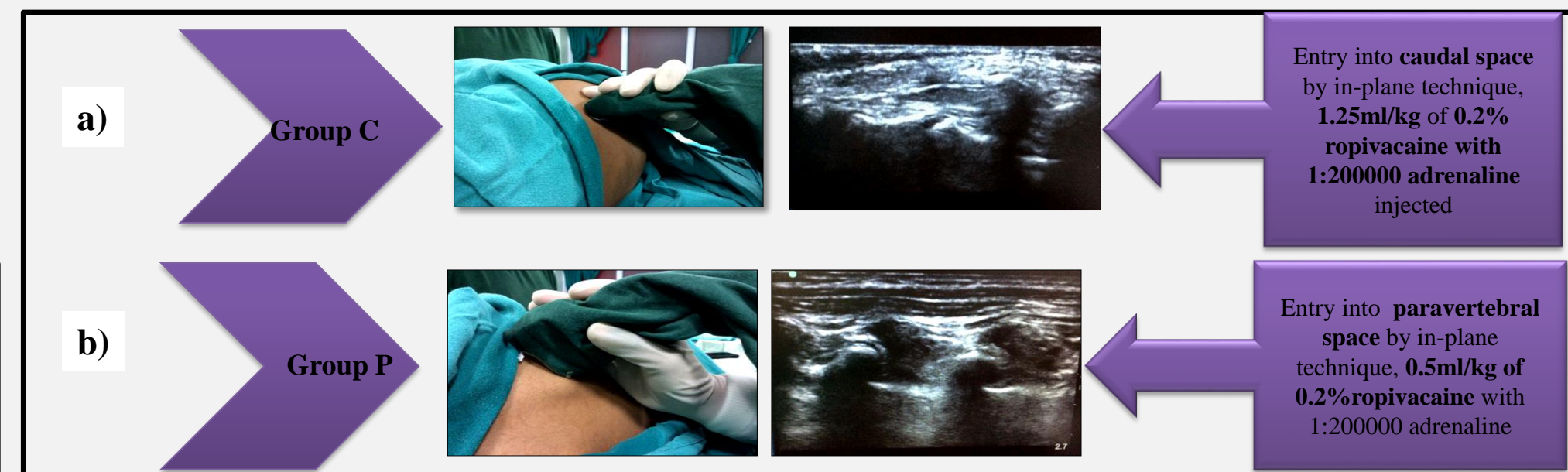
- To compare the analgesic efficacy of ultrasound-guided caudal epidural block with single shot paravertebral block for renal surgeries, namely pyeloplasty, in children, aged 2-10 years.

## Methods:

- Ethical Committee approval obtained.
- Cohort of 50 children, randomised into 2 groups
- GA was induced with IV or inhalational induction- Propofol 2mg/kg or 30-50% O<sub>2</sub>/N<sub>2</sub>O/ 6-8% Sevoflurane, fentanyl 2µg/kg and atracurium 0.5mg/kg followed by l intubation.
- Anaesthesia maintain 50% O<sub>2</sub>/N<sub>2</sub>O/isoflurane MAC 1.
- Local anaesthesia -0.2% ropivacaine with adrenaline.
- At the end of surgery, trachea extubated. Paracetamol IV 15-20mg/kg given.
- Post-operative pain assessed by FLACC score for 24 hours at 0, ½, 1st, 2nd, 3rd, 6th, 12th, 24th hours.
- Rescue analgesia fentanyl 1µg/kg IV at FLACC > 3.

## Results:

- Intraoperative period**
  - Time taken for block was statistically significant, Group C-100 (55) secs, and Group P-260 (196.5) secs, (p<0.0001).
  - No. of attempts block and fentanyl need similar.
- Postoperative period**
  - Median no of analgesic doses was nil in PVB group vs two in caudal group ( p<0.0002).
  - Mean fentanyl requirement- Significantly less in PVB group 10.48±18µg vs 31.18±24.9µg group C ( p<0.0004).
  - 15 children in group P and 5 children in group C did not need rescue analgesic ( p<0.0004).
  - Median duration of analgesia-400 mins in group C, 50% children group P-not require rescue analgesia.
  - Post-operative complications statistically similar (p-0.48). Urinary retention seen in 3 in Group C, compared to 1 in Group P. PONV seen in 1 in Group C, and none in Group P.
  - Parents of 18 children in Group P reported excellent satisfaction, compared to 8 in Group C significant. (p<0.02)



## Conclusion:

- In children undergoing renal surgeries, Paravertebral block provides better and prolonged post-operative analgesia with better parental satisfaction score than caudal epidural block.
- Side-effect profile of both the blocks comparable.
- Paravertebral block should be considered an alternative analgesic modality.
- However, adequate practice and expertise required for performance of blocks under ultrasound guidance.

## References:

- Berta E, Spanhel J, Smakal O et al. Single injection paravertebral block for renal surgery in children. Pediatric Anesthesia 2008;18:593-597.
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