

LETTER TO THE EDITOR

USE OF TWO STEP FOOT-REST UTILIZED FOR MAKING LITHOTOMY POSITION FOR ANORECTO-UROGENITAL SURGERIES IN INFANT PATIENTS WITH EASY APPROACH FOR ANAESTHESIOLOGIST AS WELL AS FOR SURGEON

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HOW TO CITE THIS ARTICLE:

Suresh Chandra Dulara, Kiran Lata Shringi, Ashok Goyel, Chetan Shukla, Monika Gupta. "Use of Two Step Foot-Rest Utilized for Making Lithotomy Position for Anorecto-Urogenital Surgeries in Infant Patients with Easy Approach for Anaesthesiologist as well as for Surgeon". Journal of Evidence based Medicine and Healthcare; Volume 2, Issue 23, June 08, 2015; Page: 3499-3503.

ABSTRACT: This study was carried out in 40 infant patients with the aim is to provide optimal position for better surgical access and better access for anaesthesiologist regarding patient's monitoring while minimizing manpower with easily available resources i.e. two step foot-rest for positioning of infant patient undergoing anorecto-urogenital operating procedures in operation theatre with less potential risk to the patient including peripheral neuropathies. This article addresses towards use of two step foot-rest, which is comfortable for the patient as well as for the anaesthesia team. The single surgeon may carry out perineal surgeries without much assistance.

KEYWORDS: Paediatric anorecto-urogenital surgery, two step foot-rest, Lithotomy position.

INTRODUCTION: Our study was concentrated towards perineal surgeries in lithotomy position. The resource that easily available is foot-rest in operation theatre was used to make lithotomy position. The position made by using foot-rest is easily accessible for both surgeons and as well as for anaesthesiologist for better monitoring of patient. This position made by minimum support or stirrups prevents neuropathy by stirrups bandage of lower limbs. Upper limbs were placed comfortably without strapping on the operation table. This position is easily accessible for surgeon for surgical procedure that single surgeon can carry out surgery without much assistance and supports or stirrups. This position is easily approachable for anaesthesiologist to keep secured airway and easy access to intravenous line access easily. Although neurological damage is more in adults than children^[1] but position by using foot-rest makes much less neurological damage. This type of position with using foot-rest does not cause any type of skin breakdown. This prevents ischaemia and necrosis caused by sustained pressure over bony prominences. Intraoperative and post-operative assessment to identify any sign and symptoms of any kind of injury whether neurological, skin injury, pressure injuries like ischemia and necrosis.^[2]

MATERIAL AND METHODS: For this study, approval was obtained from ethical committee of this institution. The study was carried out in 40 infants undergoing surgery in less than 2 hours duration. Anorectal perineal procedure were carried out like rectal surgery in 29 patients (including anorectal malformation/hirschsprung disease and chronic Fissure), urology surgery in 7 patients (including proximal hypospadias, cystoscopy), and genitourinary surgery in 4 patients (including haemangioma, urogenital sinus, scrotal cyst and vaginal atresia).

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All children were kept fasted for at least 4-6 hrs and after preanaesthetic check-up multiparameter monitor were attached and preoperative vitals were measured like non-invasive blood pressure, pulse, oxygen saturation, ECG. Precordial stethoscope was fixed in axilla. Oxygen enrichment was continued by simple mask at flow rate 4-6 litre/ min. For premedication midazolam 0.02 mg/kg body weight and glycopyrrolate 0.004 mg/kg body weight were given.

Single shot caudal epidural block was given in all infants. Foot-rest was kept in middle of operation table in perpendicular to longitudinal axis and legs were tied with bandage to operation table. Infant were kept in the supine position underneath the foot-rest as perineal region towards down foot-rest and head end site towards upper foot-rest. Hands were kept by side without trapping and it should be less than 90 degree to their shoulders,^[2] then legs held up loose hanging by bandage with cotton pad support so it provided us easy approach to anaesthetist as well as surgeon. Now blood pressure cuff tied on arm, pulse oximeter applied on hand's, simple face mask on patient's face with oxygen flow 4-6 L/min. Operation started after checked neuromuscular blockade effect. All the preparations for general anaesthesia were kept ready eg. ETT, Jackson Rees circuit, laryngoscope with proper size blade and medicines of general anaesthesia. For early recognition of peripheral neuropathies following test were performed in infant patients.^[3,4,5]

A. Sciatic neuropathy:

1. Stretching of the hamstring muscle (e.g., biceps femorous muscle) beyond a comfortable range of motion
2. Hip flexion of 120° or less versus greater than 120°

B. Femoral neuropathy:

- Hip flexion of 90° or less.

Fortunately there is no neuropathy detected in all the patients intraoperatively and postoperatively in this position. Upper limb was kept on operation table at less than ninety degree^[2] and strapping was not required because upper limb was having complete support on operation table hence upper limb neuropathy was observed.

This study was carried out in 40 infant patients for anorecto-urogenital surgeries like in rectal surgery (including anorectal malformation/hirschsprung disease, ch. Fissure), in urology (including posterior urethral valve, proximal hypospadias, cystoscopy), in genitourinary (including haemangioma, urogenital sinus, scrotal cyst/tract, intersex disorder, vaginal atresia/absent) with the aim to provide optimal lithotomy position for better access for surgeon and anesthesiologist regarding patient's monitoring while minimizing manpower with easily available resources i.e. two step foot-rest with less potential risk to the patient with better monitoring. This article addresses use of two step foot-rest fix on operation table and suspending legs with cotton bandage to avoid neurovascular damage.^[1,2] The main advantage was that single surgeon was able to carry out anorecto-urogenital surgeries without much assistance and with comfort throughout the surgical procedure. This position provided easy access of anaesthesiologist for airway and monitoring devices.

After intravenous cannulation, SpO₂ probe, BP cuff, Temperature probe, ECG leads, Precordial stethoscope and oxygen by simple mask were attached. All patients were premeditated with midazolam 0.02 mg/kg body weight and glycopyrrolate 0.1 mg, then inj. Ketamine 1.5

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mg/kg body weight were given intravenously. Then anaesthesia was achieved by single shot caudal epidural anaesthesia with 0.25% injection bupivacaine (1 ml/kg body weight) to all patients in lateral decubitus position by assistant under strict aseptic precautions. Position was achieved by put foot-rest on the normal operation table right in middle of operation table in perpendicular to longitudinal axis. Then baby patient was laid down in the supine position underneath the foot-rest as perineal region towards down end of foot-rest and head end side towards upper end of foot-rest, hands kept comfortably without strapping less than 90°^[2] and legs of patient was tied with soft cotton pad and bandage to the poles of foot-rest. (Photo)

As lower limb were suspended to pole of foot-rest this position avoided neuropathy caused by stirrups bandage of lower limbs. Although neurological damage is more in adults than children^[1] likewise in this study, position by using foot-rest for lithotomy position in paediatric group patients had no neurological damage and skin breakdown was not noticed in any patient. For testing peripheral neuropathy, gross light touch and pinprick sensation and skin assessment were carried out.^[3,4,5] Upper limbs were placed comfortably without strapping on the operation table. Fortunately no neuropathy detected in all the patients intraoperatively and postoperatively in this position. In this position it was easy to approach for surgeon to operating field and access to surgical equipments. Only four patients were given general anaesthesia because of prolonged duration of surgery. This position with using foot-rest anaesthesiologist was also at ease to access for airway, for intubation, for intravenous access and monitoring devices.

CONCLUSION: In this study the use of simple equipment i.e. two step foot-rest for lithotomy position in infant patient is cost effective. It is convenient for surgeons to do peri-anal operation with single hand. For anaesthesiologist's approach is easy to monitor vitals, intravenous line access, to secure airways, not requires trapping of upper limbs and minimum strapping with bandage of lower limbs prevents neurological damage, skin injuries, ischaemia and necrosis with the incidence of lower limb neuropathy were negligible and less man power.

REFERENCES:

1. Gregory A Gregory, Dean B Andropolos- Gregory's Pediatric Anaesthesia 5th Edition 1175.
2. J. Cory Barnett, MD, William W. Hurd, MD Laparoscopic positioning and nerve injuries. Journal of Minimally Invasive Gynaecology (2007) 14, 664–672. [Cited 2015 May 25].
3. Practice Advisory for the Prevention of Perioperative Peripheral Neuropathies: An Updated Report by the American Society of Anesthesiologists, Task Force on Prevention of Perioperative Peripheral Neuropathies. [Cited 2015 May 25] Available from: <https://www.asahq.org/./Perioperative%20Peripheral%20Neuropathies.a>.
4. Copyright © 2011, the American Society of Anesthesiologists, Inc. Lippincott Williams & Wilkins. Anesthesiology 2011; 114: 741–54. [Cited 2015 May 25].
5. 258 PERIPHERAL NERVE INJURIES AND POSITIONING FOR GENERAL ANAESTHESIA [Cited 2014 Dec 2] Available from: www.wfsahq.org/tutorial-of-the-week/Tutorial%20of%20the%20Week/. [Cited 2015 May 25]

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Fig. 1: Preoperative view showing bag mask ventilation



Fig. 2: Postoperative-Left side view



Fig. 3: Postoperative – Right side view

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Fig. 4: Intraoperative- just at the end of the procedure

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Date of Submission: 22/05/2015.
Date of Peer Review: 23/05/2015.
Date of Acceptance: 28/05/2015.
Date of Publishing: 08/06/2015.