Brief Communications

Stellate ganglion block: An approach to prevent oesophageal injury

INTRODUCTION

Stellate ganglion block (SGB) is an effective technique to manage patients of chronic regional pain syndromes type 1 (CRPS-1).[1,2] Previously used standard anterior para-tracheal technique may result in number of serious, sometime life-threatening complications.[3] Abdi *et al*.[4] described an oblique fluoroscopic approach targeting the junction between the uncinate process and the vertebral body at the C7 level to block Stellate Ganglion effectively and avoiding vascular injury. To revalidate the safety and efficacy of this fluoroscopic-guided technique of SGB we[5] had used this technique in 19 blocks given in nine patients who were treated for upper limb CRPS-1. Although, we did not have any significant complication during this series, injury to oesophagus remains a threat during fluoroscopic guided SGB as suggested by Narouze *et al*.[6] Modified SGB also prevents injury to oesophagus due to deviation of the oesophagus from needle trajectory. However, there is no publication to support this hypothetical advantage of this technique. Therefore, we have tried simple, but an innovative approach to identify oesophagus during SGB and thus, prove its movement away from the needle path and prevent possible injury to it.

METHODS

After hospitals' ethical society approval and informed consent, four adult female patients suffering from CRPS-1 of left upper limb (age between 32 years and 63 years, and weight 54-70 kg) were selected who required left sided SGB. SGB was given using the similar technique as advised by Abdi[4] and later revalidated by us[5] except that, 22G blunt needle (with prefixed extension tubing for injection of contrast and drugs) was used instead of 25G spinal needle. After standard preparation for SGB, under local anaesthesia well lubricated infant feeding tube (8F) was inserted in the oesophagus through the left nostril. One ml radio-opaque contrast was injected in a feeding tube and the tube was secured with adhesive tape. SGB was performed with the patient in the supine position using modified approach of Abdi *et al*.[4] A skin wheal was raised at the surface point where the junction of the uncinate process and the vertebral body is seen on the fluoroscope. Under real-time imaging, a 22G blunt needle was inserted to contact bone at this point. Small amount (1-2 ml) of radio-opaque contrast was injected to visualize the longus colli muscle. After negative aspiration, a 0.5-mL test dose of 1% lidocaine was injected to rule out intravascular injection into the vertebral artery and then a mixture of 1% Lidocaine (6 ml) + 40 mg Depo-steroid was injected. Patients were observed in the recovery area for 1 h and then discharged. Review was carried out once weekly to evaluate pain intensity (Visual Analogue Scale (VAS) 0-10) and range of movements.[7] Blocks were repeated 1-3 weekly interval depending upon relief of symptoms and patient's willingness.

RESULTS

In all patients, it was noticed that with the head tilt and changing direction of beam of C-arm, significant movements of the esophagus occurs and esophagus displaced away from the needle trajectory and reduces the possibility of injury [Figure 1]. Adequate contrast spread (up to or below T1) occurred in all patients. It was observed that needles were more firmly fixed (due to smaller length of the needle) on the target during the whole procedure and it was easy to aspirate or inject contrast and then drugs due to extension tube. All patients showed a rise in temperature in blocked hand >2-3°C and Horner's syndrome on the same side. No other complications like hoarseness of voice or difficulty in swallowing occurred. All patients were discharged after 1 h of observation. Reduction in pain (VAS) after 1st week was 4-7, 3-5 after 2nd weeks and 0-2 after 3rd week. One patient did not come after 2nd injection with VAS 5 before injection.

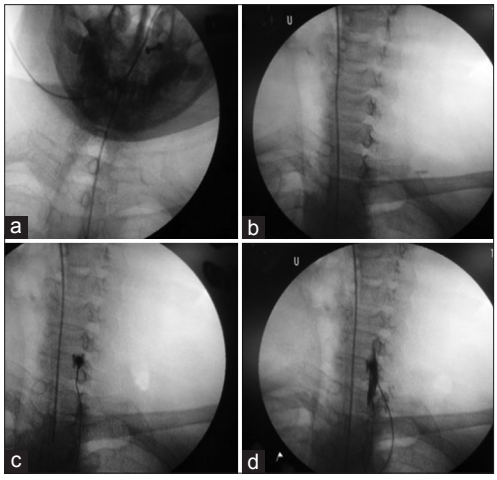

Figure 1: (a-d) significant movements of the oesophagus away from the needle trajectory and adequate contrast spread

DISCUSSION

Ingestion of radio-opaque contrast can easily visualize oesophagus during fluoroscopy, but it is impractical during SGB procedure due to position of the patient. Moreover, once contrast is swallowed opacity will disappear. In the present study, an infant feeding tube was inserted and filled with contrast. Due to the contrast (which remain in the lumen) tube could be easily identified and side movement of the oesophagus was easily monitored. This simple approach revalidated that during modified technique due to positioning of the patient and later rotation of C-arm keeps oesophagus away from needle trajectory.[4,5]

We used 22G blunt needle with inbuilt extension tubing for injection instead of using 25G spinal needles, because blunt needles are less likely than sharp ones to enter vital structures and/or produce haemorrhage. Thus, blunt needles may be preferable to sharp ones for performing interventional pain procedures.[8] Blunt needles seem to be more advantageous because when using them, vascular penetration, and paresthesia were less during transforaminal epidural steroid injections.[9] Use of blunt needles also has been suggested by Graham *et al*. in cervical transforaminal injections.[10] However, insertion and manipulation of blunt needles is more difficult than sharp needles because more force is required, which may cause accidental vessel injury resulting in larger haematoma formation than sharp needles in less experienced hands.

In the present study, we have looked for easy and safe alternative in fluoroscopic guided SGB on the left side to prevent possible injury to the oesophagus by needle.

CONCLUSION

Insertion of radiopaque naso-gastric tube while performing fluoroscopic guided SGB with modified technique on the left side, revalidated the claim that oesophagus moves away from needle trajectory and less likely to get injured during needle insertion in SGB.

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