CASE REPORT

DOI: 10.5336/caserep.2024-101431

Thyroidectomy Operation Using Cervical Epidural Anesthesia Method in a Case with Pemphigus Vulgaris

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ABSTRACT The anesthesia of patients with pemphigus vulgaris (PV) demands special emphasis in relation to the possible formation of bulla in tracheal mucosa following intubation and the consequent postoperative respiration difficulties. We demonstrate our application of cervical epidural anesthesia on a 58 year-old female patient with PV who underwent subtotal thyroidectomy. An 11 cm tuohy needle was inserted between C7-TI and an 18 G epidural catheter were placed under fluoroscopic guidance. During the operation, a total of 20 cc-mixture containing 120 mg lidocaine, 100 µgr fentanyl and saline solution was given through the epidural catheter. Additional 5 mg intravenous midazolam was injected for sedation. The anesthesia level was controlled with the pink prick test. Hemodynamic and respiratory parameters were calculated at preoperative 5th, 10th, 15th, 25th and postoperative 5th minutes. No complication was detected concerning epidural anesthesia. We recommend, therefore, cervical epidural anaesthesia in patients with PV in appropriate cases.

Keywords: Cervical epidural anesthesia; subtotal thyroidectomy; pemphigus vulgaris; autoimmune diseases

Pemphigus vulgaris (PV) is an autoimmune skin disease which presents with lesions in both skin and mucosa, and is mostly encountered in oral mucosa. Cases with PV are characterised by possible bulla formation in tracheal mucosa after intubation and consequent difficulties in respiration in the postoperative period. In this study, we present our application of cervical epidural anesthesia and sedation in a patient with PV who had a subtotal thyroidectomy operation in the general surgery clinic of our hospital.

CASE REPORT

The case was a 58-year-old female patient of American Society of Anesthesiologists II group with kyphoscoliosis who had a history of PV, diabetes mellitus and chronic obstructive pulmonary disease. She had been undergoing steroid treatment for as long a time as 8 years. At the time she was receiving a treatment in the dermatology service due to skin lesions. The patient had never undergone an operation before. We planned a thyroidectomy on her because of her goitre problem. In addition to her steroid treatment (prednisolone 30 mgs), she was also using some other drugs as follows: anti-diabetic (insulin 40 units/day), bronchodilator (combivent 3x2 mgs, seretid 3x1 mg) and anti-thyroid (propysil 1x1/2 tablet) and immune system blocker (imuran, 8 mgs). In the preoperative period, the case's diabetes was regulated and consultations were made with the departments of internal diseases, pulmonary diseases and dermatology. It was decided that cervical epidural anesthesia would be applied to the case.

Before the operation, the patient was pre-medicated with 5 mg [intramuscular (IM)] of midazolam,

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Peer review under responsibility of Turkiye Klinikleri Journal of Case Reports.

Received: 13 Jan 2024 ***Accepted:*** 03 Jun 2024 ***Available online:*** 07 Jun 2024

the vein was cannulated (plaster was not used to avoid lesions on the skin), monitoring of the case's electrocardiogram and saturation was performed and 80 mg of prednisolone [intravenous (IV)] was injected. Complying with the standard rules of asepsis and antisepsis an insertion was made between C7-TI with an 11 cm tuohy needle (as an 8 cm tuohy needle was not long enough to reach the area). An 18-Gauge catheter was placed in this area. Using a radiopaque substance, insertion of this catheter was viewed on the scopy in order to be sure about its location. A testing dose of 20 mg of lidocaine was given. The patient was then taken to the operation room. A 10 mL mixture of 3 mL of 60 mg (%2) lidocaine + 1 mL of 50 µgr fentanyl + 6 mL of physiologic saline solution was given through the epidural catheter following the monitoring, that is, 20 minutes after the testing dose. An additional 2 mg of midazolam (IV) was injected for sedation. Oxygen (2-4 L of per minute) was given with a mask intermittently during the operation. As the bilateral subtotal thyroidectomy operation lasted 35 minutes, an intermediary dose was applied in the 15th minute of the operation. During the whole operation, a total of 20 mL mixture of 120 mg (2%) lidocaine + 100 µgr fentanyl + physiological saline solution was given through the epidural catheter and a total of 10 mg of midazolam was injected /given (IM 5 mg before and IV 5 mg during the operation). The analgesia level was assessed by the pink prick test. The patient's hemodynamic and respiratory parameters were monitored using mean artery pressure (MAP), heart rate, artery oxygen saturation, and respiration per minute (RPM). These values were observed to proceed stably as shown in Table 1.

When preoperative, intraoperative and post operative values were compared, there were no statistically significant differences in saturation, RPM and pulse frequency. MAP, on the other hand, showed a statistically significant difference in the 10th minute in comparison with the beginning value ($p<0.05$). In the intraoperative and postoperative period such complications as ascent of block level, bradycardia, hypertension, respiratory depression, irritation, or urinary retention were not encountered in connection with the epidural injection. Nor was any bulla formation was detected. The epidural catheter was removed to after the operation. The patient's analgesia was maintained by the principal component analysis method (100 mg of meperidin/2 days) in the postoperative period and she was discharged from the hospital on the 5th postoperative day as she had no problems or complications.

DISCUSSION

PV is an autoimmune skin disease, and in patients with PV, mechanical pressure or minimal trauma applied to any part of the body leads to the formation of blisters and lacerations in the mucosa.[1] For this reason, the surgeon and anesthetist must act carefully during operations. When general anesthesia is applied in the operations of patients with PV, it has been shown with fiberoptic bronchoscope that more than one lesion occurs in the tracheal mucosa following intubation.[2] This situation, which may cause postoperative respiratory distress, requires the anesthetist to avoid intubation.[3] There are studies reporting that airway patency can be achieved by using laryngeal mask in such patients.[4] Considering that tracheal intubation may cause similar lesions in the trachea and LM in the larynx, these methods were not preferred in our case. It is a common practice to perform thyroidectomy operations under general anesthesia.

TABLE 1: Pre-per-postoperative hemodynamic and respiratory parameters of the patient.

	Preop. Beginning	Per-op. 5th minute	Per-op. 10th minute	Per-op. 15th minute	Per-op. 25th minute	Postop.
MAP mmHg	96	110	130	111	100	98
HR Pulse/min.	92	94	90	96	106	88
SaO_2	97	98	97	97	98	98
RPM	14	12	12	12	11	13

MAP: Mean artery pressure; HR: Heart rate; SaO_2: Artery oxygen saturation; RPM: Respiration per minute.

However, due to the location of the operation and the fact that it can be performed without the use of muscle relaxants; in our case, it was decided to administer anesthesia with the cervical epidural technique. There are few known studies in the literature regarding the use of cervical epidural catheters in surgeries of patients with PV. Khanna R., applied the epidural anesthesia method in thyroid surgery.[1] In 1998, Ahsan and Faridi performed subtotal thyroidectomy, and in 2001, Noyan et al., they applied continuous cervical epidural anesthesia in hand surgery, Tsui et al. used cervical epidural anesthesia in elbow surgery in 2004, under nerve stimulation guidance in shoulder prosthesis surgeries in 2007, and cervical epidural anesthesia in 2009.[2,4,5,6] In 2009, Jadon et al. placed a cervical epidural catheter at the C6 distance in radical mastectomy and upper extremity chronic regional pain syndrome.[7] In the literature, there are analgesia and anesthesia applications with epidural catheter in various operations and cancer surgery other than thyroidectomy.[8-10]

In our case, the epidural catheter was placed at the C7-T1 level and confirmed by fluoroscopy. Adequate anesthesia and analgesia were provided throughout the operation with medications administered through the cervical epidural catheter, supported by low-dose additional sedation. The desired patient comfort was achieved and hemodynamic findings remained stable. In our case, no complications or blister formation were encountered during catheter placement or thyroidectomy that would affect the course of the operation. This application requires experience and should be done by experienced people under appropriate conditions. Our study needs to be supported by more cases and studies.

It is a frequently used practice to perform thyroidectomy operations under general anesthesia. Placing a cervical epidural catheter under regional anesthesia should be considered as an alternative in operations of patients with PV and similar diseases where endotracheal intubation is expected to cause damage to the tracheal mucosa.

Source of Finance

During this study, no financial or spiritual support was received neither from any pharmaceutical company that has a direct connection with the research subject, nor from a company that provides or produces medical instruments and materials which may negatively affect the evaluation process of this study.

Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

All authors contributed equally while this study preparing.

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