Rectal Puncture during Caudal Block in a Child

M Maani Takrouri, H Saleh, M Hassab, N Ourfali

Citation

M Maani Takrouri, H Saleh, M Hassab, N Ourfali. *Rectal Puncture during Caudal Block in a Child*. The Internet Journal of Anesthesiology. 2006 Volume 13 Number 2.

Abstract

We report a colonic puncture in the course of a caudal block without any complication. The child was a 3 year old male child, ASA physical status I, weighing 17.9 Kg suffering from right un-descended testicle and presented for right orchidopexy. Anesthesia plan was to administer general anesthesia and caudal nerves block. During the course of the block and while injecting the local analgesics the clear liquid seept out of the anus so the trial was aborted and another sterile needle was inserted cephalad in relation to the first skin puncture and the block was done.
Post operative observation did not show signs of infection. The patient was covered by antibiotic cefurexime. The child was noticed to walk wide gait in the first 2 days post-operatively and was subsequently discharged. Discussing the incident and reviewing the literature revealed that although rectal puncture may be expected, reintroducing the same needle in the epidural space may be too dangerous. Also although it is rare to have complication reports on a caudal block it should not be taken lightly and still it is safe and helpful to pediatric patients.

INTRODUCTION

Caudal block is widely used in pediatric anesthesia to provide postoperative pain relief, after inguinal hernia repair and other lower abdominal surgery. Most pediatric regional anesthetic techniques including caudal block are administered under sedation or general anesthesia. Large prospective and retrospective studies have demonstrated a low complication rate, after peripheral nerve blocks, and fewer long-term sequelae when comparing the same procedure in adults. [1, 4]

Caudal blocks are monitored in large retrospective trial were believed to be reasonably safe and have law complications. [5]

Individual case reports are reminders that care and attention to detail is important to prevent bad outcome. Recent reports include spinal cord injury following a thoracic epidural for appendectomy, small bowel trauma (requiring laparoscopic resection) and a colonic puncture (requiring laparotomy) following an ilio-inguinal block. [6,7,8]

Sacral osteomyelitis and subperiosteal hematoma following caudal block [9] We report colonic puncture in the course of caudal block without any complication.

CASE REPORT

A 3 year old male child, ASA physical status I, weighing 17.9 Kg suffering from right un-descended testicle presented for right orchidopexy.

Anesthesia plan was to administer general anesthesia and caudal nerve block

Anesthesia was induced and maintained using NO2/O2 (1 : 1) Sevoflurane 2% via a mask with spontaneous ventilation. Venous access was already secured so fentanyl 20 mcg injected

Laryngeal mask airway (LMA) No 2 was smoothly inserted.

Fluid was maintained intravenously.

Caudal Block was performed whith patient positioned in left lateral position.

Aseptic technique was observed.

Land marks were identified

21 g needle was introduced smoothly

Aspiration tests (two times) were negative for blood, CSF and air.

After injecting 4 ml, a gush of clear fluid came out from the child anus

Procedure was stopped immediately.

Needle was withdrawn.

Another fresh trial with a new needle was performed at a higher level and after a suction test; 10 ml of a bupivacaine (0.25%) solution were injected.

The orchedopexy was then performed in standard procedure by the attending surgical team without any problem. The regional block was effective for the procedure, on the basis of heart rate, blood pressure and respiratory rate monitoring. The immediate postoperative course was uneventful and the child was discharged the surgical floor.

He was followed up during the postoperative period in relation to tenderness or pain in the site of injection, redness of the skin and fever. The postoperative period was uneventful and patient discharged home. He was followed up in the surgical clinic, in two weeks time.

DISCUSSION

The current view regarding caudal block is nicely summarized in a retrospective study of 750 children with reported overall success rate of caudal blocks of 96%. Several attempts were necessary in 25% of the patients. Most failures occurred in older children (more than 7 years old). The use of short-beveled needles considerably decreased the number of traumatic punctures. The upper limit of analgesia varied widely and appropriate distribution of anesthesia was reliably obtained only after the injection of 0.75 to 1.0 ml/kg of local anesthetic solution.

Conscious children tolerated surgery poorly (from a psychological point of view) although they were free of pain. Conversely, breathing difficulties occurred in 12% of lightly anesthetized patients. Hemodynamic disturbances were infrequent, as were adverse effects except for postoperative vomiting (17%). Motor block, present in 54% of patients, was poorly tolerated postoperatively by 10% of patients. Long-lasting postoperative pain relief was usually obtained. There were no major complications or neurological sequelae and good patient and parental acceptance of caudal anesthesia.

94% of the patients, the blocks were performed under light general anesthesia. Standard IM or short-beveled needles were used in all. Four anesthetic solutions of lidocaine and/or bupivacaine with 1:200,000 epinephrine were injected in volumes ranging from 0.5 to 1.25 ml/kg.

In the current case the authors were adherent to this approach. The surprising course of what usually is a routine matter was a surprise. Obviously it was guessed in the general consensus of anesthesiology. Searching anesthesia literature indicated colonic puncture and small bowel perforation or hematoma during ilioinguinal/iliohypogastric nerve block was found.

In the current case, an atraumatic short beveled needle was used. It underlines the fact that even with this type of needle and with a strict adherence to the procedure commonly followed, accidental puncture of the bowel wall is possible. The reason may be due to thin tissues and tiny sacrum of the child. The authors expected the possibility of extra- rectal bacterial spread, happily this did not happen. It is already known that perforation of the rectum, while simple needle puncture is not important, contamination of the needle is extremely dangerous if it is then inserted into the epidural space. The needle of this reported case was changed on reproaching at higher skin distance. In retrospective we should have opted to use another set and may be call the procedure off. The uneventful recovery gave an impression that this needle puncture was of minimal sequences since there were no elevation of temperature during observing the patient in the post-operative period. Antibiotics prophylaxis may have a role in this. The patient walk was observed and was normal in the post operative period. Discussing the incident and reviewing the literature revealed that although rectal puncture may be expected but reintroducing the same needle in epidural space may be too dangerous. Also although it is rare to have complication reports on caudal block it should not be taken lightly and still it is safe and helpful to pediatric patients. Rarity of the reported complications would suggest the caudal block plays still a major and useful analgesic role in lower abdominal surgery or lower extremities procedures

This case supports the view that no regional analgesic procedure in children should be considered as totally safe, even if its safety is widely accepted.

Middle East Anesthesia Council research protocols registry MEARC(CMCR)1\6\07

CORRESPONDENCE TO

Mohamad Said Maani Takrouri, MB. ChB. FRCA (I) Department of Anesthesia King Fahad Medical City B.O. Box: 2174 Riyadh 12231 Kingdom Saudi Arabia e-mail mtakrouri@kfmc.med.sa

References

1. McGown R. G. Caudal analgesia in children. Five

hundred cases for procedures below the diaphragm. Anaesthesia: 1982,37: 8:806
2. Bösenberg A. Pediatric regional anesthesia update. Pediac Anesth 2004;14 (5), 398-402
3. Thomas R. Vetter, Daniel Carvallo, Jodie L. Johnson, Michael S. Mazurek, Robert G. Presson. (2007) A Comparison of Single-Dose Caudal Clonidine, Morphine, or Hydromorphone Combined with Ropivacaine in Pediatric Patients Undergoing Ureteral Reimplantation. Anesthesia & Analgesia 104:6, 1356
4. Teyin E., Derbent A., Balcioglu T, Cokmez B. The efficacy of caudal morphine or bupivacaine combined with general anesthesia on postoperative pain and neuroendocrine stress response in children . Pediatr Anesth 2006;16 (3), 290-296.
5. Dalens B, Hasnaoui. Caudal anesthesia in pediatric surgery: success rate and adverse effects in 750 consecutive patients. Anesth Analg. 1989 Feb;68(2):83-9.
6. Jöhr M, Sossai R. Colonic puncture during ilio-inguinal nerve block in a child. Anesth Analg 1999; 88: 1051-1052.
7. Vaisman J. Pelvic hematoma after an ilioinguinal nerve block for orchialgia. Anesth Analg 2001; 92: 1048-1049.
8. Amory C, Mariscal A, Guyot E et al. Is ilioinguinal/iliohypogastric nerve block always totally safe in children? Paediatr Anaesth 2003; 13: 164-166.
9. Wittum S, Hofer CK, Rolli U et al. Sacral osteomyelitis after single-shot epidural anesthesia via the caudal approach in a child. Anesthesiology 2003; 99: 503-505.

Author Information

Mohamad Said Maani Takrouri, MB. ChB. FRCA (I)
Department of Anesthesia, King Fahad Medical City

Haitham Y. Saleh, MD Ms Anesth.. CABA CJBA
Department of Anesthesia, King Fahad Medical City

Mohamed Hany Hassab, MB. ChB. FRCS (Ed)
Department of Pediatric Surgery, King Fahad Medical City

Nouri Ourfali, M.D.
Department of Pediatric Surgery, King Fahad Medical City