

Prevention of adductor muscle contraction during turbt



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Effectiveness of Spinal anesthesia combined with Obturator nerve block in the prevention of adductor muscle contraction during Trans-Urethral Resection of Bladder tumor (TURBt) in Razy University Hospital in Rasht (2012-2013)

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Introduction (final)

Bladder cancer is the fifth most common human malignancy and after prostate cancer. It is the second most frequent genitourinary tumor. (1)

Spinal anesthesia is the technique of choice for Transurethral resection of bladder tumor (TURBT), since it enables early recognition of symptoms

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caused by over hydration, transurethral resection of prostate (TURP) syndrome, and bladder perforation. (2) Since the patients are diagnosed with bladder cancer, aged 65 and over, due to long-term smoking, these patients have underlying pulmonary disease, coronary artery disease and diabetes (3, 4), so choosing General anesthesia for preventing complications such as Obturator nerve stimulation and bladder perforation is a significant risk factor for this mentioned group. Although spinal anesthesia provides optimal anesthesia, pelvic floor relaxation and perineal laxity, Jerking of Obturator nerve motor would not be prevented by spinal anesthesia (5). So for the urologic surgeries, Obturator nerve block (ONB) for suppressing the Obturator reflex during transurethral resection of lateral bladder wall has been prevalently used (6). In the case of direct stimulation of resectors, there would be a sudden, tempestuous adductor muscle contraction. This is potentially risky, which can cause an increase in the risk of serious complications for example Bladder wall perforation, incomplete tumor resection, vessel laceration, and Obturator hematomas. (7, 8, 9) Although this procedure is not morbidity-free, the reports of potential complications are few. (10, 11, 12) While hemorrhage is common, bladder perforation is perhaps one of the scariest complications with an incidence of 0.9% to 5%. (12, 13) The most important symptoms are disability in bladder distension, abdominal distension and tachycardia. (14)

Significant bladder perforation during TURBT for various reasons should be concerned. First, if prior to completion of resection, the perforation would be discovered, retained cancer in the bladder would be the consequence of such imposed termination of surgery. Second, cancer cells can distribute by

means of the opening in the detrusor, and the risk of pelvic or remote disease recurrence would be increased. And the last one, immediate intravesical chemotherapy after TURBT for lessening the risk of recurrence is recommended by the updated European Association of Urology and American Urological Association guidelines. (15) Since Obturator nerve (ON) stimulation during resection of tumors is located in the inferior portion of the bladder and lateral wall of the urinary bladder would increase the risk of bladder rupture. (14)

There are different strategic options for avoiding these complications during transurethral resection of bladder tumors (TURBT) such as adopting general anesthesia with muscle relaxants, lessening the intensity of the current of the resectoscope, using laser resistors, Obturator nerve blockade (ONB), etc. Selective ONB along with regional anesthesia may be efficient to avert adductor spasm (16, 17)

As few studies adopted Obturator nerve block in Preventing Adductor muscle Contraction, which confirmed this method was effective. (18, 19) This double-blind, randomized study was undertaken to investigate further and provide more accurate results about Spinal anesthesia combined with Obturator nerve block in Preventing Adductor muscle Contraction and bladder perforation during TUR-BT.

Material and method:

After the approval of the Guilan university of medical science ethics committees and obtaining written informed consent, 30 patients aged

between 60-85 years belonging to ASA physical status III –IV, having
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inferolateral tumors of the bladder who were scheduled for transurethral resection of bladder tumor were divided into spinal anesthesia (SP) and spinal anesthesia combined with Obturator nerve block (SOB).

The exclusion criteria included, patient refusal, advanced cardiac disease, allergy to local anesthetics, pregnancy, patients on anticoagulants or anti-platelet drugs, neurological diseases affecting the central nervous system. In the first group of patients, Spinal anesthesia was performed at L4-L5 interspace with the patients in the sitting position using a 25-gauge needle and 2.5cc of 0.5% Marcaine was injected then the patients were placed in the Trendelenburg position at an angle of 15° for 5 or 10 minutes. After being sure about the right amount of anesthesia, the patients were placed in a lithotomy position and Transurethral resection of the bladder tumor was carried out. In the second group after placing the patients under the same method of spinal anesthesia, Obturator nerve block was performed using the classical approach in the supine position by an experienced anesthesiologist. For Obturator nerve block, the initial insertion point was determined 1-2 cm caudal and 1-2 cm lateral to the pubic tubercle. A 22-gauge 10-cm nerve stimulator needle was inserted perpendicular from the puncture site in a slightly medial direction until the tip of the needle made contact with the inferior border of the superior pubic ramus and then the needle was redirected further lateral and caudal to be put in the Obturator-channel. The obturator nerve is located 2 to 3 cm of the initial point of contact with the pubic ramus. Nerve stimulation delivered a constant current with a frequency of 1 Hz and a current of 1mA which is maintained throughout the stimulation. After Twitching in the tight adductor muscles, amperage was

reduced and the stimulation needle advanced towards the nerve until the first contraction in the adductor muscles with electrical stimulation of (0.3-0.4 mA) occurred. Then after aspiration (to confirm the needle is not in the vessel) 15cc 1% Lidocaine was injected and the patients were placed in the lithotomy position and Transurethral resection of the bladder tumor started. We monitored NIBP, pulse, SpO₂, ECG intraoperatively and the patient was observed specially for adductor spasm, bladder perforation during TURBT in both groups.

Findings:

The subjects of the two groups were comparable with respect to age, sex ratio, location of tumor, ASA class. Since the patients were diagnosed with bladder cancer, aged 65 and over, due to long-term smoking, suffer underlying pulmonary diseases, coronary artery diseases and diabetes, so for preventing complications such as Obturator nerve stimulation and bladder perforation, General anesthesia could not be used. Fisher's exact test demonstrated that, there is no significant correlation between sex, Patient Age Group, Location of bladder tumor, ASA class in the two mentioned groups of patients suffering from bladder tumor. (table1). However jerking and surgeon's satisfaction with patients' status in two groups were statistically significant.(P= 0.006) (table1). The obturator nerve block was done in two patients of the spinal anesthesia (SA) group due to severe adductor muscle jerking and severe underlying diseases (asthma or a history of cardiovascular disease). Due to severe adductor muscle jerking and not having underlying diseases, general anesthesia was done in two other patients. In three patients in the spinal anesthesia group (SA) leg

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jerking was slight and during cauterization the problem was resolved by controlling the leg movement. Also, there was no significant correlation between using general anesthesia due to ineffectiveness of regional anesthesia in two groups ($P= 0.1$). (Table 1)

Discussion:

The endpoints of the current study were to investigate the effectiveness of Obturator nerve block in preventing the Adductor spasms and also to investigate surgeon satisfaction. Spinal anesthesia combined with Obturator nerve block in the prevention of adductor contraction and its related complications during TUR-BT is effective. Spinal anesthesia (SA) combined with Obturator nerve block (SOB) would increase surgeon satisfaction during TURBT surgical procedures. In a study done by Patel et al., he reported that Adductor spasm caused bladder perforation in 2 TUR-BT patients, which spinal anesthesia was applied and one patient was in the need of emergency laparotomy. (19) Interestingly, in our study there was no bladder perforation, which is considered as a result of being very precise and careful about the patients' Obturator spasm and in the case of observing any sign of spasms the patient's position was changed to Supine and after blocking the Obturator nerve the patient would be placed to the previous Lithotomy position.

The obturator nerve block can be performed using various methods and techniques. And in our study Obturator nerve block was carried out using the technique described by Labat because the proximal nerve would be blocked and blocking was more effective compared to the inguinal nerve blocking. It

should be mentioned that in our study there was no bladder perforation, which can be considered as a result of cautious and meticulous monitoring during the surgery. In a study which TURBT was performed on 50 patients, the patients were divided into two groups, The first group of 25 patients underwent spinal anesthesia, and the second group of 25 patients underwent spinal anesthesia (SA) combined with Obturator nerve block (SOB). In the (SA) group, almost all the patients of group (SA) suffered contraction of the adductor muscles and disturbed the surgeon. But in the spinal anesthesia (SA) combined with Obturator nerve block (SOB) group contraction of the adductor muscles did not occur in most patients. Bladder perforation occurred in two patients in the spinal anesthesia (SA) which lead to Emergency laparoscopic surgery in one patient. The results of the study demonstrated that Obturator nerve blockage is an effective way to prevent adductor muscle spasms and its related complications in patients who are undergoing TUR-BT which is similar to our study.(19) In another study which bladder tumor resection was done on 60 patients aged 18_80 years old with ASA I - III , 30 patients were randomized into the spinal anesthesia group (SA) and 30 patients were randomized into the spinal anesthesia (SA) combined with Obturator nerve block (SOB) group. The regional anesthesia was done with 5cc of Levobupivacaine and 5 cc of 0. 5% NaCl When the level of sensory block reached T10, adductor muscle spasms were recorded during the surgery. The frequency of adductor muscle spasms and the surgeon satisfactory were assessed. Surgeon satisfaction in the spinal anesthesia (SA) combined with Obturator nerve block (SOB) group compared to the spinal anesthesia (SA) was significantly higher (P <0. 001). The frequency of adductor muscle spasms in the spinal group (83%) compared to <https://assignbuster.com/prevention-of-adductor-muscle-contraction-during-turbt/>

in the spinal anesthesia (SA) combined with Obturator nerve block (SOB) group (6.7%) was higher ($P < 0.001$). And its result is comparable to our study. (18).

One of the limitations of our study was a relatively small sample size, caution needs to be applied concerning the generalizability of the research findings and further comprehensive work with larger sample size is suggested.

The conclusion of this study showed that Obturator nerve blockage is effective in preventing adductor muscle contractions and its related complications during TURBT surgery and also using spinal anesthesia (SA) combined with Obturator nerve block (SOB) during TURBT surgical procedures would increase the surgeon satisfaction.

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 (Number) % of
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 value anesthesia and
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 (13)

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1)

13.

3% 6. 7%

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P= 0%(0) 46. Moveme

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	13. 3%(2)	General anesthes ia
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100
% (1
5)

86.	7%(13)
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