

# USE OF CHIBA NEEDLE IN EPIDURAL ANESTHESIA: A COMBINED SPINAL EPIDURAL ANESTHESIA TECHNIQUE

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## INTRODUCTION

Regional anesthesia offers safe, effective, and economical over general anaesthesia. Combined spinal epidural anesthesia (CSEA) has been used even for last two decades and involves the use of a minimal dose of spinal anesthetic for a shorter duration but allows flexibility of epidural reinforcement if necessary. CSEA technique has been used without any report of a unique or major complications attributed to the technique.<sup>1, 2</sup> There are four main varieties of CSEA and a review of its history provides the opportunity to describe this sub - division.

**Single Needle - Single Interspace Method:** Soresi was the first surgeon to report the technique<sup>3</sup> and Sprotte et al reported an identical technique using an atraumatic needle.<sup>4</sup>

**Double Needle - Double Interspace Method:** A sequential separate interspace technique was employed by Brownridge.<sup>5</sup>

**Double Needle - Single Interspace Method:** It was used in Obstetrics in 1982, by Coates.<sup>6</sup>

**Needle Through Needle - Single Interspace Method:** Spectrum of indications of spinal or epidural alone and combined spinal epidural anaesthesia has improved over the years along with the developments of anaesthesia and surgery. This is the most popular variety of CSEA.<sup>7, 8</sup>

The ability of Extradural needle to guide the fine spinal needle to the dura matter prefers popularity due to a single skin puncture.<sup>9</sup> Anaesthesiologists have possibly realized that the Chiba needle which have smaller bore in diameter and longer in length in comparison to

18"G Epidural "Tuohy" needle which can be easily negotiated through Tuohy needle because of lesser in diameter and also can penetrate dural sac even when Spinal needle is aligned. The only precaution during penetration of dural sac is being taken because of long length and so chance of protrusion results in Chiba needle passing out anteriorly out of dural sac and so placement in all the cases done at L3, L4 interspace below termination of spinal cord. So, Chiba needle used for thesis worked as modified spinal needle because of its negotiation through Tuohy needle is easy and also punctures of dura safely as a single skin puncture method. Every care has been taken for its correct placement<sup>1</sup>, L3-L4 interspace<sup>2</sup> and single skin puncture<sup>3</sup> for dural puncture penetration.

## MATERIAL AND METHODS

Present authors try to bring the use of the Chiba needle, which is used in obstructive jaundice and also by urologist in the Percutaneous needle lithotripsy (PCNL), as a modified spinal needle to begin with. This has been used to evaluate the "Prophylactic Epidural Blood Patch for the Prevention of Post Spinal Headache in Surgical Patients by Single Skin Puncture" in department of Anaesthesia at A.I.I.M.S.; New Delhi, during academic session January 1990 to December 1992.

The study was carried out in 90 American Society of Anesthesiology (ASA) grade - I patients scheduled for lower abdominal, urogenital and orthopaedic surgeries under

spinal anesthesia to evaluate the incidence of post dural puncture headaches and the role of immediate administration and value of autologous extradural blood patch in its prevention. All the patients were premedicated with 0.2 mg/kg Diazepam given orally at least two hours before surgery. Spinal puncture was performed at L (3-4) space by 20" G Chiba needle which was negotiated through 18" G Tuohy needle kept in extradural space.

Spinal analgesia was achieved by administration of adequate volume of Lignocaine/ Bupivacanie to achieve desired level of block for surgical procedure. The patients were randomly divided into three groups, in group - I (30 patients) no extradural blood patch was administered. The patient of remaining two groups, Group - II (30 patients) and Group - III (30 patients) immediately received 10 ml or 20 ml of autologous extradural blood patch respectively under all asepsis.

## OBSERVATION AND DISCUSSION

It was observed that post spinal headaches were 13.3% in Group - I (4 patients) and 6.6% in Group - II (2 patients) and 0% in Group - III. There were no side effects observed like vomiting, backache, numbness in legs, paresthesia in legs etc. The observed difference between Group- I and Group -III was statically significant ( $p < 0.03$ ).

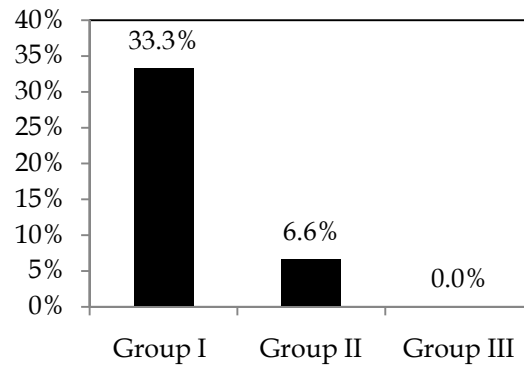


**Figure 1:** Chiba Needle Negotiated Through Touhy Needle

The present technique provides rapid onset of dense surgical anesthesia while the ability to prolong the block with an epidural catheter, which can be supplemented as an when required. That is the reason the present authors

recommend this technique which may reduce the incidence of high spinal block and hypotension.<sup>10,11</sup>

Furthermore, instrument set of combined Chiba needle-Epidural anesthesia technique is about 45% cheaper than CSEA set available in market (year 2011) in Ahmedabad, India.



**Figure 2:** Incidence of Post Dural Puncture Headache in three groups

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